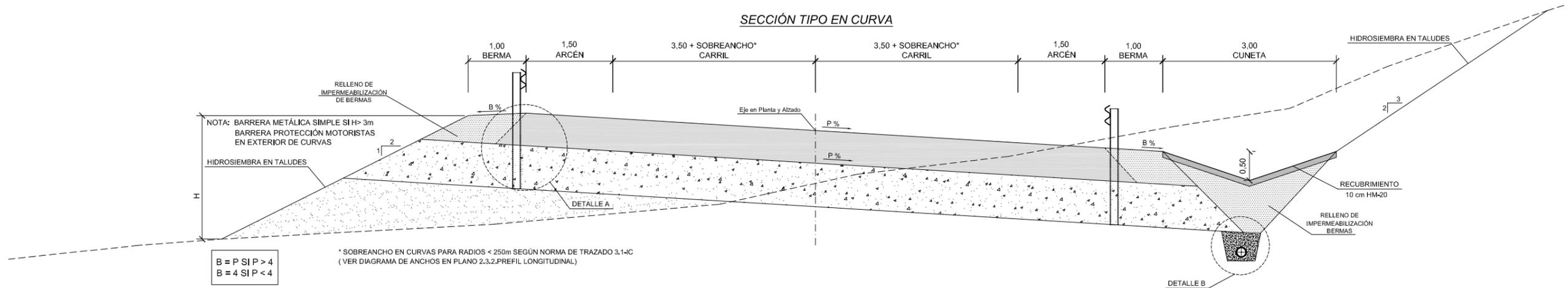
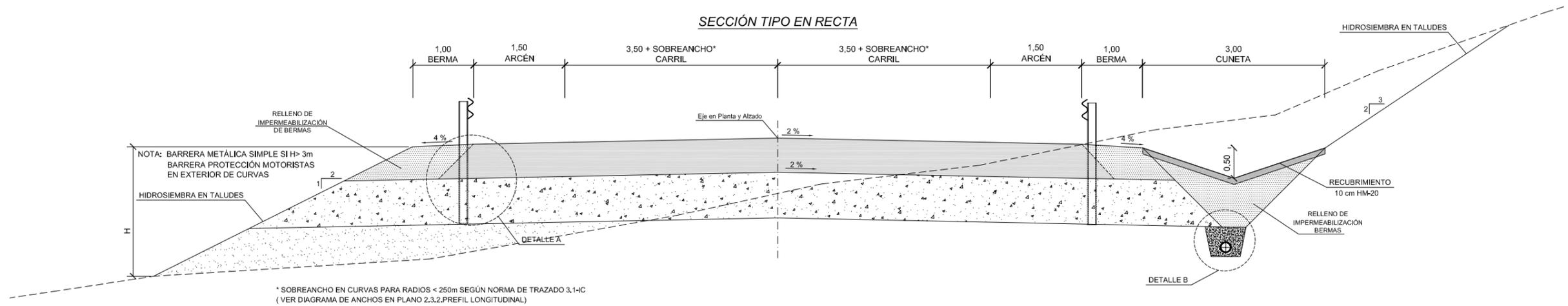


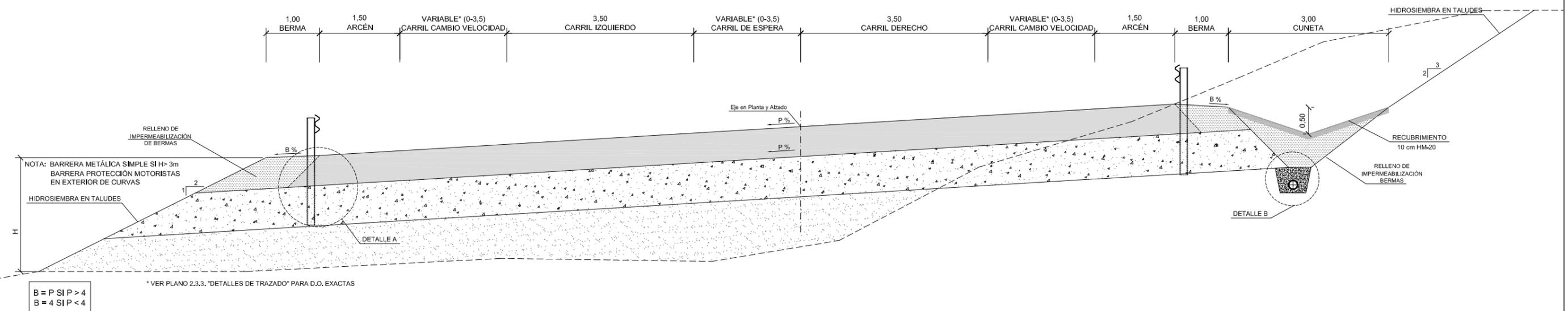
SECCIÓN TIPO EN CURVA



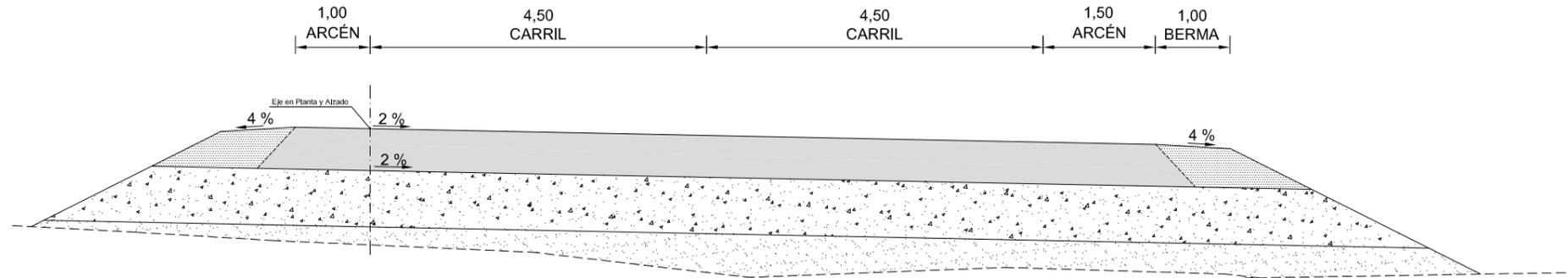
SECCIÓN TIPO EN RECTA



SECCIÓN EN CRUCE CON LE-441  
D.O. 1+695 a 2+995

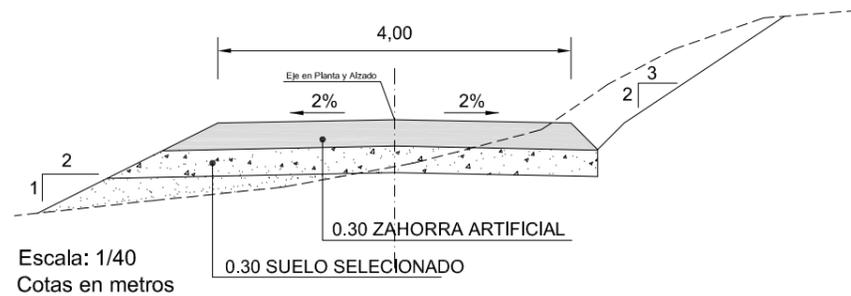


# SECCIÓN TIPO GLORIETA ACCESO A AEROPUERTO



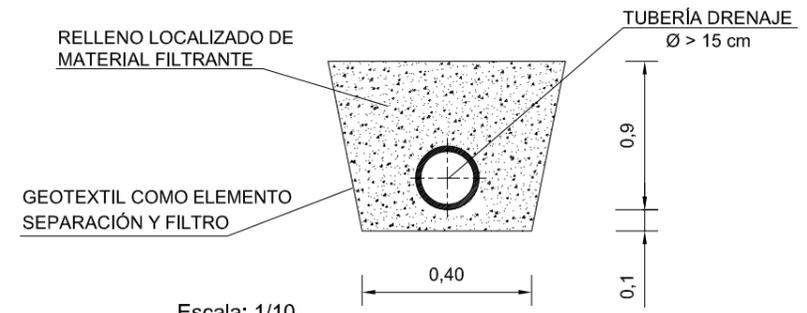
Escala: 1/40  
Cotas en metros

## SECCIÓN TIPO DE CAMINOS



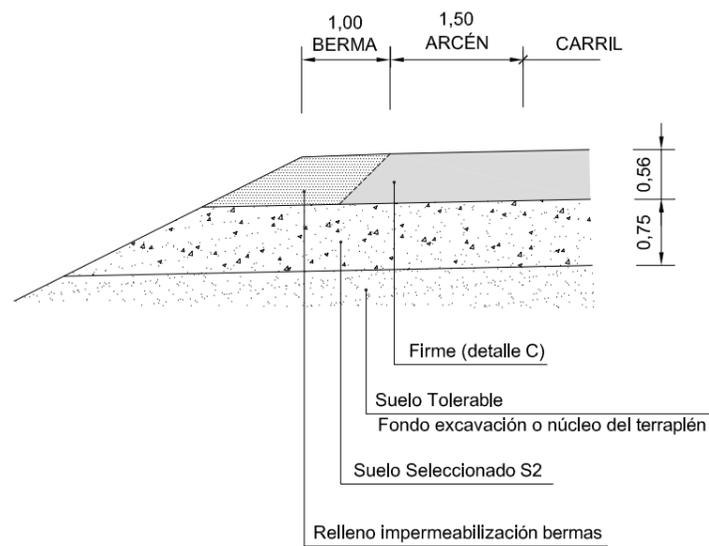
Escala: 1/40  
Cotas en metros

## DETALLE B



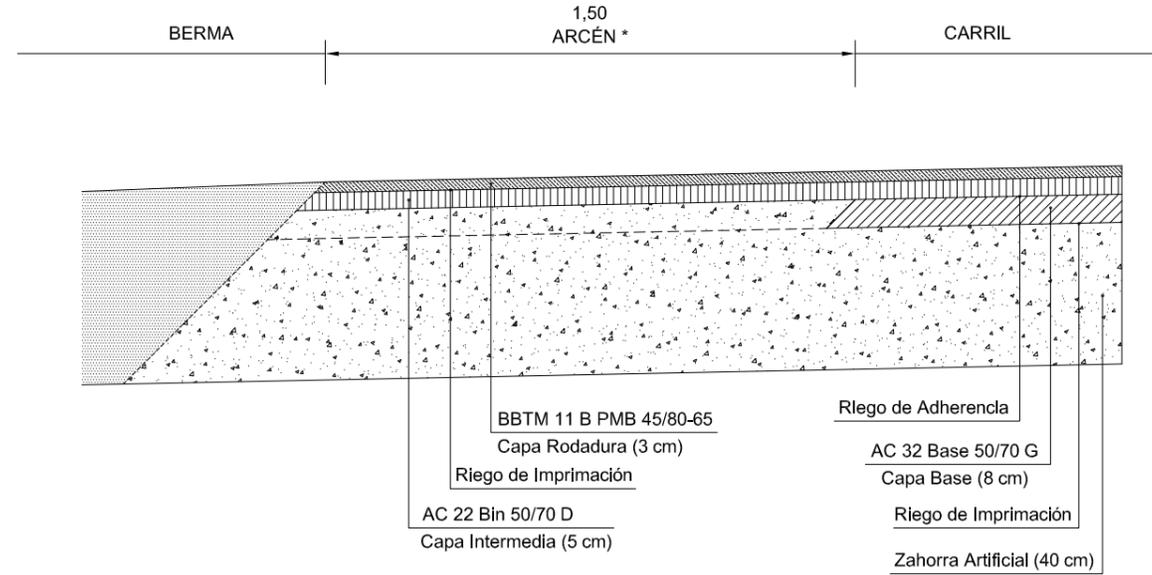
Escala: 1/10  
Cotas en metros

## DETALLE A. EXPLANADA



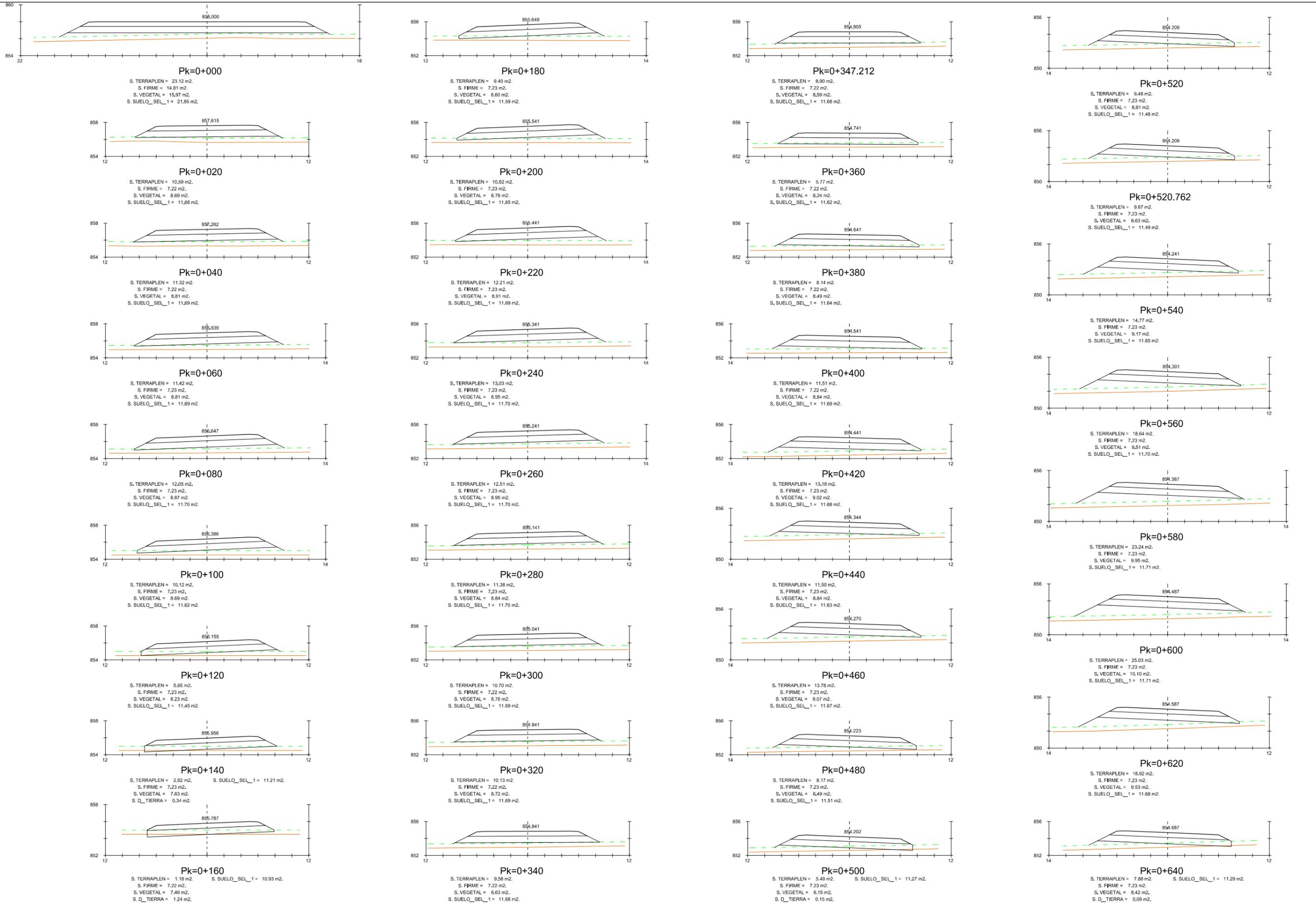
Escala: 1/40  
Cotas en metros

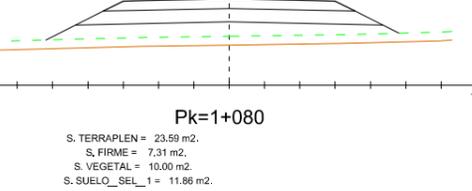
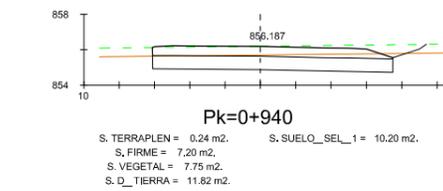
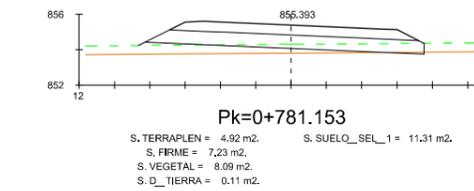
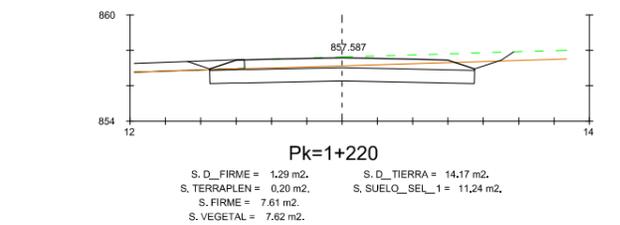
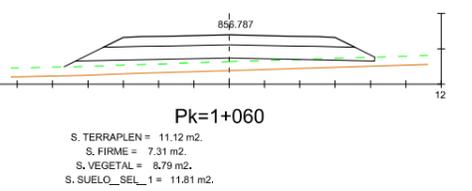
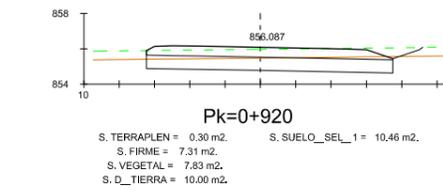
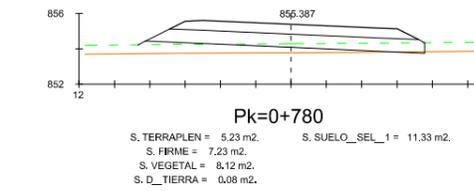
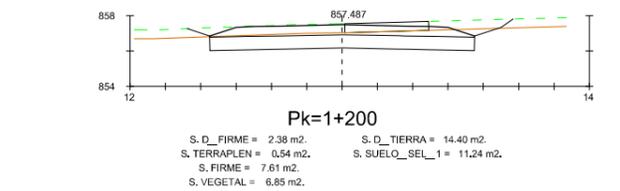
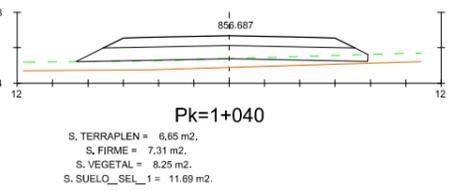
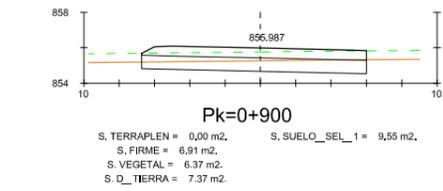
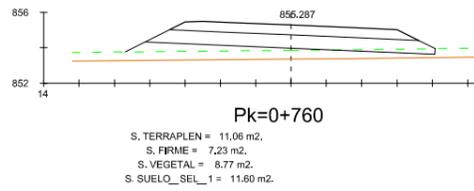
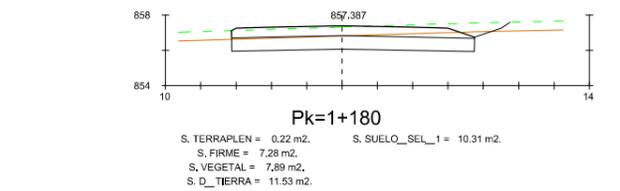
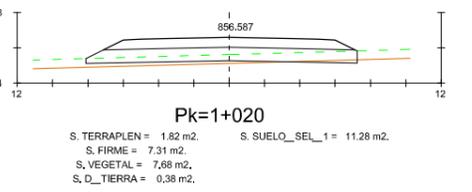
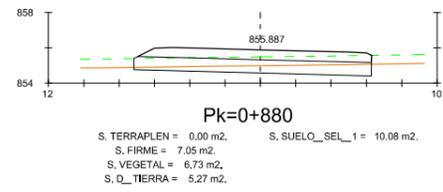
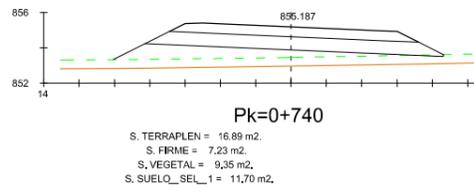
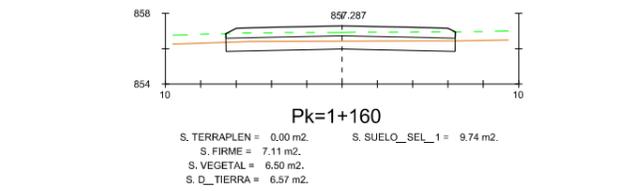
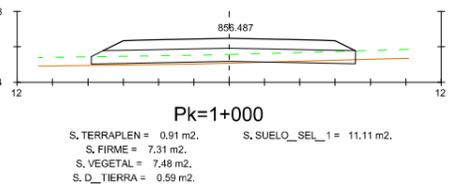
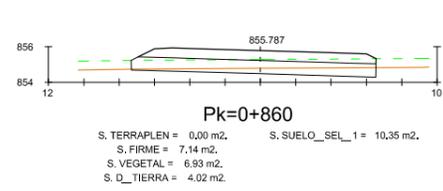
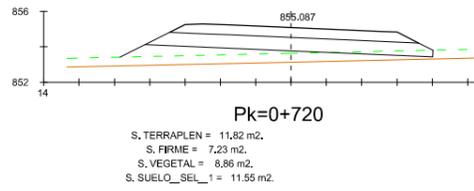
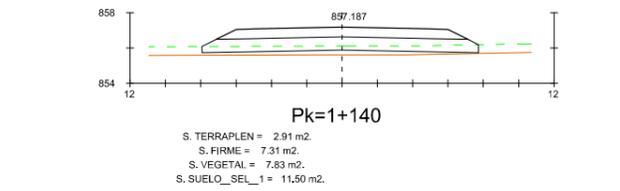
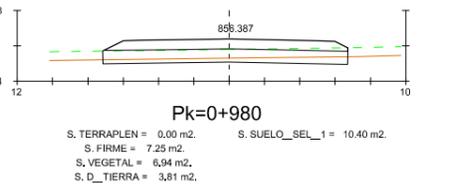
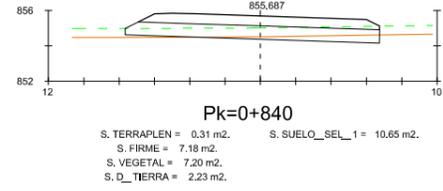
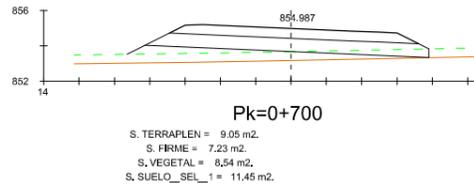
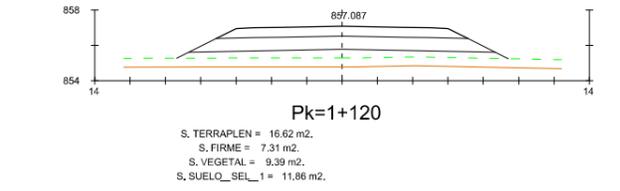
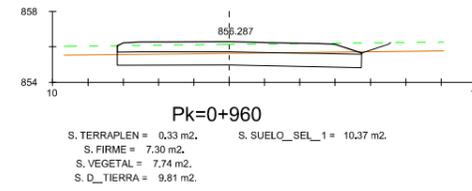
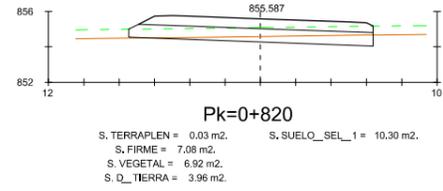
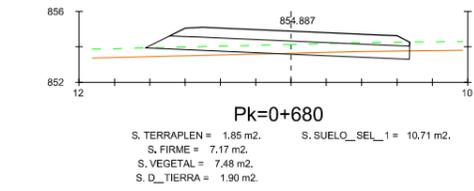
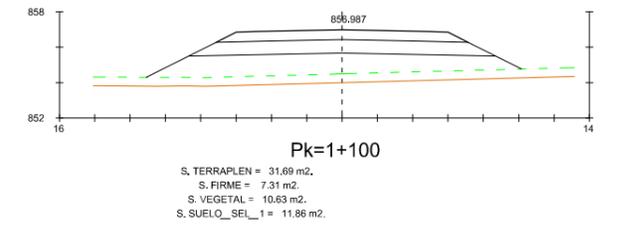
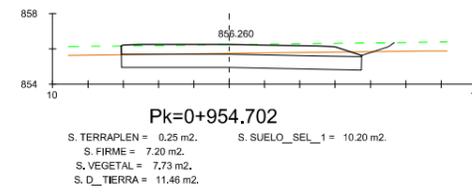
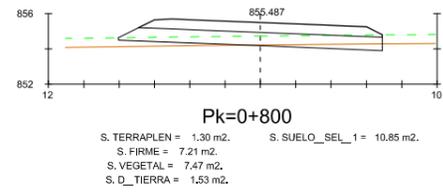
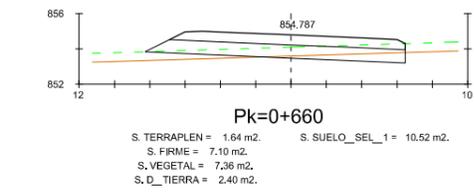
## DETALLE C. FIRME



\* En arcenes > 1,25 m se prolongan las capas de rodadura e intermedia  
En arcenes < 1,25 m se prolongan todas las capas bituminosas

Escala: 1/10  
Cotas en metros





Escuelas de Ingenierías I.I.  
 Industrial, Informática y Aeroespacial



Grado en Ingeniería Aeroespacial  
 Trabajo de Fin de Grado

Director del T.F.G.

Dr. Jesús Cepeda Riaño  
 Dept. Física Aplicada

EL AUTOR DEL PROYECTO

D. Jesús Muñoz Vera  
 Ingeniero Técnico Aeronáutico

TÍTULO DEL TRABAJO:

PROYECTO DE TRAZADO:  
 Acceso al Aeropuerto de León desde la futura Ronda Noroeste

ESCALAS

DIN-A1: 1/100  
 DIN-A3: 1/200

GRÁFICA: 0 2 4 8 m

DESIGNACIÓN DEL PLANO:

PERFILES TRANSVERSALES  
 Eje 1: Eje Aeropuerto (0+660 - 1+220)

DOCUMENTO

2

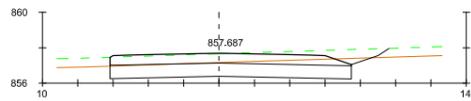
PLANO

2.5

FECHA

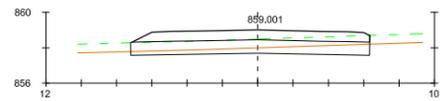
ENERO-2015

HOJA 2 DE 18



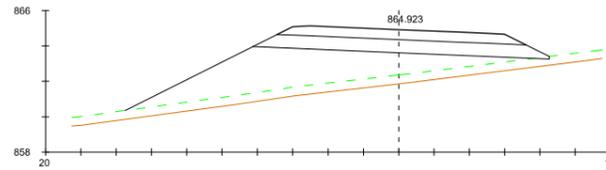
**Pk=1+240**

S. TERRAPLEN = 0,21 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,25 m<sup>2</sup>.  
 S. FIRME = 7,24 m<sup>2</sup>.  
 S. VEGETAL = 7,90 m<sup>2</sup>.  
 S. D\_TIERRA = 12,09 m<sup>2</sup>.



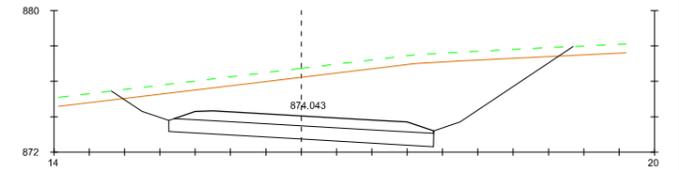
**Pk=1+380**

S. TERRAPLEN = 0,00 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,14 m<sup>2</sup>.  
 S. FIRME = 7,15 m<sup>2</sup>.  
 S. VEGETAL = 6,77 m<sup>2</sup>.  
 S. D\_TIERRA = 4,88 m<sup>2</sup>.



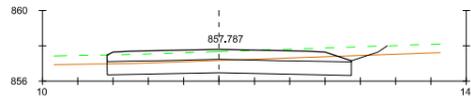
**Pk=1+500**

S. TERRAPLEN = 42,10 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,68 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 12,01 m<sup>2</sup>.



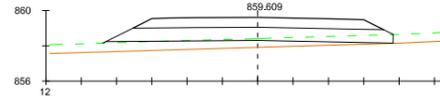
**Pk=1+620**

S. TERRAPLEN = 0,36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 13,07 m<sup>2</sup>.  
 S. D\_TIERRA = 69,86 m<sup>2</sup>.



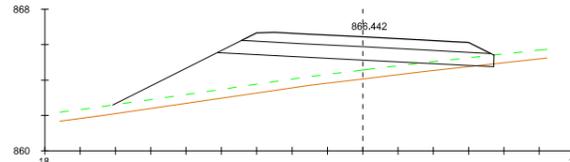
**Pk=1+260**

S. TERRAPLEN = 0,22 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,37 m<sup>2</sup>.  
 S. FIRME = 7,31 m<sup>2</sup>.  
 S. VEGETAL = 7,93 m<sup>2</sup>.  
 S. D\_TIERRA = 10,95 m<sup>2</sup>.



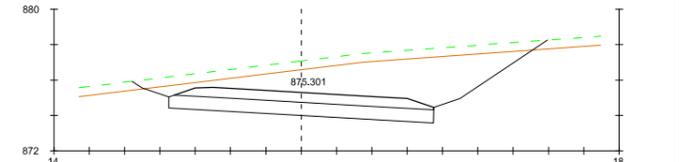
**Pk=1+400**

S. TERRAPLEN = 5,83 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,55 m<sup>2</sup>.  
 S. FIRME = 7,28 m<sup>2</sup>.  
 S. VEGETAL = 8,22 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,55 m<sup>2</sup>.



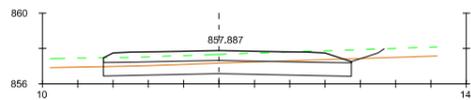
**Pk=1+520**

S. TERRAPLEN = 27,55 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,21 m<sup>2</sup>.  
 S. FIRME = 7,22 m<sup>2</sup>.  
 S. VEGETAL = 10,79 m<sup>2</sup>.  
 S. D\_TIERRA = 0,09 m<sup>2</sup>.



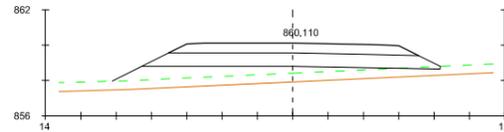
**Pk=1+640**

S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 11,76 m<sup>2</sup>.  
 S. D\_TIERRA = 47,84 m<sup>2</sup>.



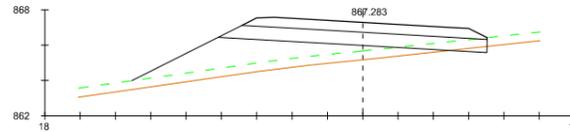
**Pk=1+280**

S. TERRAPLEN = 0,27 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,53 m<sup>2</sup>.  
 S. FIRME = 7,38 m<sup>2</sup>.  
 S. VEGETAL = 7,95 m<sup>2</sup>.  
 S. D\_TIERRA = 9,53 m<sup>2</sup>.



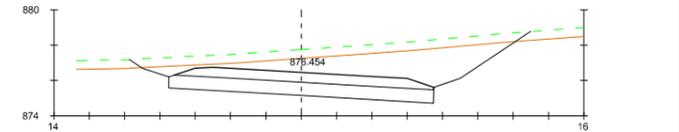
**Pk=1+413.623**

S. TERRAPLEN = 15,89 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,74 m<sup>2</sup>.  
 S. FIRME = 7,26 m<sup>2</sup>.  
 S. VEGETAL = 9,29 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,74 m<sup>2</sup>.



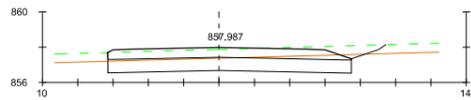
**Pk=1+530.519**

S. TERRAPLEN = 20,99 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,91 m<sup>2</sup>.  
 S. FIRME = 7,21 m<sup>2</sup>.  
 S. VEGETAL = 10,07 m<sup>2</sup>.  
 S. D\_TIERRA = 0,37 m<sup>2</sup>.



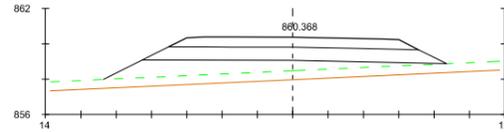
**Pk=1+660**

S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 11,36 m<sup>2</sup>.  
 S. D\_TIERRA = 38,05 m<sup>2</sup>.



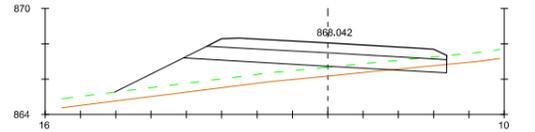
**Pk=1+300**

S. TERRAPLEN = 0,24 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,34 m<sup>2</sup>.  
 S. FIRME = 7,30 m<sup>2</sup>.  
 S. VEGETAL = 7,87 m<sup>2</sup>.  
 S. D\_TIERRA = 10,88 m<sup>2</sup>.



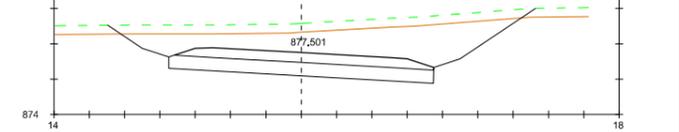
**Pk=1+420**

S. TERRAPLEN = 20,18 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,76 m<sup>2</sup>.  
 S. FIRME = 7,26 m<sup>2</sup>.  
 S. VEGETAL = 9,72 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,76 m<sup>2</sup>.



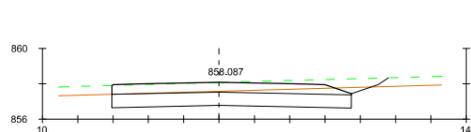
**Pk=1+540**

S. TERRAPLEN = 15,79 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,68 m<sup>2</sup>.  
 S. FIRME = 7,16 m<sup>2</sup>.  
 S. VEGETAL = 9,39 m<sup>2</sup>.  
 S. D\_TIERRA = 0,75 m<sup>2</sup>.



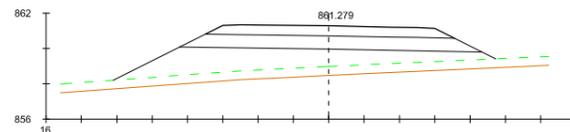
**Pk=1+680**

S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 12,11 m<sup>2</sup>.  
 S. D\_TIERRA = 46,92 m<sup>2</sup>.



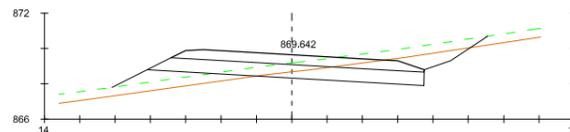
**Pk=1+320**

S. TERRAPLEN = 0,21 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,18 m<sup>2</sup>.  
 S. FIRME = 7,19 m<sup>2</sup>.  
 S. VEGETAL = 7,84 m<sup>2</sup>.  
 S. D\_TIERRA = 12,26 m<sup>2</sup>.



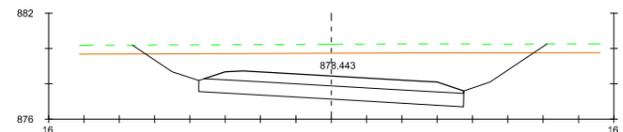
**Pk=1+440**

S. TERRAPLEN = 30,84 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,72 m<sup>2</sup>.  
 S. FIRME = 7,24 m<sup>2</sup>.  
 S. VEGETAL = 10,83 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,72 m<sup>2</sup>.



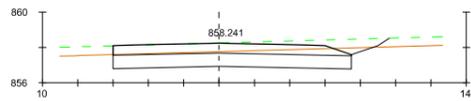
**Pk=1+560**

S. TERRAPLEN = 5,74 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,25 m<sup>2</sup>.  
 S. FIRME = 7,39 m<sup>2</sup>.  
 S. VEGETAL = 10,63 m<sup>2</sup>.  
 S. D\_TIERRA = 9,54 m<sup>2</sup>.



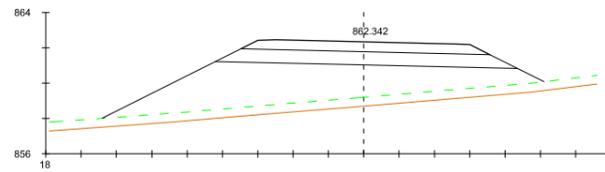
**Pk=1+700**

S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 11,74 m<sup>2</sup>.  
 S. D\_TIERRA = 46,51 m<sup>2</sup>.



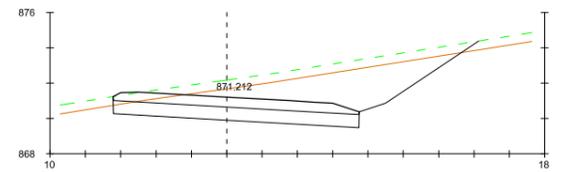
**Pk=1+340**

S. TERRAPLEN = 0,20 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,12 m<sup>2</sup>.  
 S. FIRME = 7,16 m<sup>2</sup>.  
 S. VEGETAL = 7,83 m<sup>2</sup>.  
 S. D\_TIERRA = 12,68 m<sup>2</sup>.



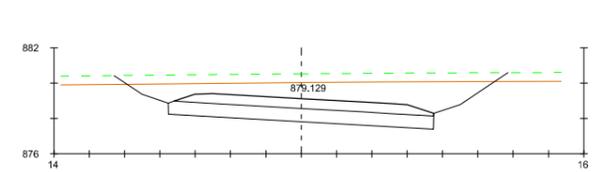
**Pk=1+460**

S. TERRAPLEN = 52,88 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,69 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 12,50 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,69 m<sup>2</sup>.



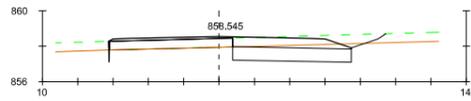
**Pk=1+580**

S. TERRAPLEN = 0,25 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,44 m<sup>2</sup>.  
 S. FIRME = 7,35 m<sup>2</sup>.  
 S. VEGETAL = 10,35 m<sup>2</sup>.  
 S. D\_TIERRA = 34,57 m<sup>2</sup>.



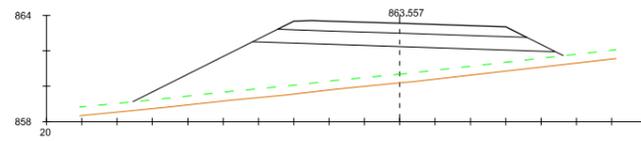
**Pk=1+716.210**

S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,24 m<sup>2</sup>.  
 S. FIRME = 7,49 m<sup>2</sup>.  
 S. VEGETAL = 11,16 m<sup>2</sup>.  
 S. D\_TIERRA = 38,21 m<sup>2</sup>.



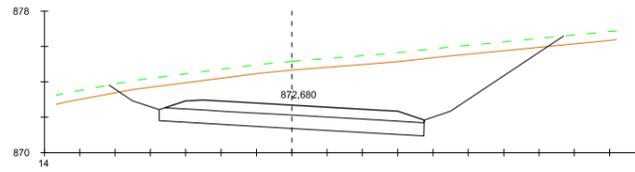
**Pk=1+360**

S. D\_TIERRA = 6,17 m<sup>2</sup>. S. SUELO\_SEL\_1 = 5,06 m<sup>2</sup>.  
 S. TERRAPLEN = 0,24 m<sup>2</sup>.  
 S. FIRME = 4,19 m<sup>2</sup>.  
 S. VEGETAL = 4,35 m<sup>2</sup>.



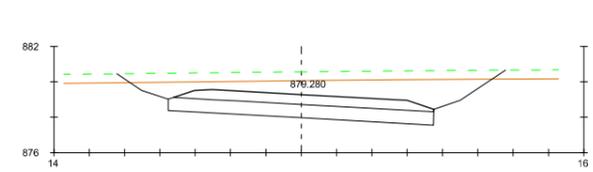
**Pk=1+480**

S. TERRAPLEN = 47,21 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 12,18 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



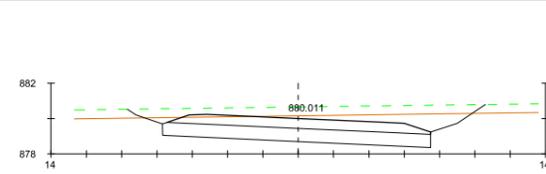
**Pk=1+600**

S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,22 m<sup>2</sup>.  
 S. FIRME = 7,47 m<sup>2</sup>.  
 S. VEGETAL = 12,87 m<sup>2</sup>.  
 S. D\_TIERRA = 63,81 m<sup>2</sup>.

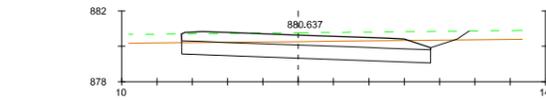


**Pk=1+720**

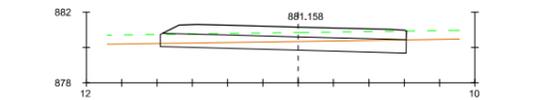
S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,25 m<sup>2</sup>.  
 S. FIRME = 7,50 m<sup>2</sup>.  
 S. VEGETAL = 11,01 m<sup>2</sup>.  
 S. D\_TIERRA = 35,95 m<sup>2</sup>.



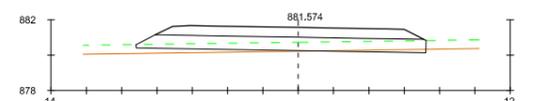
**Pk=1+740**  
 S. TERRAPLEN = 0,40 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11,37 m<sup>2</sup>.  
 S. FIRME = 7,59 m<sup>2</sup>.  
 S. VEGETAL = 10,13 m<sup>2</sup>.  
 S. D\_TIERRA = 23,65 m<sup>2</sup>.



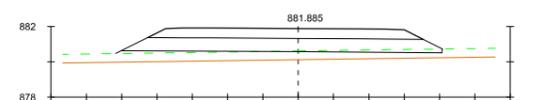
**Pk=1+760**  
 S. TERRAPLEN = 0,19 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,57 m<sup>2</sup>.  
 S. FIRME = 7,49 m<sup>2</sup>.  
 S. VEGETAL = 8,14 m<sup>2</sup>.  
 S. D\_TIERRA = 13,84 m<sup>2</sup>.



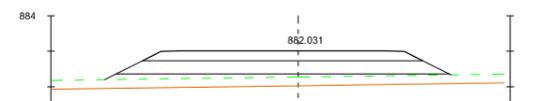
**Pk=1+780**  
 S. TERRAPLEN = 0,00 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10,44 m<sup>2</sup>.  
 S. FIRME = 7,39 m<sup>2</sup>.  
 S. VEGETAL = 6,97 m<sup>2</sup>.  
 S. D\_TIERRA = 6,42 m<sup>2</sup>.



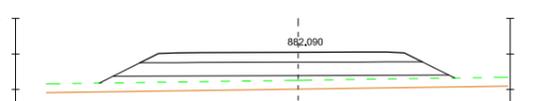
**Pk=1+800**  
 S. TERRAPLEN = 1,62 m<sup>2</sup>. S. SUELO\_SEL\_1 = 12,00 m<sup>2</sup>.  
 S. FIRME = 7,85 m<sup>2</sup>.  
 S. VEGETAL = 8,21 m<sup>2</sup>.  
 S. D\_TIERRA = 0,57 m<sup>2</sup>.



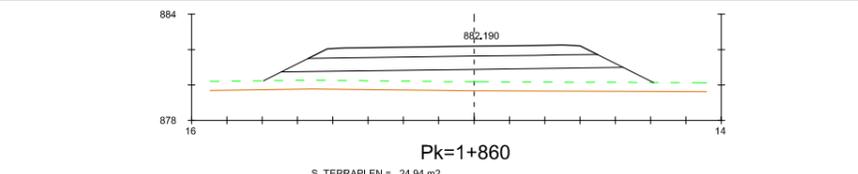
**Pk=1+820**  
 S. TERRAPLEN = 8,80 m<sup>2</sup>.  
 S. FIRME = 8,07 m<sup>2</sup>.  
 S. VEGETAL = 9,25 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 12,77 m<sup>2</sup>.



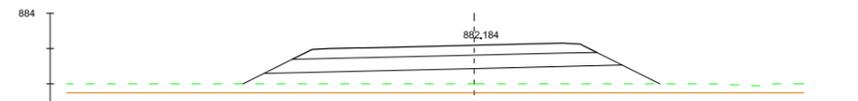
**Pk=1+833,106**  
 S. TERRAPLEN = 13,42 m<sup>2</sup>.  
 S. FIRME = 8,21 m<sup>2</sup>.  
 S. VEGETAL = 9,81 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 13,02 m<sup>2</sup>.



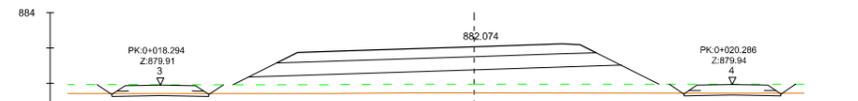
**Pk=1+840**  
 S. TERRAPLEN = 15,57 m<sup>2</sup>.  
 S. FIRME = 8,29 m<sup>2</sup>.  
 S. VEGETAL = 10,06 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 13,12 m<sup>2</sup>.



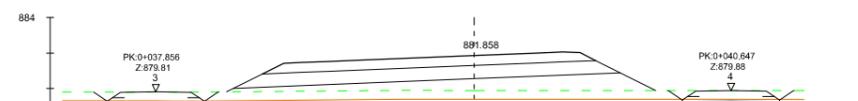
**Pk=1+860**  
 S. TERRAPLEN = 24,94 m<sup>2</sup>.  
 S. FIRME = 8,51 m<sup>2</sup>.  
 S. VEGETAL = 11,05 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 13,41 m<sup>2</sup>.



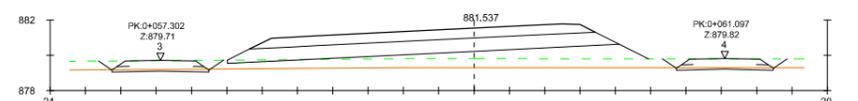
**Pk=1+880**  
 S. TERRAPLEN = 30,21 m<sup>2</sup>.  
 S. FIRME = 9,00 m<sup>2</sup>.  
 S. VEGETAL = 11,80 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 14,07 m<sup>2</sup>.



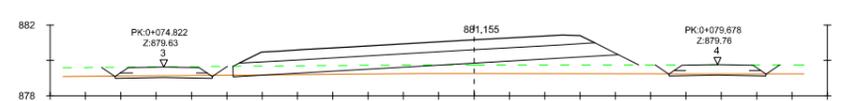
**Pk=1+900**  
 S. TERRAPLEN = 29,20 m<sup>2</sup>.  
 S. FIRME = 9,47 m<sup>2</sup>.  
 S. VEGETAL = 12,07 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 14,71 m<sup>2</sup>.



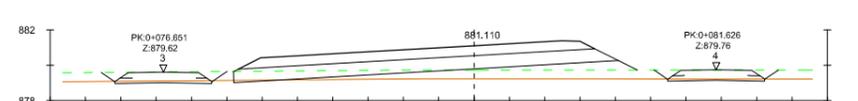
**Pk=1+920**  
 S. TERRAPLEN = 25,76 m<sup>2</sup>.  
 S. FIRME = 9,91 m<sup>2</sup>.  
 S. VEGETAL = 12,15 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 15,30 m<sup>2</sup>.



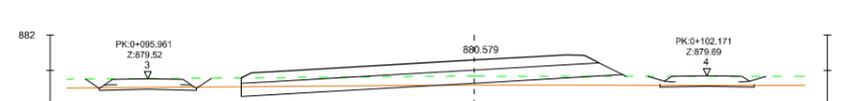
**Pk=1+940**  
 S. TERRAPLEN = 19,14 m<sup>2</sup>.  
 S. FIRME = 10,29 m<sup>2</sup>.  
 S. VEGETAL = 11,92 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 15,78 m<sup>2</sup>.



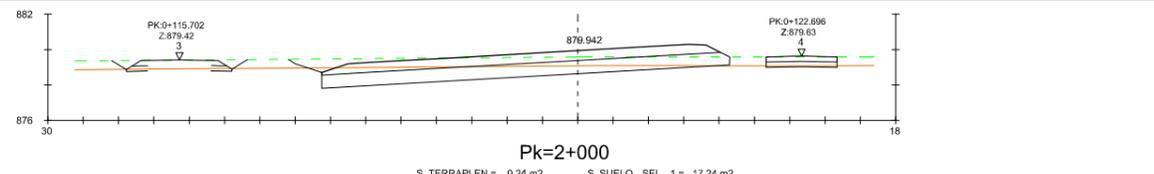
**Pk=1+958,106**  
 S. TERRAPLEN = 11,17 m<sup>2</sup>. S. SUELO\_SEL\_1 = 15,83 m<sup>2</sup>.  
 S. FIRME = 10,59 m<sup>2</sup>.  
 S. VEGETAL = 11,49 m<sup>2</sup>.  
 S. D\_TIERRA = 0,09 m<sup>2</sup>.



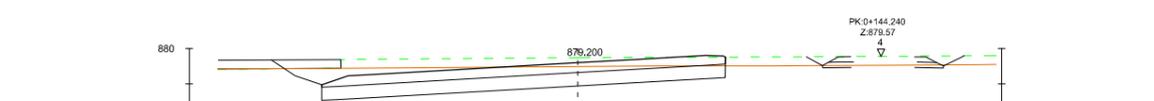
**Pk=1+960**  
 S. TERRAPLEN = 10,36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 15,82 m<sup>2</sup>.  
 S. FIRME = 10,62 m<sup>2</sup>.  
 S. VEGETAL = 11,44 m<sup>2</sup>.  
 S. D\_TIERRA = 0,17 m<sup>2</sup>.



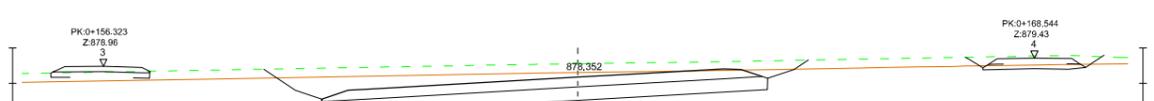
**Pk=1+980**  
 S. TERRAPLEN = 3,13 m<sup>2</sup>. S. SUELO\_SEL\_1 = 15,70 m<sup>2</sup>.  
 S. FIRME = 10,95 m<sup>2</sup>.  
 S. VEGETAL = 10,90 m<sup>2</sup>.  
 S. D\_TIERRA = 3,12 m<sup>2</sup>.



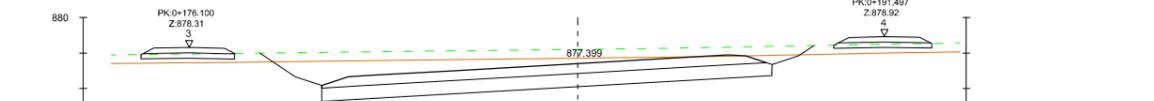
**Pk=2+000**  
 S. TERRAPLEN = 0,24 m<sup>2</sup>. S. SUELO\_SEL\_1 = 17,24 m<sup>2</sup>.  
 S. FIRME = 12,01 m<sup>2</sup>.  
 S. VEGETAL = 12,49 m<sup>2</sup>.  
 S. D\_TIERRA = 13,63 m<sup>2</sup>.



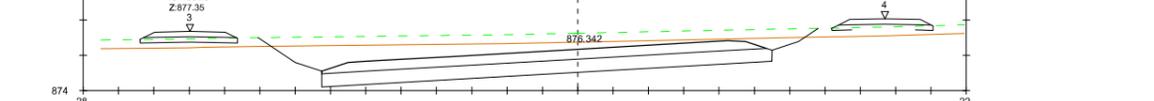
**Pk=2+020**  
 S. D\_FIRME = 1,78 m<sup>2</sup>. S. D\_TIERRA = 29,49 m<sup>2</sup>.  
 S. TERRAPLEN = 0,00 m<sup>2</sup>. S. SUELO\_SEL\_1 = 17,14 m<sup>2</sup>.  
 S. FIRME = 12,43 m<sup>2</sup>.  
 S. VEGETAL = 10,89 m<sup>2</sup>.



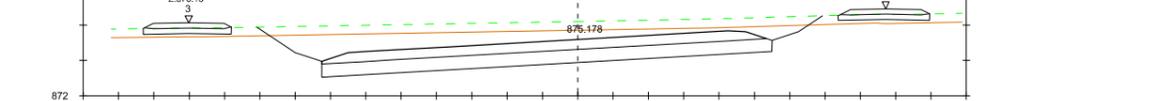
**Pk=2+040**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 18,91 m<sup>2</sup>.  
 S. FIRME = 13,22 m<sup>2</sup>.  
 S. VEGETAL = 15,42 m<sup>2</sup>.  
 S. D\_TIERRA = 43,58 m<sup>2</sup>.



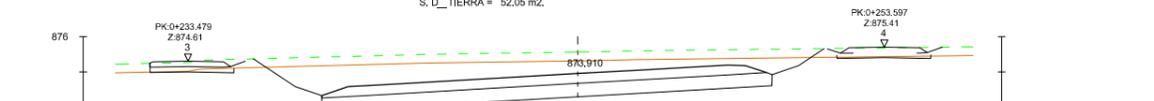
**Pk=2+060**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19,10 m<sup>2</sup>.  
 S. FIRME = 13,36 m<sup>2</sup>.  
 S. VEGETAL = 15,88 m<sup>2</sup>.  
 S. D\_TIERRA = 45,94 m<sup>2</sup>.



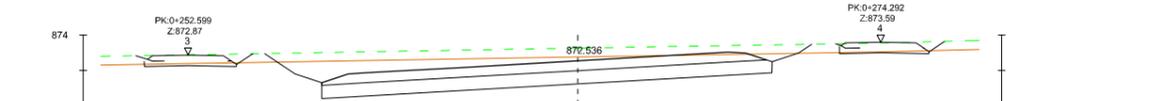
**Pk=2+080**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19,10 m<sup>2</sup>.  
 S. FIRME = 13,35 m<sup>2</sup>.  
 S. VEGETAL = 15,86 m<sup>2</sup>.  
 S. D\_TIERRA = 49,08 m<sup>2</sup>.



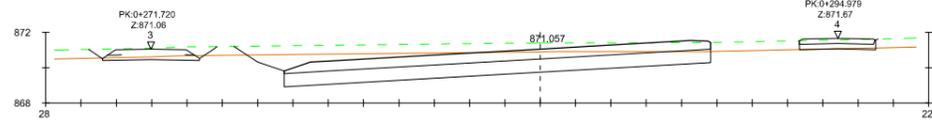
**Pk=2+100**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19,10 m<sup>2</sup>.  
 S. FIRME = 13,35 m<sup>2</sup>.  
 S. VEGETAL = 16,00 m<sup>2</sup>.  
 S. D\_TIERRA = 52,05 m<sup>2</sup>.



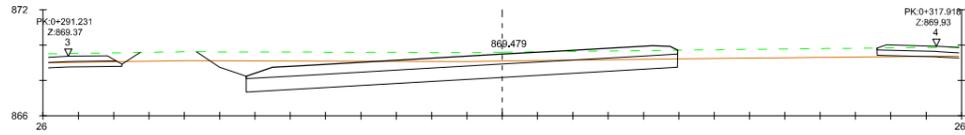
**Pk=2+120**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19,10 m<sup>2</sup>.  
 S. FIRME = 13,35 m<sup>2</sup>.  
 S. VEGETAL = 16,16 m<sup>2</sup>.  
 S. D\_TIERRA = 57,69 m<sup>2</sup>.



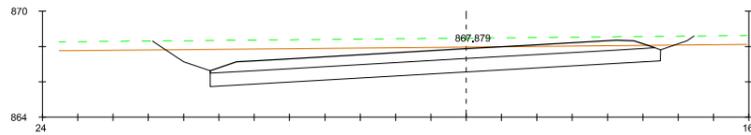
**Pk=2+140**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19,10 m<sup>2</sup>.  
 S. FIRME = 13,35 m<sup>2</sup>.  
 S. VEGETAL = 15,48 m<sup>2</sup>.  
 S. D\_TIERRA = 42,77 m<sup>2</sup>.



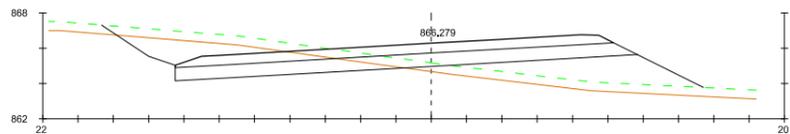
**Pk=2+160**  
 S. TERRAPLEN = 0.19 m<sup>2</sup>. S. SUELO\_SEL\_1 = 18.11 m<sup>2</sup>.  
 S. FIRME = 13.14 m<sup>2</sup>.  
 S. VEGETAL = 13.50 m<sup>2</sup>.  
 S. D\_TIERRA = 31.39 m<sup>2</sup>.



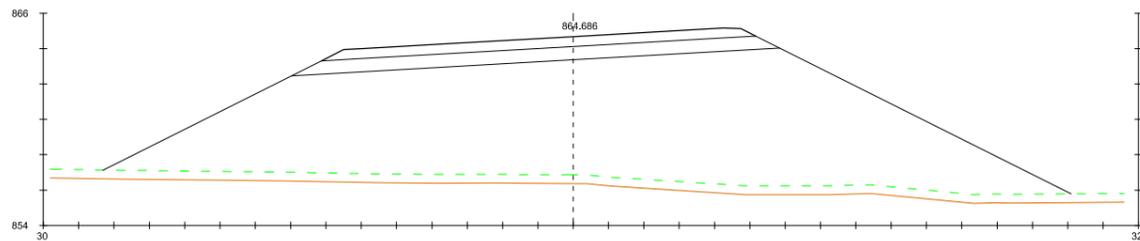
**Pk=2+180**  
 S. TERRAPLEN = 0.19 m<sup>2</sup>. S. SUELO\_SEL\_1 = 18.32 m<sup>2</sup>.  
 S. FIRME = 13.23 m<sup>2</sup>.  
 S. VEGETAL = 13.63 m<sup>2</sup>.  
 S. D\_TIERRA = 27.26 m<sup>2</sup>.



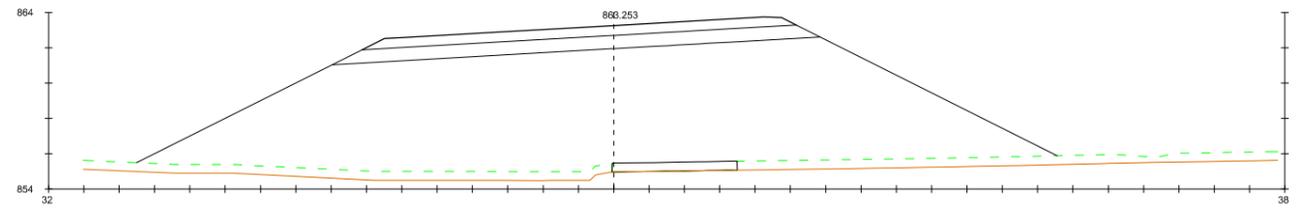
**Pk=2+200**  
 S. TERRAPLEN = 0.42 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19.10 m<sup>2</sup>.  
 S. FIRME = 13.35 m<sup>2</sup>.  
 S. VEGETAL = 15.33 m<sup>2</sup>.  
 S. D\_TIERRA = 39.89 m<sup>2</sup>.



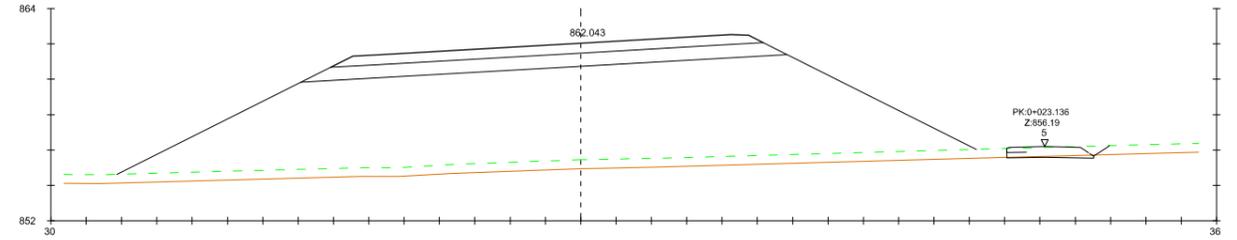
**Pk=2+220**  
 S. TERRAPLEN = 20.84 m<sup>2</sup>. S. SUELO\_SEL\_1 = 19.13 m<sup>2</sup>.  
 S. FIRME = 13.27 m<sup>2</sup>.  
 S. VEGETAL = 17.03 m<sup>2</sup>.  
 S. D\_TIERRA = 18.89 m<sup>2</sup>.



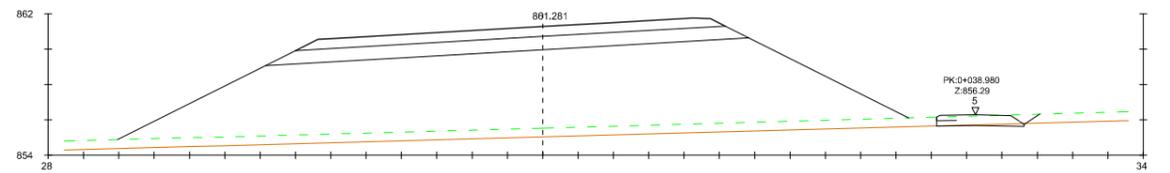
**Pk=2+240**  
 S. TERRAPLEN = 300.98 m<sup>2</sup>.  
 S. FIRME = 13.10 m<sup>2</sup>.  
 S. VEGETAL = 27.40 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.59 m<sup>2</sup>.



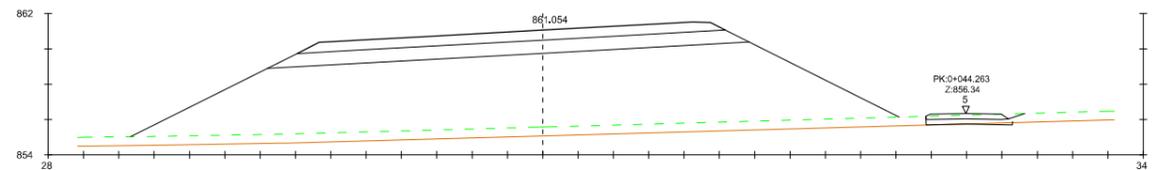
**Pk=2+260**  
 S. TERRAPLEN = 283.41 m<sup>2</sup>.  
 S. FIRME = 13.09 m<sup>2</sup>.  
 S. VEGETAL = 22.52 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.57 m<sup>2</sup>.



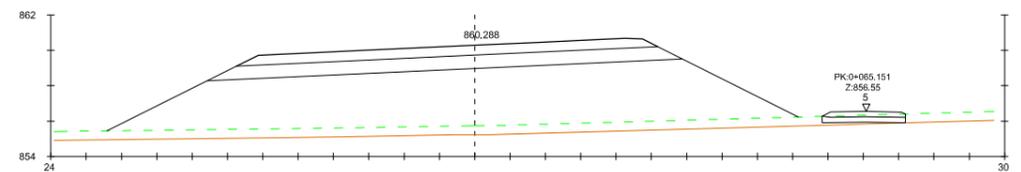
**Pk=2+280**  
 S. TERRAPLEN = 225.61 m<sup>2</sup>.  
 S. FIRME = 13.04 m<sup>2</sup>.  
 S. VEGETAL = 24.33 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.51 m<sup>2</sup>.



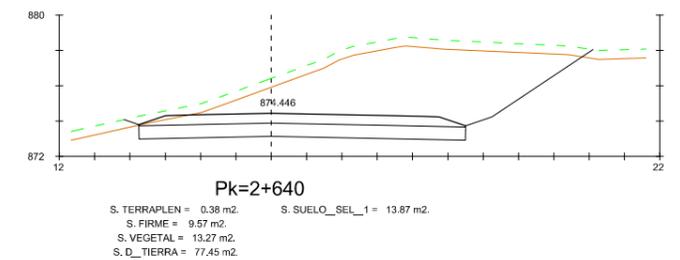
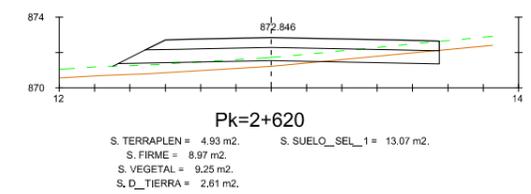
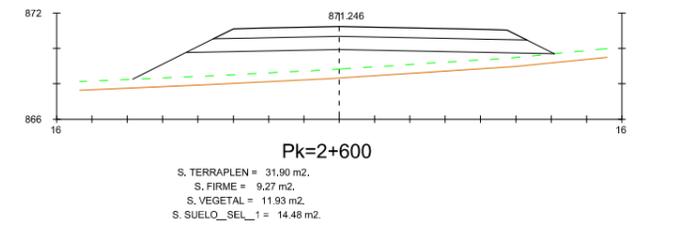
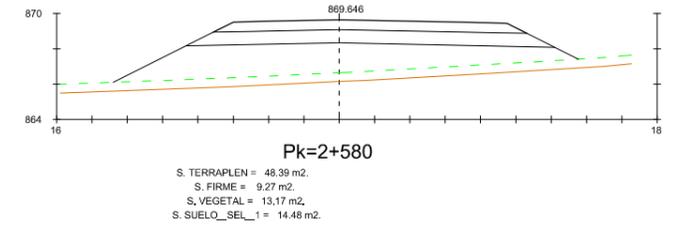
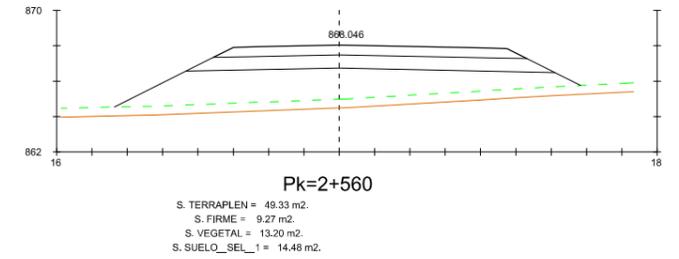
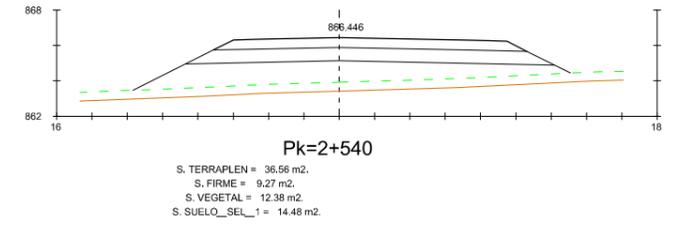
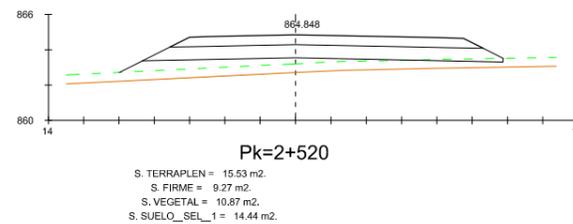
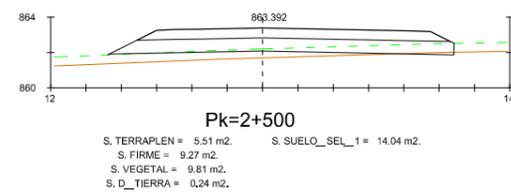
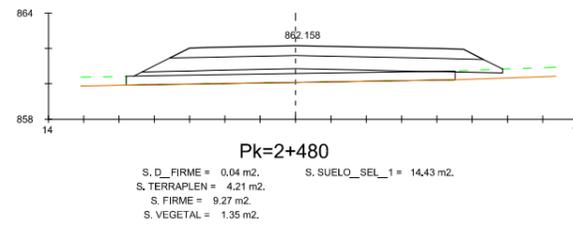
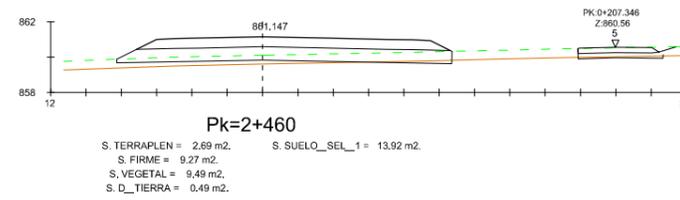
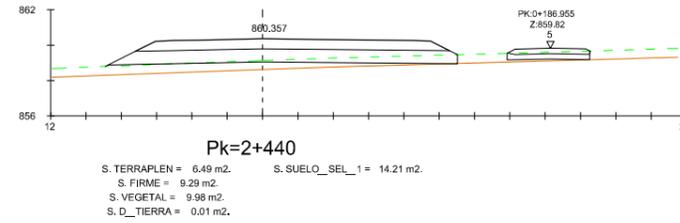
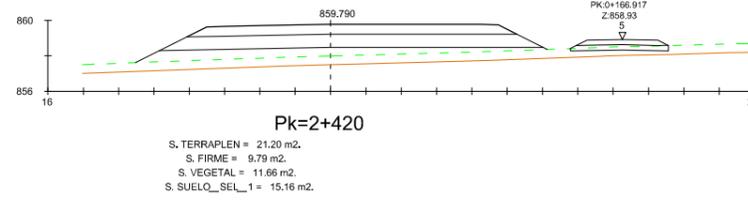
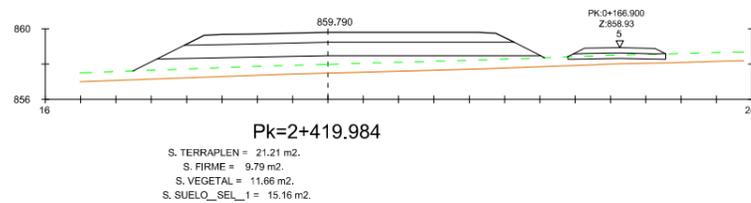
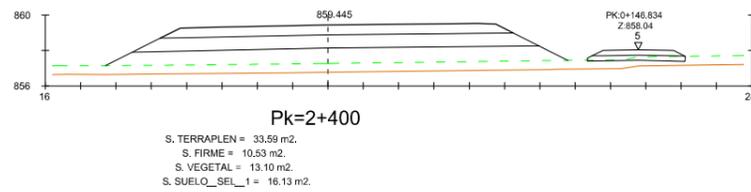
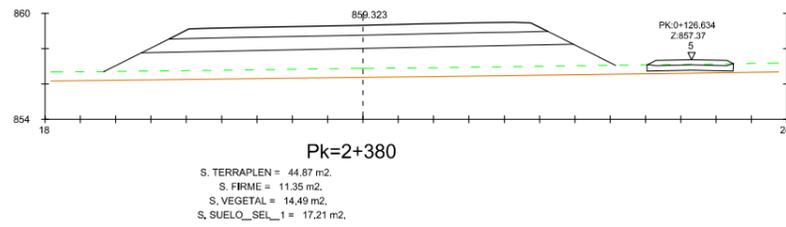
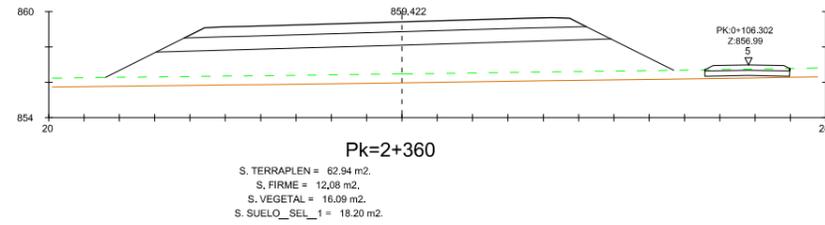
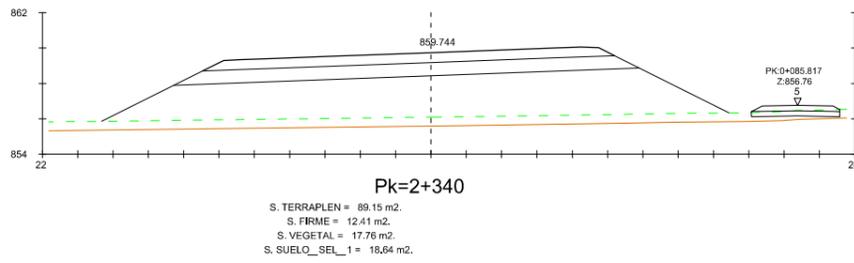
**Pk=2+294.984**  
 S. TERRAPLEN = 180.43 m<sup>2</sup>.  
 S. FIRME = 12.95 m<sup>2</sup>.  
 S. VEGETAL = 22.40 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.39 m<sup>2</sup>.

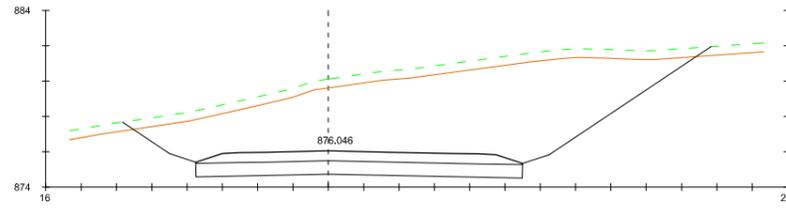


**Pk=2+300**  
 S. TERRAPLEN = 167.60 m<sup>2</sup>.  
 S. FIRME = 12.91 m<sup>2</sup>.  
 S. VEGETAL = 21.75 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.33 m<sup>2</sup>.

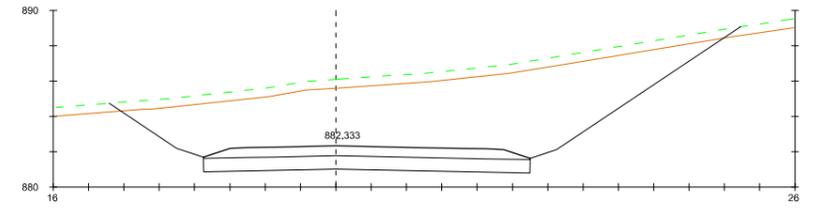


**Pk=2+320**  
 S. TERRAPLEN = 124.03 m<sup>2</sup>.  
 S. FIRME = 12.69 m<sup>2</sup>.  
 S. VEGETAL = 19.57 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 19.03 m<sup>2</sup>.

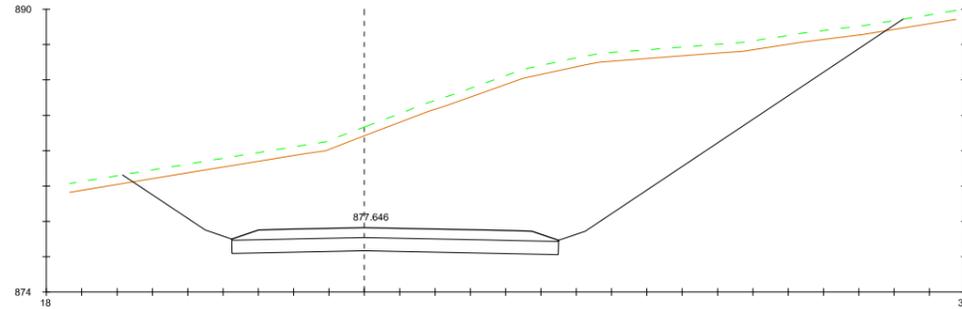




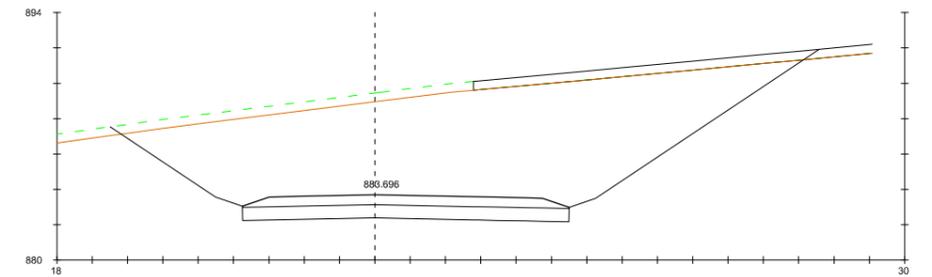
**Pk=2+660**  
 S. TERRAPLEN = 0.36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.58 m<sup>2</sup>.  
 S. VEGETAL = 16.66 m<sup>2</sup>.  
 S. D\_TIERRA = 128.12 m<sup>2</sup>.



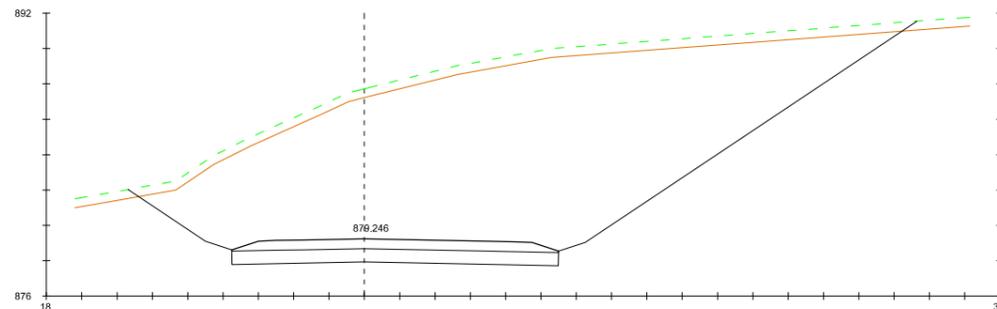
**Pk=2+740**  
 S. TERRAPLEN = 0.41 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.58 m<sup>2</sup>.  
 S. VEGETAL = 17.88 m<sup>2</sup>.  
 S. D\_TIERRA = 125.44 m<sup>2</sup>.



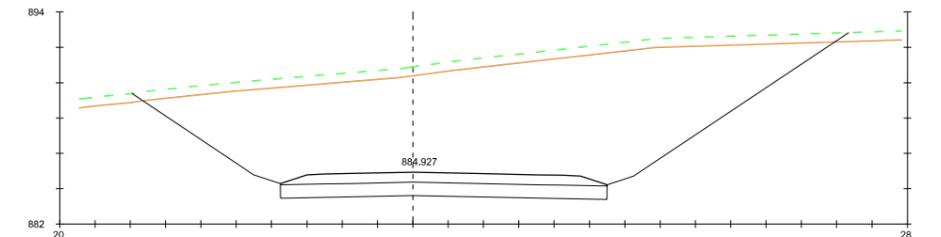
**Pk=2+680**  
 S. TERRAPLEN = 0.40 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 22.10 m<sup>2</sup>.  
 S. D\_TIERRA = 241.66 m<sup>2</sup>.



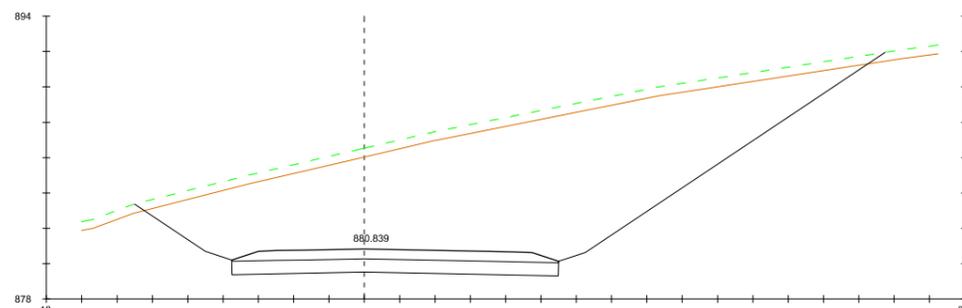
**Pk=2+760**  
 S. D\_FIRME = 9.57 m<sup>2</sup>. S. D\_TIERRA = 195.13 m<sup>2</sup>.  
 S. TERRAPLEN = 0.16 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 10.28 m<sup>2</sup>.



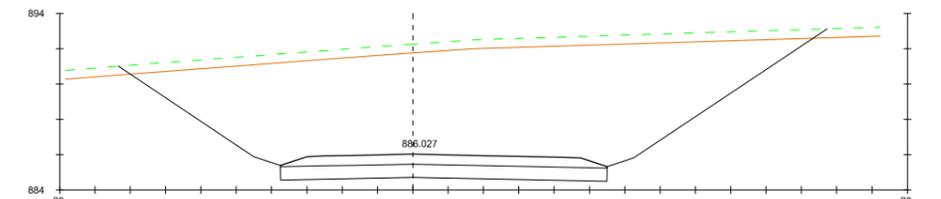
**Pk=2+700**  
 S. TERRAPLEN = 0.36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.58 m<sup>2</sup>.  
 S. VEGETAL = 22.33 m<sup>2</sup>.  
 S. D\_TIERRA = 301.13 m<sup>2</sup>.



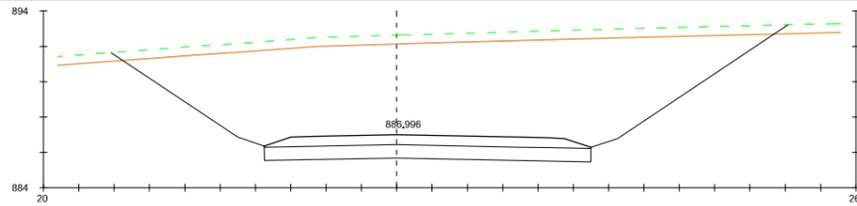
**Pk=2+780**  
 S. TERRAPLEN = 0.35 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 20.28 m<sup>2</sup>.  
 S. D\_TIERRA = 206.78 m<sup>2</sup>.



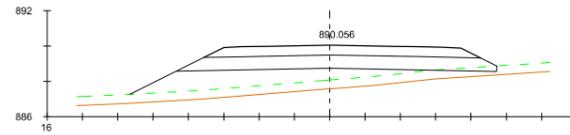
**Pk=2+720**  
 S. TERRAPLEN = 0.38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 21.25 m<sup>2</sup>.  
 S. D\_TIERRA = 217.50 m<sup>2</sup>.



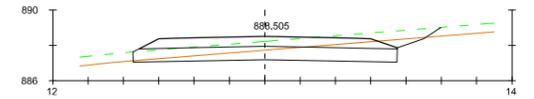
**Pk=2+800**  
 S. TERRAPLEN = 0.36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 20.07 m<sup>2</sup>.  
 S. D\_TIERRA = 202.34 m<sup>2</sup>.



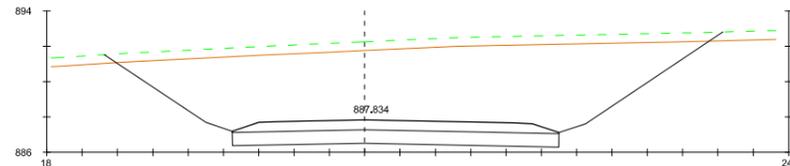
**Pk=2+820**  
 S. TERRAPLEN = 0.36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 19.16 m<sup>2</sup>.  
 S. D\_TIERRA = 179.11 m<sup>2</sup>.



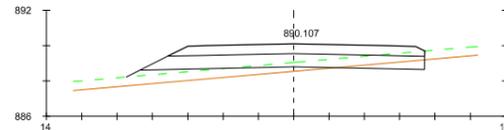
**Pk=2+940**  
 S. TERRAPLEN = 21.43 m<sup>2</sup>.  
 S. FIRME = 8.11 m<sup>2</sup>.  
 S. VEGETAL = 10.38 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 12.83 m<sup>2</sup>.



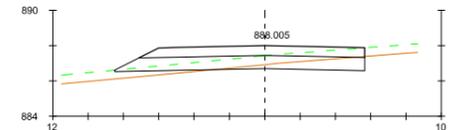
**Pk=3+060**  
 S. TERRAPLEN = 0.22 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.19 m<sup>2</sup>.  
 S. FIRME = 7.46 m<sup>2</sup>.  
 S. VEGETAL = 8.72 m<sup>2</sup>.  
 S. D\_TIERRA = 9.47 m<sup>2</sup>.



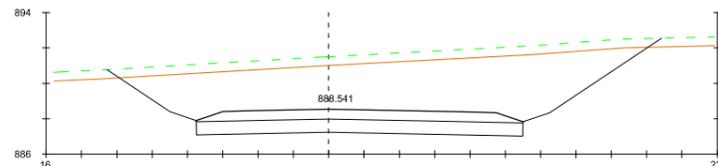
**Pk=2+840**  
 S. TERRAPLEN = 0.37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 17.52 m<sup>2</sup>.  
 S. D\_TIERRA = 137.69 m<sup>2</sup>.



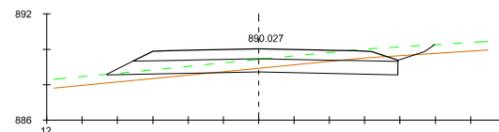
**Pk=2+960**  
 S. TERRAPLEN = 5.47 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.49 m<sup>2</sup>.  
 S. FIRME = 7.72 m<sup>2</sup>.  
 S. VEGETAL = 8.45 m<sup>2</sup>.  
 S. D\_TIERRA = 1.40 m<sup>2</sup>.



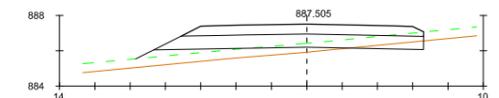
**Pk=3+080**  
 S. TERRAPLEN = 1.13 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10.17 m<sup>2</sup>.  
 S. FIRME = 6.82 m<sup>2</sup>.  
 S. VEGETAL = 7.08 m<sup>2</sup>.  
 S. D\_TIERRA = 3.29 m<sup>2</sup>.



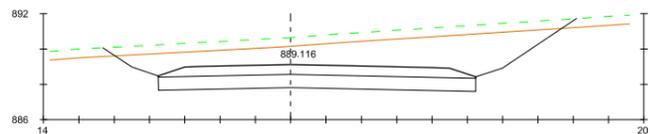
**Pk=2+860**  
 S. TERRAPLEN = 0.37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.87 m<sup>2</sup>.  
 S. FIRME = 9.57 m<sup>2</sup>.  
 S. VEGETAL = 15.69 m<sup>2</sup>.  
 S. D\_TIERRA = 94.52 m<sup>2</sup>.



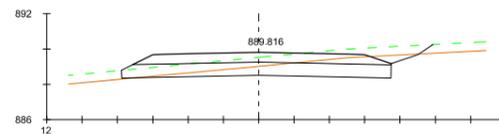
**Pk=2+980**  
 S. TERRAPLEN = 1.59 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.84 m<sup>2</sup>.  
 S. FIRME = 7.68 m<sup>2</sup>.  
 S. VEGETAL = 9.28 m<sup>2</sup>.  
 S. D\_TIERRA = 5.83 m<sup>2</sup>.



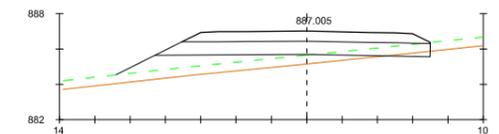
**Pk=3+100**  
 S. TERRAPLEN = 6.11 m<sup>2</sup>. S. SUELO\_SEL\_1 = 10.88 m<sup>2</sup>.  
 S. FIRME = 7.24 m<sup>2</sup>.  
 S. VEGETAL = 8.15 m<sup>2</sup>.  
 S. D\_TIERRA = 1.02 m<sup>2</sup>.



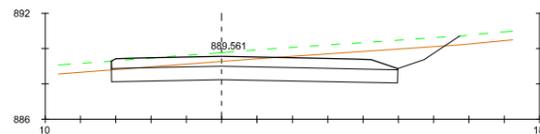
**Pk=2+880**  
 S. TERRAPLEN = 0.38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 13.48 m<sup>2</sup>.  
 S. FIRME = 9.28 m<sup>2</sup>.  
 S. VEGETAL = 13.41 m<sup>2</sup>.  
 S. D\_TIERRA = 54.49 m<sup>2</sup>.



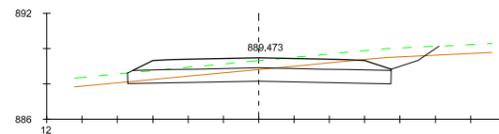
**Pk=3+000**  
 S. TERRAPLEN = 0.23 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.35 m<sup>2</sup>.  
 S. FIRME = 7.46 m<sup>2</sup>.  
 S. VEGETAL = 8.82 m<sup>2</sup>.  
 S. D\_TIERRA = 9.12 m<sup>2</sup>.



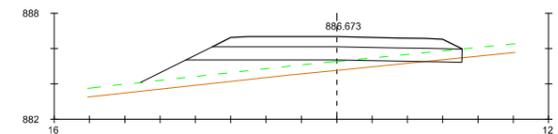
**Pk=3+120**  
 S. TERRAPLEN = 11.37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.12 m<sup>2</sup>.  
 S. FIRME = 7.27 m<sup>2</sup>.  
 S. VEGETAL = 6.90 m<sup>2</sup>.  
 S. D\_TIERRA = 0.38 m<sup>2</sup>.



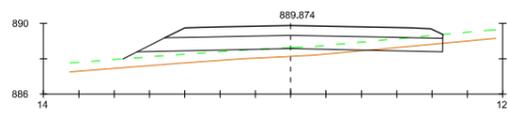
**Pk=2+900**  
 S. TERRAPLEN = 0.21 m<sup>2</sup>. S. SUELO\_SEL\_1 = 12.15 m<sup>2</sup>.  
 S. FIRME = 8.65 m<sup>2</sup>.  
 S. VEGETAL = 9.86 m<sup>2</sup>.  
 S. D\_TIERRA = 21.80 m<sup>2</sup>.



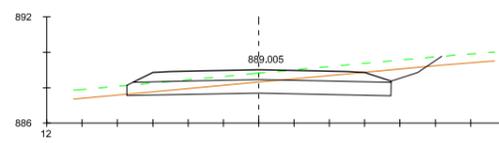
**Pk=3+020**  
 S. TERRAPLEN = 0.20 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.17 m<sup>2</sup>.  
 S. FIRME = 7.46 m<sup>2</sup>.  
 S. VEGETAL = 8.82 m<sup>2</sup>.  
 S. D\_TIERRA = 11.69 m<sup>2</sup>.



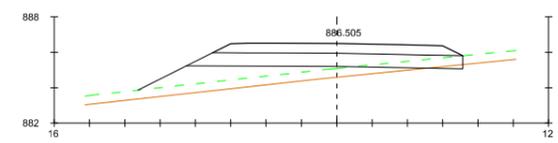
**Pk=3+133.307**  
 S. TERRAPLEN = 12.81 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.16 m<sup>2</sup>.  
 S. FIRME = 7.26 m<sup>2</sup>.  
 S. VEGETAL = 9.10 m<sup>2</sup>.  
 S. D\_TIERRA = 0.28 m<sup>2</sup>.



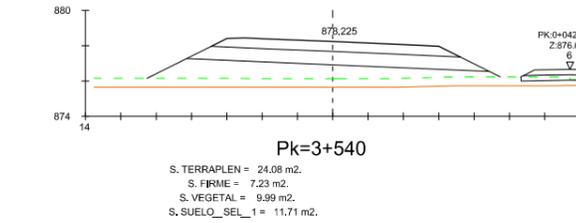
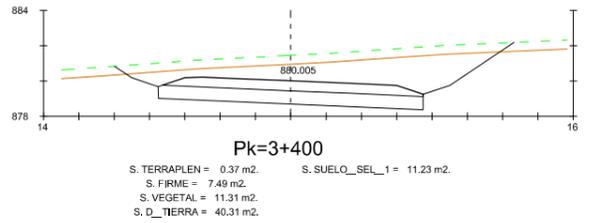
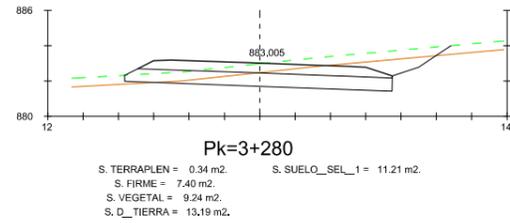
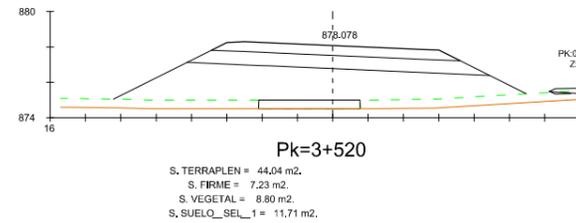
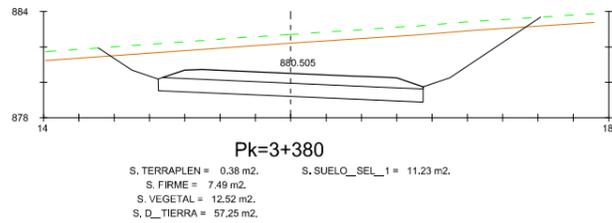
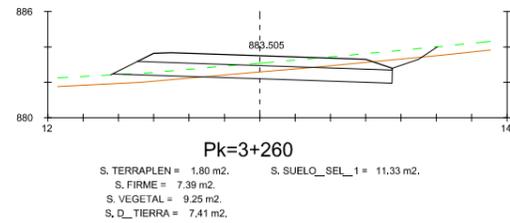
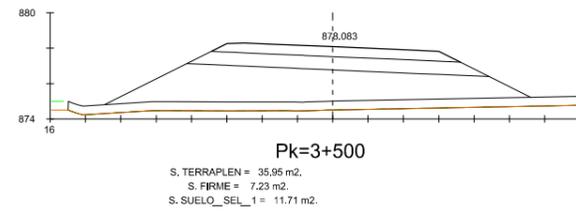
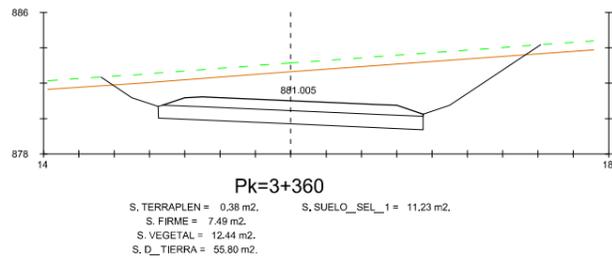
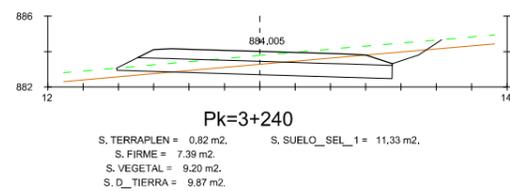
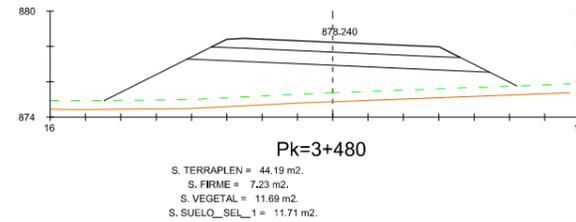
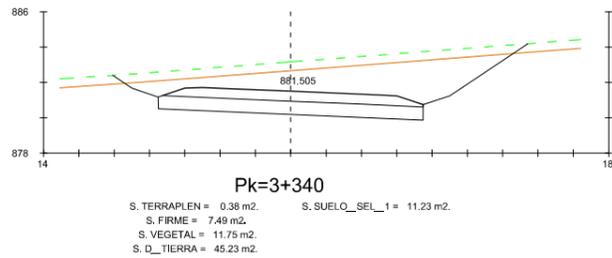
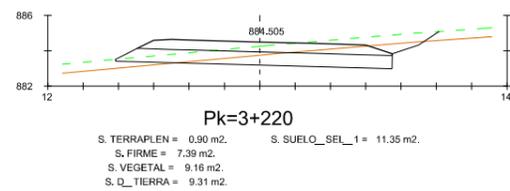
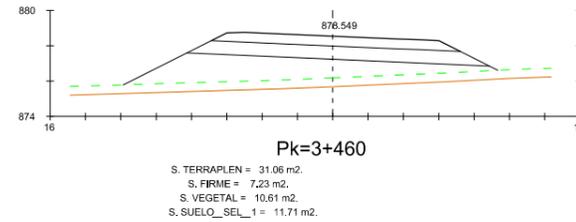
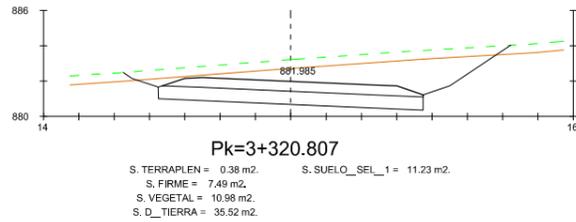
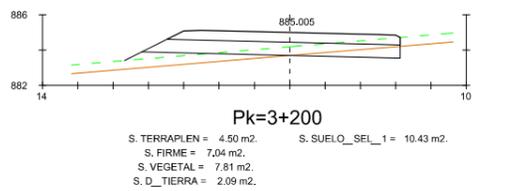
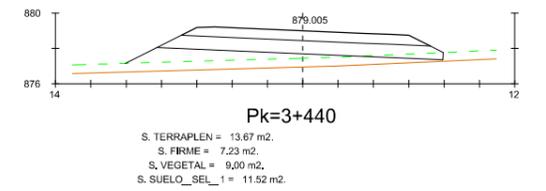
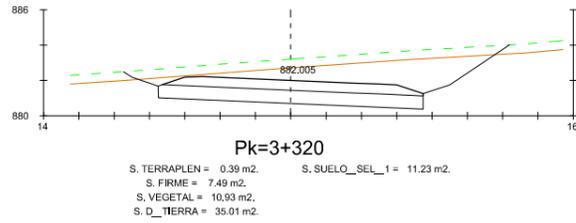
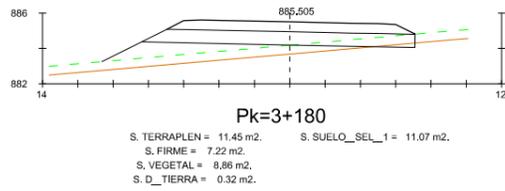
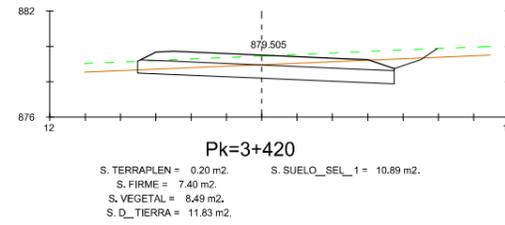
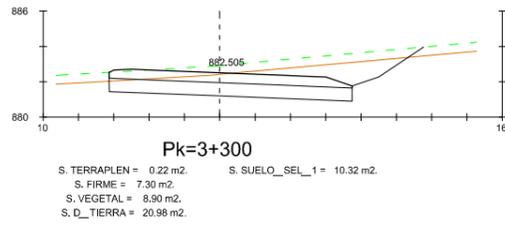
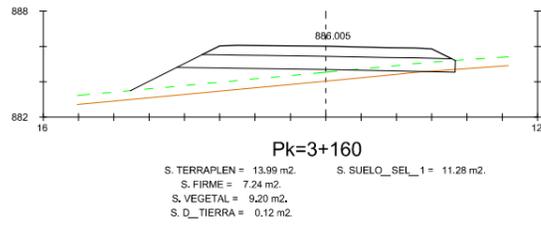
**Pk=2+920**  
 S. TERRAPLEN = 6.98 m<sup>2</sup>. S. SUELO\_SEL\_1 = 12.38 m<sup>2</sup>.  
 S. FIRME = 8.34 m<sup>2</sup>.  
 S. VEGETAL = 9.05 m<sup>2</sup>.  
 S. D\_TIERRA = 0.98 m<sup>2</sup>.

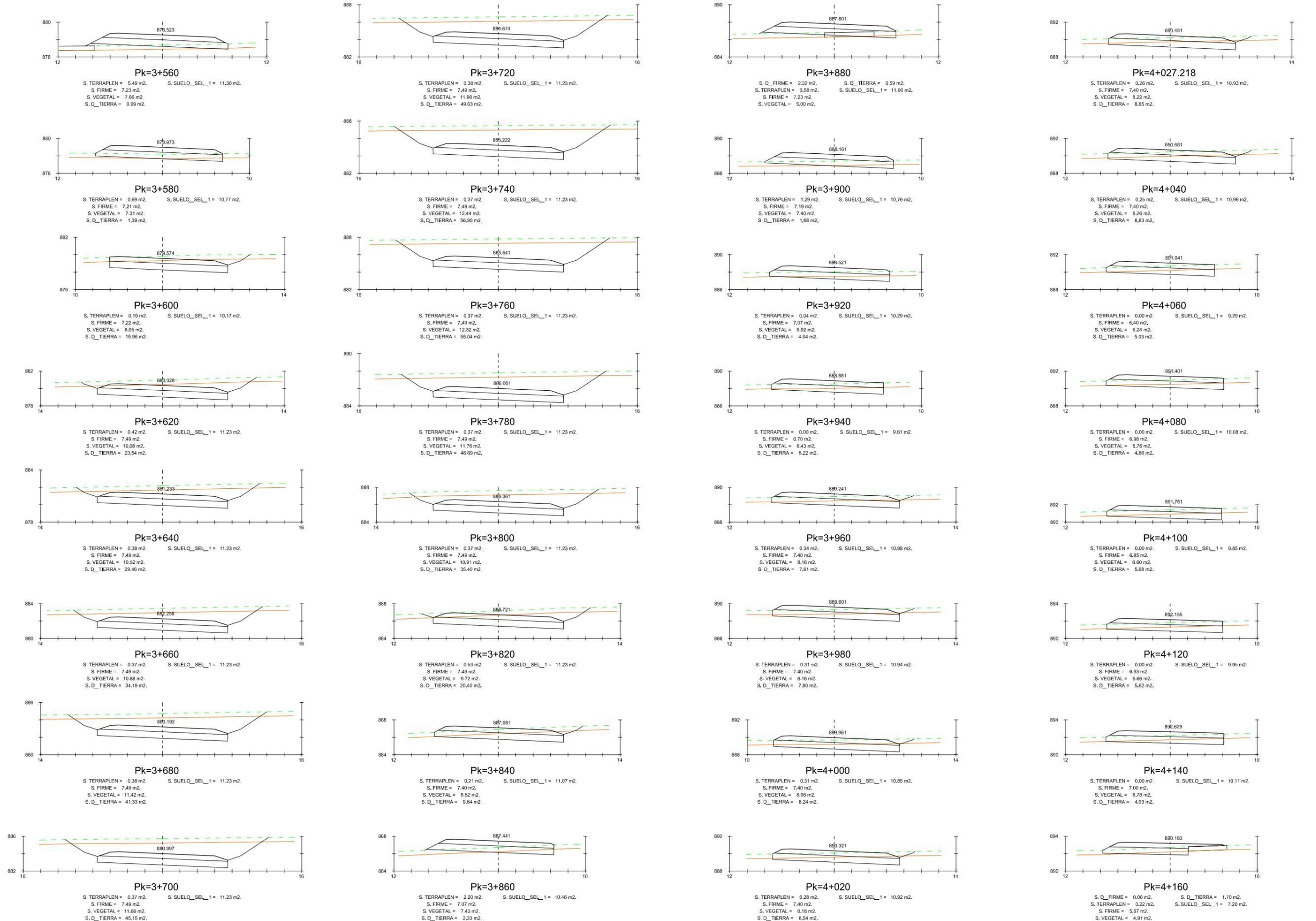


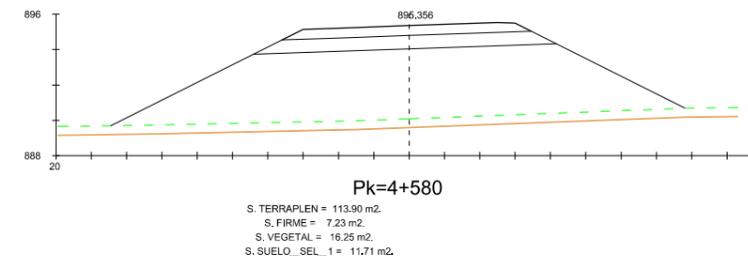
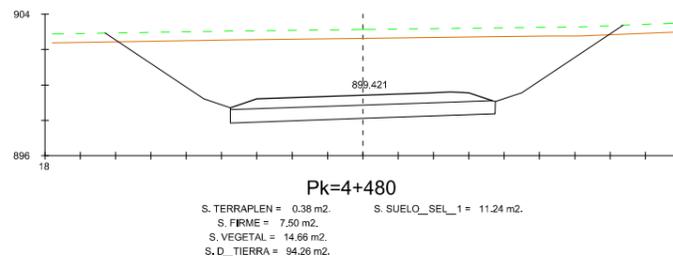
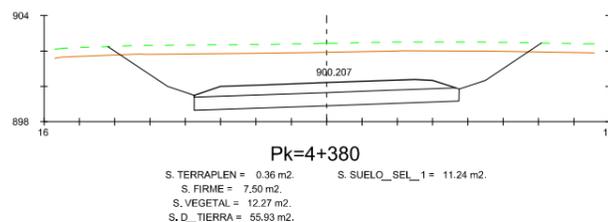
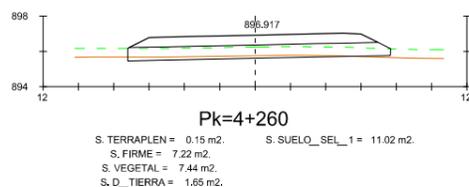
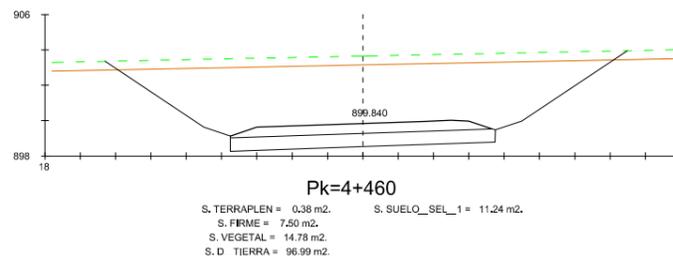
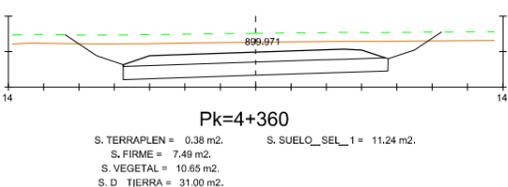
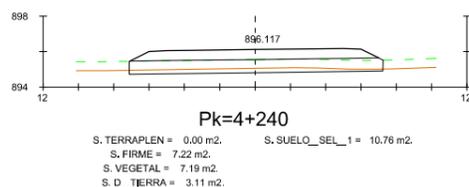
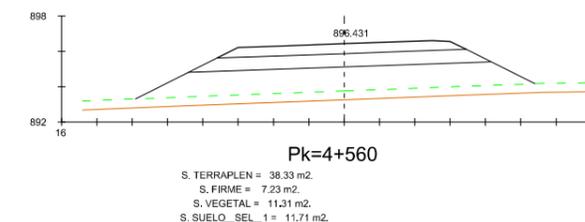
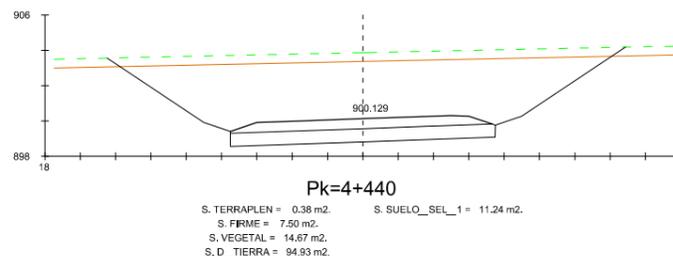
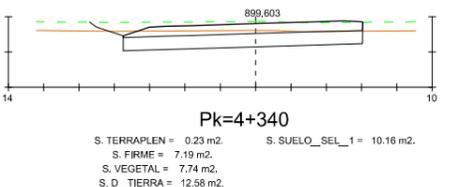
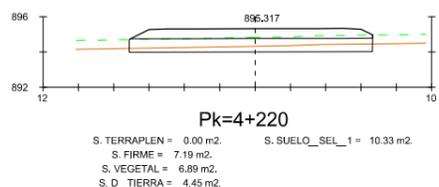
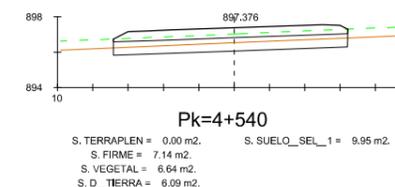
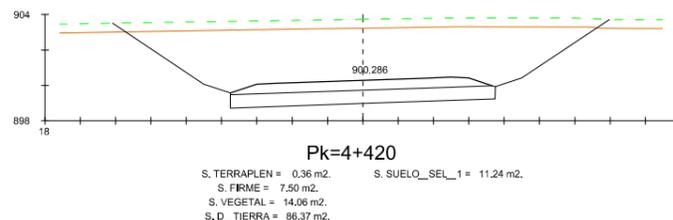
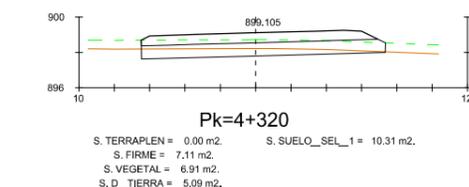
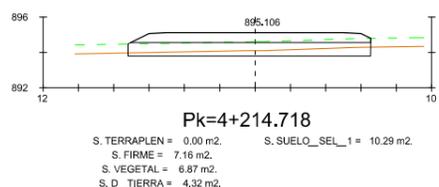
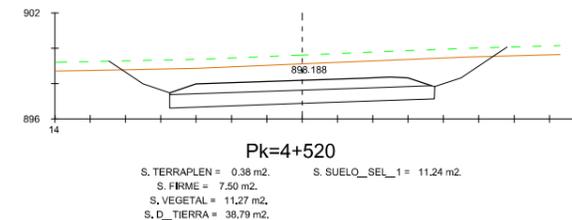
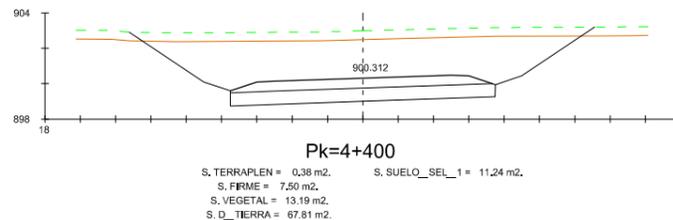
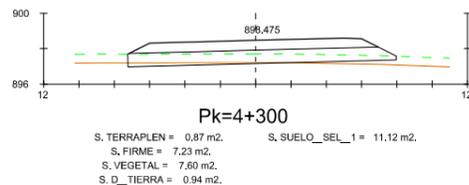
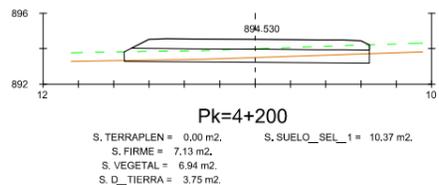
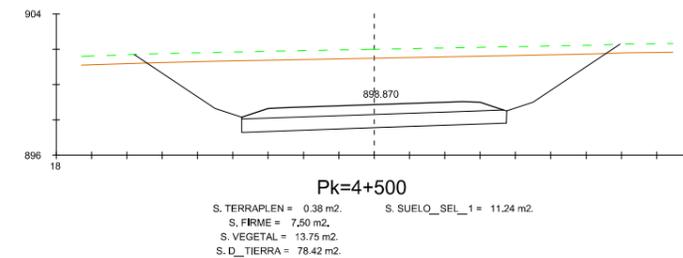
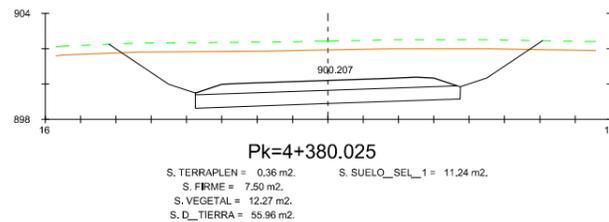
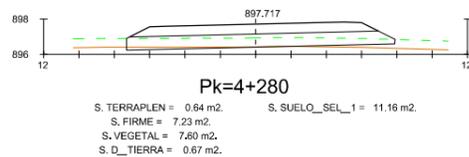
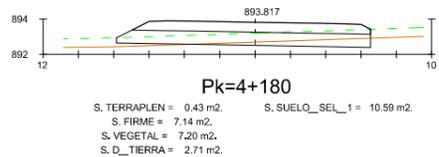
**Pk=3+040**  
 S. TERRAPLEN = 0.22 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.19 m<sup>2</sup>.  
 S. FIRME = 7.46 m<sup>2</sup>.  
 S. VEGETAL = 8.92 m<sup>2</sup>.  
 S. D\_TIERRA = 11.24 m<sup>2</sup>.

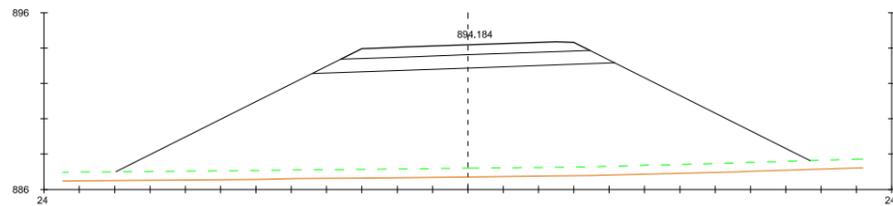


**Pk=3+140**  
 S. TERRAPLEN = 13.61 m<sup>2</sup>. S. SUELO\_SEL\_1 = 11.18 m<sup>2</sup>.  
 S. FIRME = 7.26 m<sup>2</sup>.  
 S. VEGETAL = 9.19 m<sup>2</sup>.  
 S. D\_TIERRA = 0.25 m<sup>2</sup>.

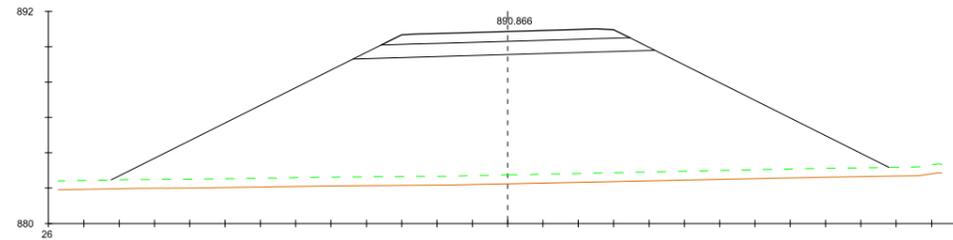




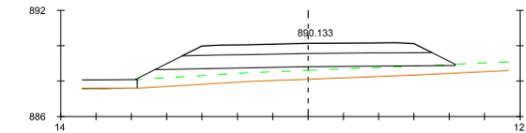




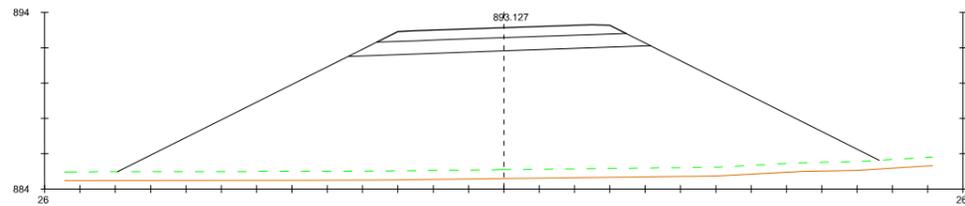
**Pk=4+600**  
 S. TERRAPLEN = 179,26 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 19,65 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,71 m<sup>2</sup>.



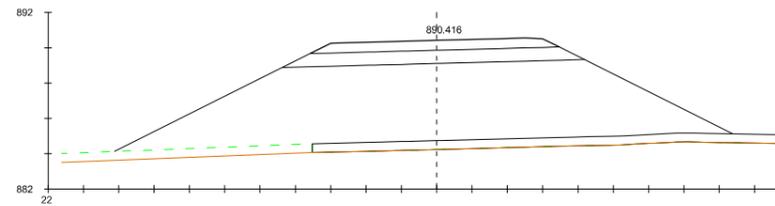
**Pk=4+680**  
 S. TERRAPLEN = 229,39 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 22,02 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



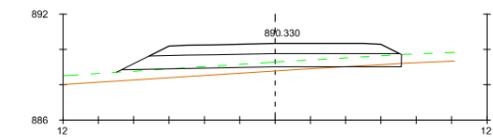
**Pk=4+780**  
 S. TERRAPLEN = 12,73 m<sup>2</sup>.  
 S. FIRME = 7,25 m<sup>2</sup>.  
 S. VEGETAL = 9,00 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,74 m<sup>2</sup>.



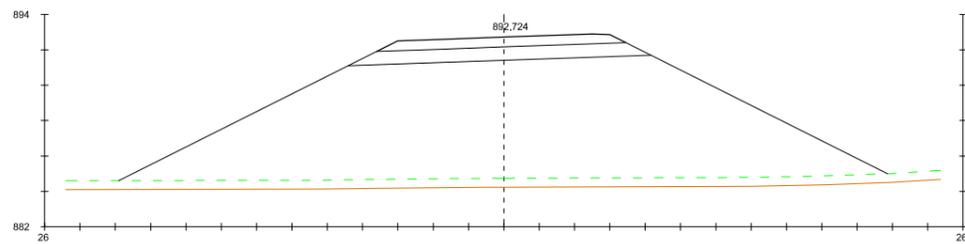
**Pk=4+620**  
 S. TERRAPLEN = 224,08 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 21,56 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,71 m<sup>2</sup>.



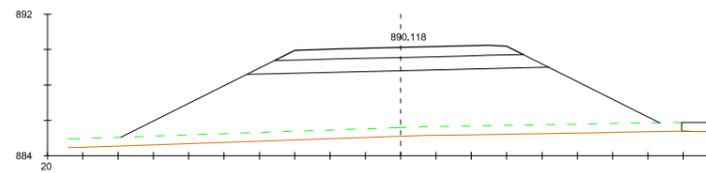
**Pk=4+700**  
 S. TERRAPLEN = 119,02 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 5,59 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



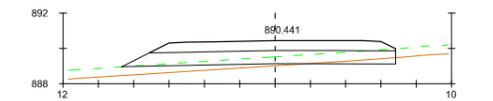
**Pk=4+793.797**  
 S. TERRAPLEN = 4,35 m<sup>2</sup>.  
 S. FIRME = 7,26 m<sup>2</sup>.  
 S. VEGETAL = 8,06 m<sup>2</sup>.  
 S. D\_TIERRA = 0,29 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,29 m<sup>2</sup>.



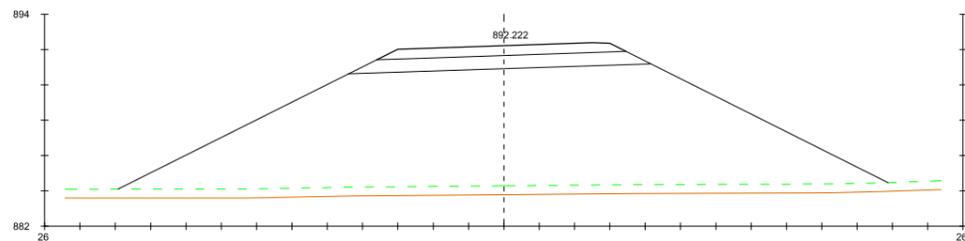
**Pk=4+628.489**  
 S. TERRAPLEN = 225,43 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 21,77 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,71 m<sup>2</sup>.



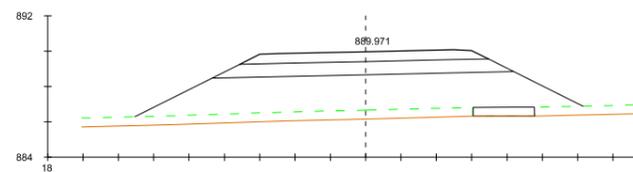
**Pk=4+720**  
 S. TERRAPLEN = 92,72 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 15,25 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,69 m<sup>2</sup>.



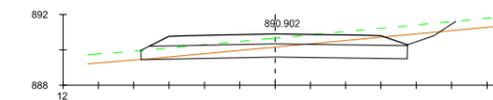
**Pk=4+800**  
 S. TERRAPLEN = 2,80 m<sup>2</sup>.  
 S. FIRME = 7,26 m<sup>2</sup>.  
 S. VEGETAL = 7,76 m<sup>2</sup>.  
 S. D\_TIERRA = 0,91 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,05 m<sup>2</sup>.



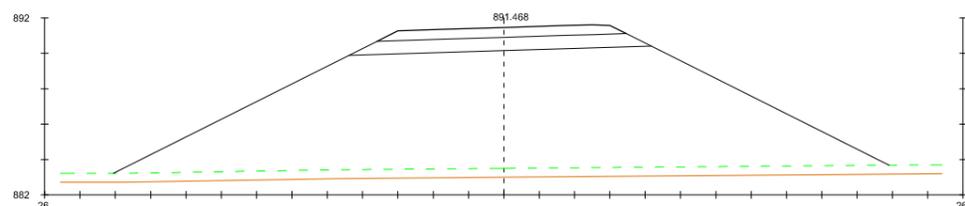
**Pk=4+640**  
 S. TERRAPLEN = 223,44 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 21,80 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



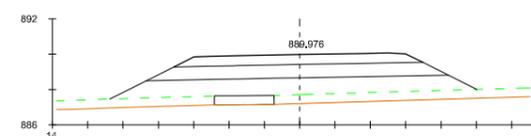
**Pk=4+740**  
 S. TERRAPLEN = 53,65 m<sup>2</sup>.  
 S. FIRME = 7,22 m<sup>2</sup>.  
 S. VEGETAL = 10,94 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,69 m<sup>2</sup>.



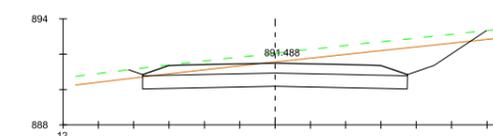
**Pk=4+820**  
 S. TERRAPLEN = 0,22 m<sup>2</sup>.  
 S. FIRME = 7,44 m<sup>2</sup>.  
 S. VEGETAL = 8,92 m<sup>2</sup>.  
 S. D\_TIERRA = 10,12 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,26 m<sup>2</sup>.



**Pk=4+660**  
 S. TERRAPLEN = 225,15 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 21,96 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



**Pk=4+760**  
 S. TERRAPLEN = 26,33 m<sup>2</sup>.  
 S. FIRME = 7,23 m<sup>2</sup>.  
 S. VEGETAL = 8,70 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,70 m<sup>2</sup>.



**Pk=4+840**  
 S. TERRAPLEN = 0,48 m<sup>2</sup>.  
 S. FIRME = 7,61 m<sup>2</sup>.  
 S. VEGETAL = 10,14 m<sup>2</sup>.  
 S. D\_TIERRA = 24,91 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 11,24 m<sup>2</sup>.



Escuelas de Ingenierías I.I.  
 Industrial, Informática y Aeroespacial



Grado en Ingeniería Aeroespacial  
 Trabajo de Fin de Grado

Director del T.F.G.

Dr. Jesús Cepeda Riaño  
 Dept. Física Aplicada

EL AUTOR DEL PROYECTO

D. Jesús Muñoz Vera  
 Ingeniero Técnico Aeronáutico

TÍTULO DEL TRABAJO:

PROYECTO DE TRAZADO:  
 Acceso al Aeropuerto de León desde la futura Ronda Noroeste

ESCALAS

DIN-A1: 1/100

DIN-A3: 1/200

GRAFICA:

0 2 4 8 m

DESIGNACIÓN DEL PLANO:

PERFILES TRANSVERSALES

Eje 1: Eje Aeropuerto (4+600 - 4+840)

DOCUMENTO

2

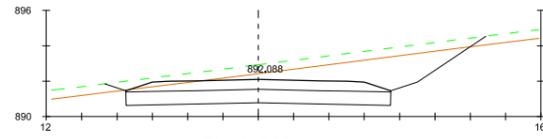
FECHA

ENERO-2015

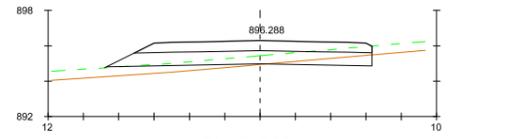
PLANO

2.5

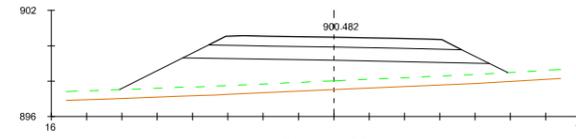
HOJA 12 DE 18



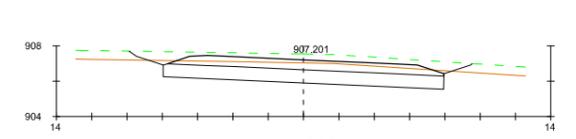
**Pk=4+860**  
 S. TERRAPLEN = 0.50 m2. S. SUELO\_SEL\_1 = 11.24 m2.  
 S. FIRME = 7.61 m2.  
 S. VEGETAL = 10.79 m2.  
 S. D\_TIERRA = 30.88 m2.



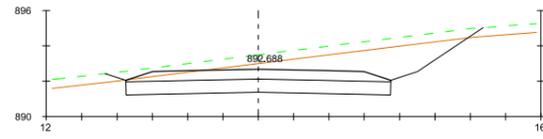
**Pk=5+000**  
 S. TERRAPLEN = 2.02 m2. S. SUELO\_SEL\_1 = 10.68 m2.  
 S. FIRME = 7.16 m2.  
 S. VEGETAL = 7.57 m2.  
 S. D\_TIERRA = 1.85 m2.



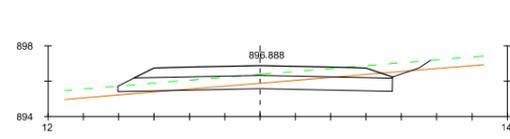
**Pk=5+120**  
 S. TERRAPLEN = 34.07 m2. S. SUELO\_SEL\_1 = 11.89 m2.  
 S. FIRME = 7.36 m2.  
 S. VEGETAL = 10.99 m2.



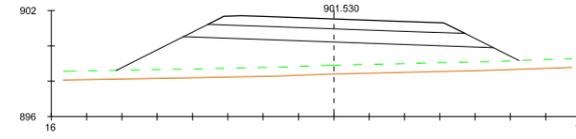
**Pk=5+260**  
 S. TERRAPLEN = 0.50 m2. S. SUELO\_SEL\_1 = 11.91 m2.  
 S. FIRME = 8.00 m2.  
 S. VEGETAL = 9.72 m2.  
 S. D\_TIERRA = 17.31 m2.



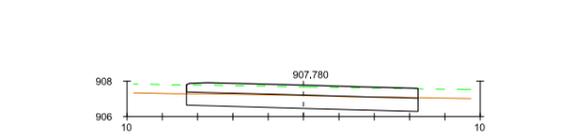
**Pk=4+880**  
 S. TERRAPLEN = 0.49 m2. S. SUELO\_SEL\_1 = 11.24 m2.  
 S. FIRME = 7.61 m2.  
 S. VEGETAL = 10.70 m2.  
 S. D\_TIERRA = 30.25 m2.



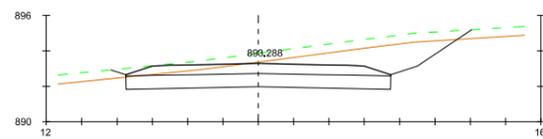
**Pk=5+020**  
 S. TERRAPLEN = 0.53 m2. S. SUELO\_SEL\_1 = 11.45 m2.  
 S. FIRME = 7.46 m2.  
 S. VEGETAL = 8.86 m2.  
 S. D\_TIERRA = 6.15 m2.



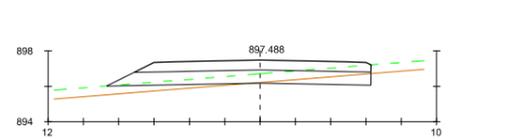
**Pk=5+140**  
 S. TERRAPLEN = 38.38 m2. S. SUELO\_SEL\_1 = 12.04 m2.  
 S. FIRME = 7.48 m2.  
 S. VEGETAL = 11.40 m2.



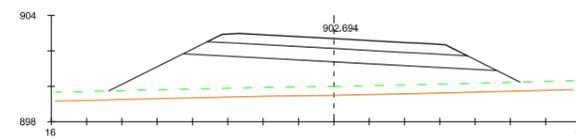
**Pk=5+280**  
 S. TERRAPLEN = 0.00 m2. S. SUELO\_SEL\_1 = 9.83 m2.  
 S. FIRME = 7.28 m2.  
 S. VEGETAL = 6.56 m2.  
 S. D\_TIERRA = 9.39 m2.



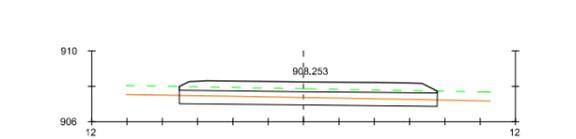
**Pk=4+900**  
 S. TERRAPLEN = 0.48 m2. S. SUELO\_SEL\_1 = 11.24 m2.  
 S. FIRME = 7.61 m2.  
 S. VEGETAL = 10.21 m2.  
 S. D\_TIERRA = 26.04 m2.



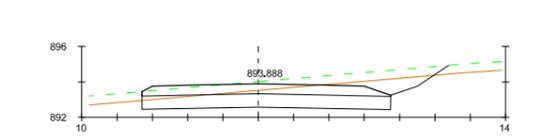
**Pk=5+040**  
 S. TERRAPLEN = 1.99 m2. S. SUELO\_SEL\_1 = 10.63 m2.  
 S. FIRME = 7.13 m2.  
 S. VEGETAL = 7.47 m2.  
 S. D\_TIERRA = 2.16 m2.



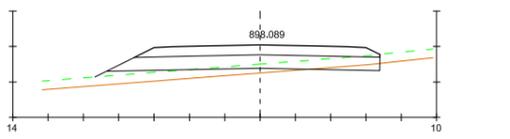
**Pk=5+160**  
 S. TERRAPLEN = 40.45 m2. S. SUELO\_SEL\_1 = 12.20 m2.  
 S. FIRME = 7.59 m2.  
 S. VEGETAL = 11.65 m2.



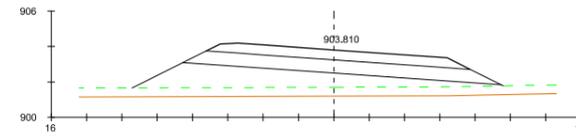
**Pk=5+300**  
 S. TERRAPLEN = 0.00 m2. S. SUELO\_SEL\_1 = 10.96 m2.  
 S. FIRME = 7.83 m2.  
 S. VEGETAL = 7.31 m2.  
 S. D\_TIERRA = 6.07 m2.



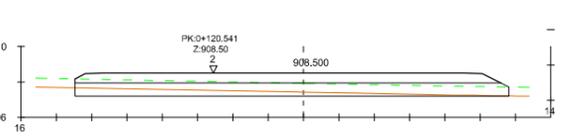
**Pk=4+920**  
 S. TERRAPLEN = 0.22 m2. S. SUELO\_SEL\_1 = 10.56 m2.  
 S. FIRME = 7.39 m2.  
 S. VEGETAL = 8.69 m2.  
 S. D\_TIERRA = 16.10 m2.



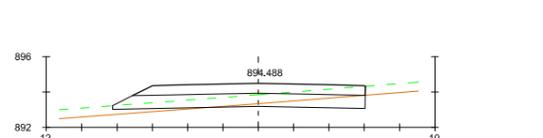
**Pk=5+060**  
 S. TERRAPLEN = 5.34 m2. S. SUELO\_SEL\_1 = 11.02 m2.  
 S. FIRME = 7.28 m2.  
 S. VEGETAL = 8.06 m2.  
 S. D\_TIERRA = 0.79 m2.



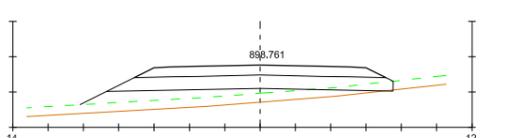
**Pk=5+180**  
 S. TERRAPLEN = 26.38 m2. S. SUELO\_SEL\_1 = 12.36 m2.  
 S. FIRME = 7.69 m2.  
 S. VEGETAL = 10.51 m2.



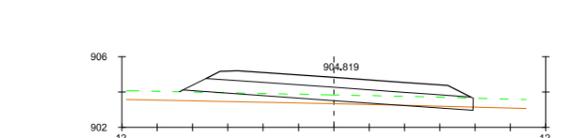
**Pk=5+312.284**  
 S. TERRAPLEN = 0.00 m2. S. SUELO\_SEL\_1 = 18.37 m2.  
 S. FIRME = 13.04 m2.  
 S. VEGETAL = 12.29 m2.  
 S. D\_TIERRA = 5.98 m2.



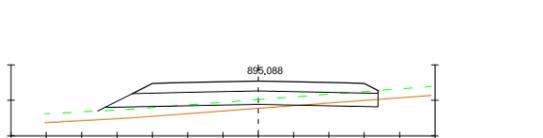
**Pk=4+940**  
 S. TERRAPLEN = 0.79 m2. S. SUELO\_SEL\_1 = 10.43 m2.  
 S. FIRME = 7.03 m2.  
 S. VEGETAL = 7.16 m2.  
 S. D\_TIERRA = 3.03 m2.



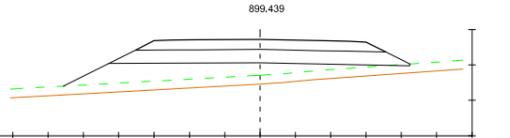
**Pk=5+080**  
 S. TERRAPLEN = 12.86 m2. S. SUELO\_SEL\_1 = 11.54 m2.  
 S. FIRME = 7.31 m2.  
 S. VEGETAL = 8.87 m2.  
 S. D\_TIERRA = 0.01 m2.



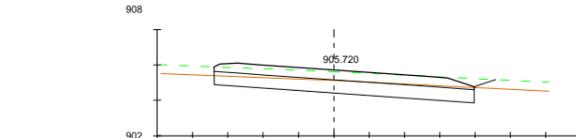
**Pk=5+200**  
 S. TERRAPLEN = 3.76 m2. S. SUELO\_SEL\_1 = 11.83 m2.  
 S. FIRME = 7.71 m2.  
 S. VEGETAL = 8.32 m2.  
 S. D\_TIERRA = 0.42 m2.



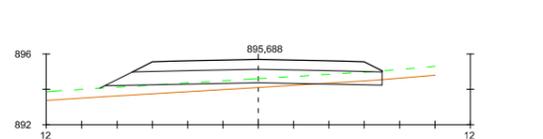
**Pk=4+960**  
 S. TERRAPLEN = 4.64 m2. S. SUELO\_SEL\_1 = 11.01 m2.  
 S. FIRME = 7.28 m2.  
 S. VEGETAL = 7.94 m2.  
 S. D\_TIERRA = 0.89 m2.



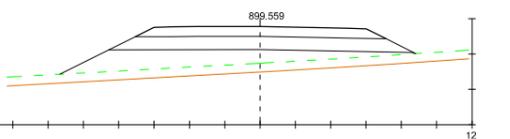
**Pk=5+097.179**  
 S. TERRAPLEN = 21.76 m2. S. SUELO\_SEL\_1 = 11.78 m2.  
 S. FIRME = 7.28 m2.  
 S. VEGETAL = 9.81 m2.



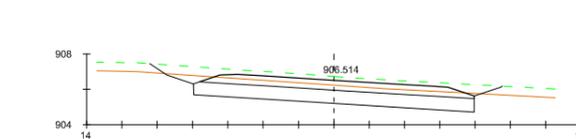
**Pk=5+220**  
 S. TERRAPLEN = 0.33 m2. S. SUELO\_SEL\_1 = 11.04 m2.  
 S. FIRME = 7.83 m2.  
 S. VEGETAL = 7.97 m2.  
 S. D\_TIERRA = 10.46 m2.



**Pk=4+980**  
 S. TERRAPLEN = 4.52 m2. S. SUELO\_SEL\_1 = 11.18 m2.  
 S. FIRME = 7.30 m2.  
 S. VEGETAL = 7.99 m2.  
 S. D\_TIERRA = 0.53 m2.



**Pk=5+100**  
 S. TERRAPLEN = 23.99 m2. S. SUELO\_SEL\_1 = 11.81 m2.  
 S. FIRME = 7.23 m2.  
 S. VEGETAL = 10.07 m2.



**Pk=5+240**  
 S. TERRAPLEN = 0.50 m2. S. SUELO\_SEL\_1 = 11.90 m2.  
 S. FIRME = 7.97 m2.  
 S. VEGETAL = 9.98 m2.  
 S. D\_TIERRA = 17.01 m2.



Escuelas de Ingenierías I.I.  
 Industrial, Informática y Aeroespacial



Grado en Ingeniería Aeroespacial  
 Trabajo de Fin de Grado

Director del T.F.G.  
 Dr. Jesús Cepeda Riaño  
 Dept. Física Aplicada

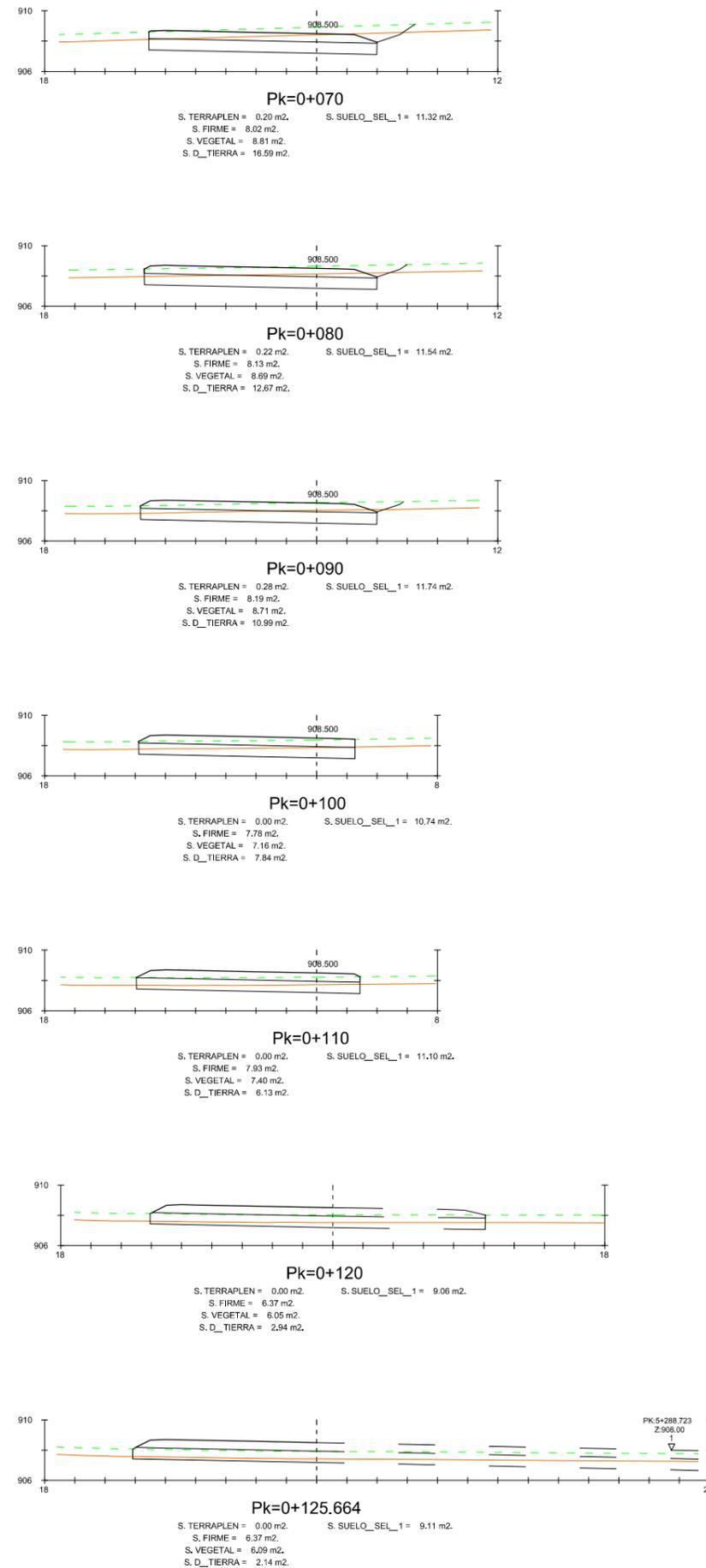
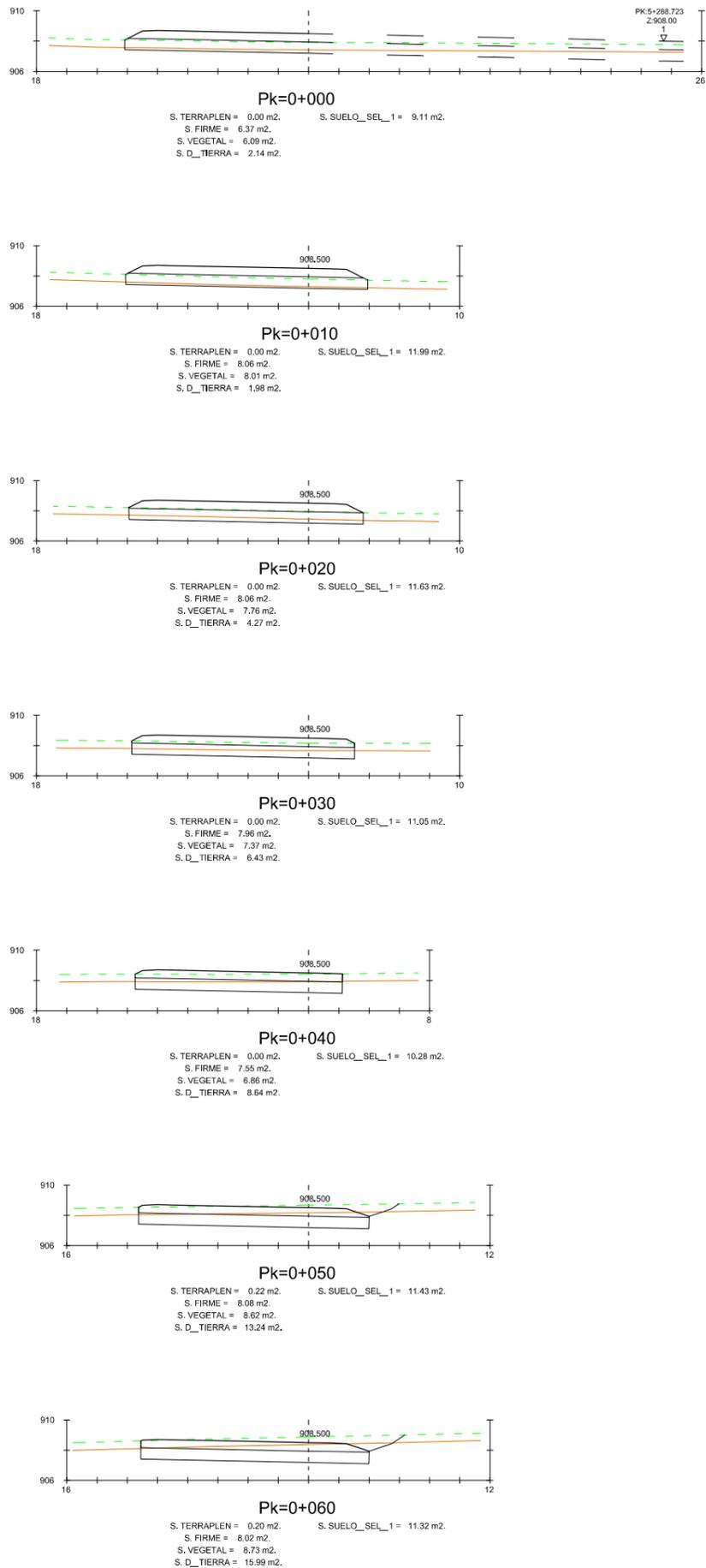
EL AUTOR DEL PROYECTO  
 D. Jesús Muñoz Vera  
 Ingeniero Técnico Aeronáutico

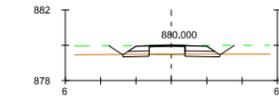
TITULO DEL TRABAJO:  
 PROYECTO DE TRAZADO:  
 Acceso al Aeropuerto de León desde la futura Ronda Noroeste

ESCALAS  
 DIN-A1: 1/100  
 DIN-A3: 1/200  
 GRAFICA: 0 2 4 8 m

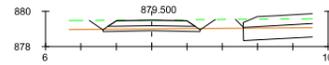
DESIGNACIÓN DEL PLANO:  
 PERFILES TRANSVERSALES  
 Eje 1: Eje Aeropuerto (4+860 - 5+312,284)

DOCUMENTO 2  
 FECHA ENERO-2015  
 PLANO 2.5  
 HOJA 13 DE 18

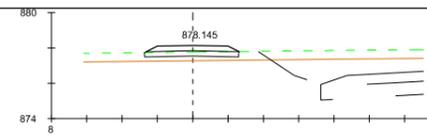




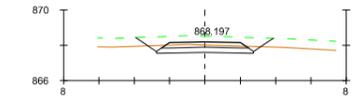
**Pk=0+000**  
 S. D. FIRME = 0,13 m<sup>2</sup>. S. D. TIERRA = 0,47 m<sup>2</sup>.  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 0,98 m<sup>2</sup>.  
 S. FIRME = 0,83 m<sup>2</sup>.  
 S. VEGETAL = 2,53 m<sup>2</sup>.



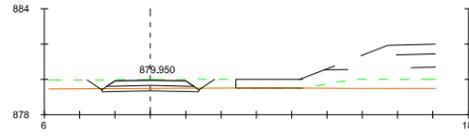
**Pk=0+100**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,57 m<sup>2</sup>.  
 S. D. TIERRA = 0,75 m<sup>2</sup>.



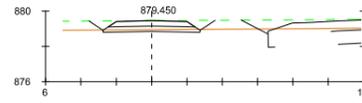
**Pk=0+180**  
 S. TERRAPLEN = 1,33 m<sup>2</sup>.  
 S. FIRME = 1,39 m<sup>2</sup>.  
 S. VEGETAL = 2,67 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.



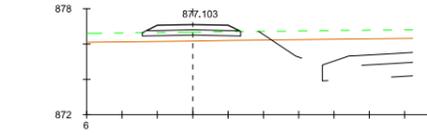
**Pk=0+310**  
 S. TERRAPLEN = 0,36 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,90 m<sup>2</sup>.  
 S. D. TIERRA = 2,50 m<sup>2</sup>.



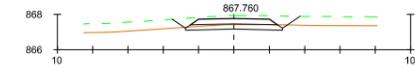
**Pk=0+010**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,61 m<sup>2</sup>.  
 S. D. TIERRA = 0,88 m<sup>2</sup>.



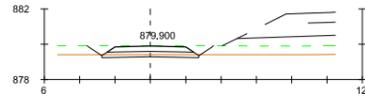
**Pk=0+110**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,56 m<sup>2</sup>.  
 S. D. TIERRA = 0,69 m<sup>2</sup>.



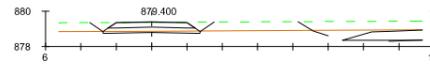
**Pk=0+200**  
 S. TERRAPLEN = 1,72 m<sup>2</sup>.  
 S. FIRME = 1,39 m<sup>2</sup>.  
 S. VEGETAL = 2,79 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,66 m<sup>2</sup>.



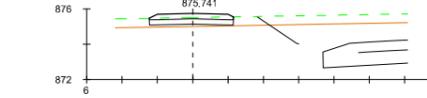
**Pk=0+320**  
 S. TERRAPLEN = 0,35 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,62 m<sup>2</sup>.  
 S. D. TIERRA = 1,46 m<sup>2</sup>.



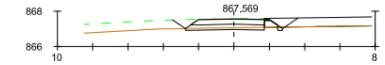
**Pk=0+020**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,58 m<sup>2</sup>.  
 S. D. TIERRA = 0,78 m<sup>2</sup>.



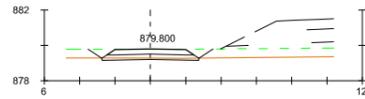
**Pk=0+120**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,52 m<sup>2</sup>.  
 S. D. TIERRA = 0,57 m<sup>2</sup>.



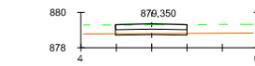
**Pk=0+220**  
 S. TERRAPLEN = 0,51 m<sup>2</sup>.  
 S. FIRME = 1,36 m<sup>2</sup>.  
 S. VEGETAL = 2,38 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,43 m<sup>2</sup>.



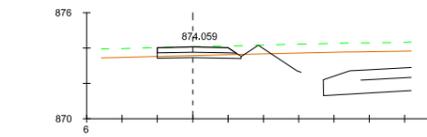
**Pk=0+325.678**  
 S. D. FIRME = 0,53 m<sup>2</sup>. S. D. TIERRA = 0,58 m<sup>2</sup>.  
 S. TERRAPLEN = 0,18 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,37 m<sup>2</sup>.  
 S. FIRME = 1,20 m<sup>2</sup>.  
 S. VEGETAL = 2,60 m<sup>2</sup>.



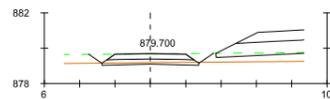
**Pk=0+040**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,54 m<sup>2</sup>.  
 S. D. TIERRA = 0,58 m<sup>2</sup>.



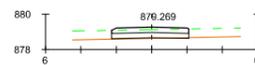
**Pk=0+130**  
 S. TERRAPLEN = 0,00 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,22 m<sup>2</sup>.  
 S. FIRME = 1,21 m<sup>2</sup>.  
 S. VEGETAL = 2,03 m<sup>2</sup>.  
 S. D. TIERRA = 0,26 m<sup>2</sup>.



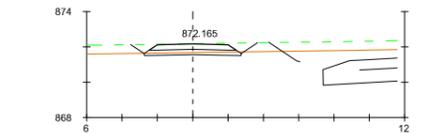
**Pk=0+240**  
 S. TERRAPLEN = 0,20 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,40 m<sup>2</sup>.  
 S. FIRME = 1,27 m<sup>2</sup>.  
 S. VEGETAL = 2,86 m<sup>2</sup>.  
 S. D. TIERRA = 0,66 m<sup>2</sup>.



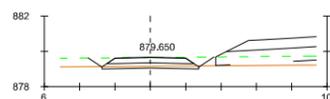
**Pk=0+060**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,54 m<sup>2</sup>.  
 S. D. TIERRA = 0,64 m<sup>2</sup>.



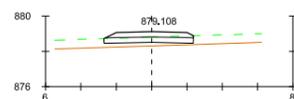
**Pk=0+140**  
 S. TERRAPLEN = 0,09 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,31 m<sup>2</sup>.  
 S. FIRME = 1,29 m<sup>2</sup>.  
 S. VEGETAL = 2,19 m<sup>2</sup>.  
 S. D. TIERRA = 0,03 m<sup>2</sup>.



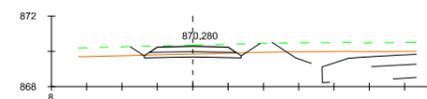
**Pk=0+260**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,59 m<sup>2</sup>.  
 S. D. TIERRA = 0,80 m<sup>2</sup>.



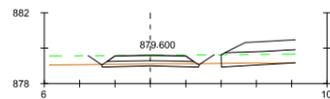
**Pk=0+070**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,56 m<sup>2</sup>.  
 S. D. TIERRA = 0,70 m<sup>2</sup>.



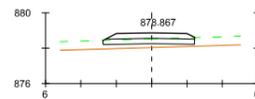
**Pk=0+150**  
 S. TERRAPLEN = 0,94 m<sup>2</sup>.  
 S. FIRME = 1,37 m<sup>2</sup>.  
 S. VEGETAL = 2,54 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,52 m<sup>2</sup>.



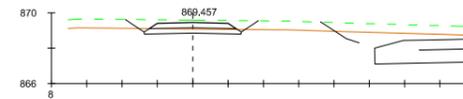
**Pk=0+280**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,67 m<sup>2</sup>.  
 S. D. TIERRA = 1,11 m<sup>2</sup>.



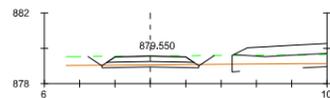
**Pk=0+080**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,57 m<sup>2</sup>.  
 S. D. TIERRA = 0,74 m<sup>2</sup>.



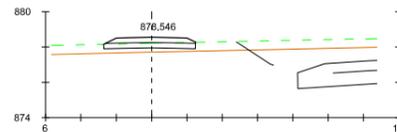
**Pk=0+160**  
 S. TERRAPLEN = 1,10 m<sup>2</sup>.  
 S. FIRME = 1,38 m<sup>2</sup>.  
 S. VEGETAL = 2,59 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,55 m<sup>2</sup>.



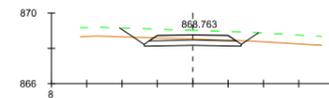
**Pk=0+290**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,76 m<sup>2</sup>.  
 S. D. TIERRA = 1,49 m<sup>2</sup>.



**Pk=0+090**  
 S. TERRAPLEN = 0,38 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,58 m<sup>2</sup>.  
 S. D. TIERRA = 0,76 m<sup>2</sup>.



**Pk=0+170**  
 S. TERRAPLEN = 1,11 m<sup>2</sup>.  
 S. FIRME = 1,38 m<sup>2</sup>.  
 S. VEGETAL = 2,80 m<sup>2</sup>.  
 S. SUELO\_SEL\_1 = 1,56 m<sup>2</sup>.



**Pk=0+300**  
 S. TERRAPLEN = 0,37 m<sup>2</sup>. S. SUELO\_SEL\_1 = 1,60 m<sup>2</sup>.  
 S. FIRME = 1,34 m<sup>2</sup>.  
 S. VEGETAL = 3,94 m<sup>2</sup>.  
 S. D. TIERRA = 2,22 m<sup>2</sup>.



Escuelas de Ingenierías I.I.  
 Industrial, Informática y Aeroespacial



Grado en Ingeniería Aeroespacial  
 Trabajo de Fin de Grado

Director del T.F.G.  
 Dr. Jesús Cepeda Riaño  
 Dept. Física Aplicada

EL AUTOR DEL PROYECTO  
 D. Jesús Muñoz Vera  
 Ingeniero Técnico Aeronáutico

TITULO DEL TRABAJO:  
**PROYECTO DE TRAZADO:**  
 Acceso al Aeropuerto de León desde la futura Ronda Noroeste

ESCALAS  
 DIN-A1: 1/100  
 DIN-A3: 1/200  
 GRAFICA:

DESIGNACIÓN DEL PLANO:  
**PERFILES TRANSVERSALES**  
 Eje 3 : Camino 2+000 M.I.

DOCUMENTO	2	PLANO	2.5
FECHA	ENERO-2015	HOJA 15	DE ...18

