



ESTUDIO INFORMATIVO DE LA NUEVA ESTACIÓN FERROVIARIA EN EL
AEROPUERTO DE GIRONA – COSTA BRAVA.

ANEJO 13. SERVICIOS Y SERVIDUMBRES AFECTADOS

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1. INTRODUCCIÓN Y OBJETO

El objeto del presente anejo es el de detectar e identificar las afecciones que se pueden producir durante la fase de ejecución de las obras del presente Estudio Informativo.

Una vez identificadas las afecciones en este documento, sirven de base para poder valorar económicamente las reposiciones en el documento de valoración del presente Estudio Informativo

Entre las principales afecciones detectadas se han diferenciado las siguientes:

- Red de electricidad.
- Red de telecomunicaciones
- Red de oleoducto

Se han elaborado unos planos identificativos de servicios existentes, por tipologías, que se encuentran en el Documento 2 Planos de este Estudio.

Para identificar los servicios, se han desarrollado unas tablas identificativas de todos los servicios que se cruzan con ejes de trazado, procediendo a su identificación y e indicando características, titularidad y posible afección. Estas tablas se adjuntan en el Apéndice 1 de este Anejo.

Finalmente, en el Documento de Valoración de presente Estudio se estiman económicamente la valoración de las citadas afecciones.

2. ORGANISMOS Y ENTIDADES CONSULTADAS

Definido el trazado definitivo para las alternativas estudiadas, se establecieron contactos con los organismos y empresas previsiblemente implicados tanto públicos como privados con objeto de recoger la mayor información posible de las afecciones que pudieran existir en los trazados propuestos, dicha información queda reflejada en el Anejo de Coordinación con otros Organismos del presente Estudio.

Se establecieron contactos con las principales compañías suministradoras y administraciones involucradas, solicitándoles toda la información de instalaciones existentes de las zonas por donde discurrirá el trazado.

Finalmente, se ha descargado la información de los portales **INKOLAN** y **ACEFAT-EWISE** que poseen la información de instalaciones existentes, a estar asociados casi todas las compañías que tienen redes de servicios.

3. SERVICIOS AFECTADOS

Como resultado final de los contactos realizados con los distintos organismos y empresas y la descarga de Inkolan, se tiene la información relativa a las redes existentes.

Estos datos se introdujeron en la cartografía base del estudio obteniéndose en un mismo formato para todos los servicios existentes en la zona correspondiente.

3.1 Red de suministro eléctrico

La compañía suministradora (EDISTRIBUCION Redes Digitales Cataluña) poseen redes de Baja, Media y Alta Tensión. La interferencia con las líneas subterráneas, en general y en función de su estado y profundidad, se tratará con un refuerzo o su desvío, teniendo en cuenta que existe una diversidad de tipologías de canalizaciones, desde la galería al cableado. El cruce o paralelismo con las líneas eléctricas aéreas se comprobará que cumplirán en lo posible las instrucciones existentes respecto a los gálibos/distancias mínimas. Son puntos conflictivos las torres metálicas y aquellas que tienen un transformador adicional a baja, por el incremento del coste de reposición.

En la siguiente tabla se recogen para cada alternativa el número de afecciones detectadas y la longitud estimada de reposición de Red en función de su tensión (A-alta, M-media, B-baja) y en discriminando si es aérea(A) o subterránea (S), de cara a valorar económicamente las reposiciones en cada una de las alternativas estudiadas.

| DESCRIPCIÓN | ALTERNATIVA 1 | ALTERNATIVA 2 |
|--|---------------|---------------|
| Afecciones a la Red Eléctrica BTS (núm.) | 2 | 2 |
| Estimación de longitud a reponer BTS(m) | 170 | 170 |
| Afecciones a la Red Eléctrica MTS (núm.) | 1 | 1 |
| Estimación de longitud a reponer MTS(m) | 370 | 370 |
| Afecciones a la Red Eléctrica ATA (núm.) | 1 | 1 |
| Estimación de longitud a reponer ATA(m) | 1.030 | 1.030 |

El listado total de instalaciones existentes con identificación de las afectadas se adjunta en el Apéndice 1 del presente Anejo, los Planos se adjuntan en el Documento 2 Planos del Estudio.

3.2 Red de telecomunicaciones

La red de telecomunicaciones (TELEFÓNICA) de la zona es escasa, al no entrar en un núcleo poblacional.

En la siguiente tabla se recogen para cada alternativa el número de afecciones detectadas y la longitud total de reposición de red estimada, de cara a valorar económicamente las reposiciones.

| DESCRIPCIÓN | ALTERNATIVA 1 | ALTERNATIVA 2 |
|---|---------------|---------------|
| Afecciones a la Red de telecomunicaciones subterránea. (núm) | 2 | 2 |
| Estimación de longitud a reponer telecomunicaciones subterránea (m) | 60 | 60 |
| Afecciones a la Red de telecomunicaciones aérea. (núm) | 1 | - |
| Estimación de longitud a reponer telecomunicaciones aérea (m) | 220 | - |

El listado total de instalaciones existentes con identificación de las afectadas, se adjunta en el Apéndice 1 del presente Anejo, los Planos se adjuntan en el Documento 2 Planos del Estudio.

3.3 Red de oleoducto

Existe red de oleoducto (EXOLUM) de acero 8" Tarragona-Barcelona-Gerona que va a ser afectado por la ejecución de las obras.

En la siguiente tabla se recogen para cada alternativa el número de afecciones detectadas y la longitud total de reposición de red estimada, de cara a valorar económicamente las reposiciones.

| DESCRIPCIÓN | ALTERNATIVA 1 | ALTERNATIVA 2 |
|---|---------------|---------------|
| Afecciones a la Red de oleoducto (núm) | 1 | 1 |
| Estimación de longitud a reponer oleoducto(m) | 120 | 120 |

El listado total de instalaciones existentes con identificación de las afectadas se adjunta en el Apéndice 1 del presente Anejo, los Planos se adjuntan en el Documento 2 Planos del Estudio.

4. PROPUESTA DE ACTUACIÓN DE REPOSICIÓN DE SERVICIOS

En el apartado anterior, se han resumido los servicios que están estudiados a lo largo del trazado. El listado total de afecciones se adjunta en el Apéndice 1 del presente Anejo.

Se recogen a continuación, las soluciones propuestas para reponer los servicios que se ven afectados.

En cuanto se refiere a las tipologías de servicios afectados en el tramo, se pueden clasificar en las siguientes: 1) Líneas eléctricas, 2) Telecomunicaciones, 3) Conducciones de Oleoducto.

4.1 Líneas eléctricas

A lo largo del todo el tramo se atraviesan diversas líneas tanto aéreas como subterráneas de baja, media y alta tensión.

En cuanto a las líneas eléctricas aéreas, la reposición podrá consistir en elevar y/o desviar la línea eléctrica. Se colocarán para ello, los apoyos intermedios necesarios para respetar las distancias reglamentarias con la plataforma. La afección **más relevante** se produce a la LAT aérea de 132 kV E-Distribución, que por su alto voltaje, será la más cuantiosa de las reposiciones a llevar a cabo. Se trata de una variante en aéreo de unos 1.030 m de longitud, es necesario desplazar tres torres porque no cumplen con las distancias mínimas legales. Esta afección se produce en ambas alternativas de trazado.

En las líneas eléctricas subterráneas las reposiciones pasarán por el desvío en subterráneo de la misma o por el refuerzo de la canalización mediante losa de hormigón y recrecido de arquetas existentes.

En todos los casos, cualquier incidencia sobre las instalaciones que se derive del Estudio informativo deberá cumplir con los vigentes Reglamentos Técnicos.

4.2 Telecomunicaciones

A lo largo del todo el tramo se atraviesan diversas líneas de telecomunicaciones, telefonía y fibra óptica tanto aéreas como subterráneas.

La solución para estas afecciones pasa por el desvío de la canalización o su desvío o refuerzo mediante losa de hormigón cuando se trate de una línea subterránea.

4.3 Conducciones de oleoducto

Las conducciones de oleoducto afectadas por el trazado serán repuestas mediante el desvío de las mismas cuando la infraestructura proyectada no haga posible la coexistencia.

Si fuese posible la coexistencia se realizará un refuerzo con dado o losa de hormigón para la protección del servicio afectado.

La conducción de oleoducto afectado se trata del denominado oleoducto Tarragona-Barcelona-Gerona, formado por una conducción de acero de 8 pulgadas de diámetro.

5. REPOSICIÓN DE SERVIDUMBRES

Se adjuntan listados de alineaciones en el Apéndice 2 del presente anejo.

Se han previsto viales para reponer las servidumbres de paso y acceso a todas las propiedades afectadas por la nueva infraestructura.

Se plasman sus principales características en las siguientes tablas:

ALTERNATIVA 1

| EJE | LONGITUD | NOMBRE | ANCHURA | FIRME | TALUD D | TALUD T |
|-------|----------|---------------------|---------|-------------------|---------|---------|
| A1-23 | 176,018 | CTRA. ACC. ESTACION | 6+0.5 | 30 cm ZA 5 cm MBC | 2H:1V | 2H:1V |
| A1-24 | 682,876 | RC-T-48+24 | 3 | 25 cm ZA | 2H:1V | 2H:1V |
| A1-42 | 2006,963 | CS-D-44.02 | 3 | 25 cm ZA | 2H:1V | 2H:1V |
| A1-43 | 367,124 | CS-I-46.40 | 6 | 30 cm ZA 5 cm MBC | 2H:1V | 2H:1V |
| A1-44 | 988,567 | CS-I-46.80 | 5 | 25 cm ZA | 2H:1V | 2H:1V |
| A1-45 | 369,758 | CS-I-48.24 | 3 | 25 cm ZA | 2H:1V | 2H:1V |

ALTERNATIVA 2

| EJE | LONGITUD | NOMBRE | ANCHURA | FIRME | TALUD D | TALUD T |
|-------|----------|--------------------|---------|-------------------|----------|---------|
| A2-31 | 2006,963 | CS-D-44.02 | 3 | 25 cm ZA | 25 cm ZA | 2H:1V |
| A2-32 | 367,124 | CS-I-46.40 | 6 | 25 cm ZA | 2H:1V | 2H:1V |
| A2-33 | 988,567 | CS-I-46.80 | 5 | 25 cm ZA | 2H:1V | 2H:1V |
| A2-41 | 246,864 | CTRA.-ACC Estación | 6+0.5 | 30 cm ZA 5 cm MBC | 2H:1V | 2H:1V |
| A2-44 | 711,861 | RC-D-48.5 | 3 | 25 cm ZA | 2H:1V | 2H:1V |

APÉNDICE 1. RELACIÓN DE POSIBLES AFECCIONES

ALTERNATIVA 1

| ID SERVICIO | PK CRUCE | TIPOLOGÍA | TITULAR | AFECCIÓN |
|---------------------------|-------------|---|----------------|----------|
| ELECTRICIDAD | | | | |
| ELE-001 | 46+429 | Línea Subterránea BT | E-Distribución | Si |
| ELE-002 | 46+603 | Línea Aérea BT | E-Distribución | Si |
| ELE-003 | 46+850 | Línea Subterránea MT | E-Distribución | Si |
| ELE-004 | 47+645 | Línea Aérea/Subterránea BT | E-Distribución | No |
| ELE-005 | 48+368 | Línea Aérea AT | E-Distribución | Si |
| ELE-006 | 49+463 | Línea Subterránea MT | E-Distribución | No |
| ELE-007 | Acceso Est. | Línea Aérea BT | E-Distribución | No |
| TELECOMUNICACIONES | | | | |
| TLC-001 | 47+665 | Línea Subterránea telecomunicaciones | Telefónica | Si |
| TLC-002 | 48+304 | Línea Subterránea telecomunicaciones | Telefónica | Si |
| TLC-003 | 49+404 | Línea Subterránea telecomunicaciones | Telefónica | No |
| TLC-004 | Acceso Est. | Línea Aérea telecomunicaciones | Telefónica | Si |
| OLEODUCTO | | | | |
| OLE-001 | 46+050 | Oleoducto ac8" Tarragona-Barcelona-Gerona | Exolum | Si |
| OLE-002 | 49+383 | Oleoducto ac8" Tarragona-Barcelona-Gerona | Exolum | No |

ALTERNATIVA 2

| ID SERVICIO | PK CRUCE | TIPOLOGÍA | TITULAR | AFECCIÓN |
|---------------------------|-------------|---|----------------|----------|
| ELECTRICIDAD | | | | |
| ELE-001 | 46+429 | Línea Subterránea BT | E-Distribución | Si |
| ELE-002 | 46+603 | Línea Aérea BT | E-Distribución | Si |
| ELE-003 | 46+850 | Línea Subterránea MT | E-Distribución | Si |
| ELE-004 | 47+645 | Línea Aérea/Subterránea BT | E-Distribución | No |
| ELE-005 | 48+368 | Línea Aérea AT | E-Distribución | Si |
| ELE-006 | 49+100 | Línea Aérea/Subterránea BT | E-Distribución | Si |
| ELE-007 | 49+463 | Línea Subterránea MT | E-Distribución | No |
| ELE-008 | Acceso Est. | Línea Aérea BT | E-Distribución | Si |
| TELECOMUNICACIONES | | | | |
| TLC-001 | 47+665 | Línea Subterránea telecomunicaciones | Telefónica | Si |
| TLC-002 | 48+304 | Línea Subterránea telecomunicaciones | Telefónica | Si |
| TLC-003 | 48+800 | Línea Subterránea telecomunicaciones | Telefónica | Si |
| TLC-004 | 49+060 | Línea Aérea telecomunicaciones | Telefónica | Si |
| TLC-005 | 49+404 | Línea Subterránea telecomunicaciones | Telefónica | No |
| TLC-006 | Acceso Est. | Línea Aérea telecomunicaciones | Telefónica | Si |
| OLEODUCTO | | | | |
| OLE-001 | 46+050 | Oleoducto ac8" Tarragona-Barcelona-Gerona | Exolum | Si |
| OLE-002 | 49+383 | Oleoducto ac8" Tarragona-Barcelona-Gerona | Exolum | No |

APÉNDICE 2. LISTADOS DE ALINEACIONES DE REPOSICIÓN DE SERVIDUMBRES

ÍNDICE

1. ALTERNATIVA 1 1

1.1 CTRA-ACC-ESTACIÓN (Eje A1-23) 1

1.1.1 Planta 1

1.1.2 Alzado..... 1

1.1.3 Puntos 1

1.2 RC-T-48.24 (Eje A1-24) 2

1.2.1 Planta 2

1.2.2 Alzado..... 3

1.2.3 Puntos 3

1.3 CS-D-44.02 (EjeA1-42)..... 5

1.3.1 Planta 5

1.3.2 Alzado..... 7

1.3.3 Puntos 10

1.4 CS-I-46.40 (Eje A1-43) 14

1.4.1 Planta 14

1.4.2 Alzado..... 14

1.4.3 Puntos 15

1.5 CS-I-46.80 (Eje A1-44) 15

1.5.1 Planta 15

1.5.2 Alzado..... 16

1.5.3 Puntos 17

1.6 CS-I-48.24 (Eje A1-45) 19

1.6.1 Planta 19

1.6.2 Alzado..... 20

1.6.3 Puntos 20

2. ALTERNATIVA 2 21

2.1 CS-D-44.02 (EjeA2-31)..... 21

2.1.1 Planta 21

2.1.2 Alzado..... 24

2.1.3 Puntos 26

2.2 CS-I-46.40 (Eje A2-32) 29

2.2.1 Planta 29

2.2.2 Alzado..... 30

2.2.3 Puntos 30

2.3 CS-I-46.80 (Eje A2-33)31

2.3.1 Planta31

2.3.2 Alzado31

2.3.3 Puntos.....33

2.4 CTRA-ACC-ESTACIÓN (Eje A2-41)34

2.4.1 Planta34

2.4.2 Alzado34

2.4.3 Puntos.....35

2.5 RC-D-48.50 (Eje A2-44)35

2.5.1 Planta35

2.5.2 Alzado36

2.5.3 Puntos.....37

1. ALTERNATIVA 1

1.1 CTRA-ACC-ESTACIÓN (Eje A1-23)

1.1.1 Planta

Istram 22.04.04.22 09/03/23 09:05:12 200356
 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 23 : CTRA. ACC. ESTACION

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|----------------|----------------|---------------|----------------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | | 84.898456 | | 0.000000 | 480391.660255 | 4637478.151579 |
| 167.3630040 | 0.4904976574 | -0.8714425099 | 41°53'20.3678" | 2°45'49.1224" | | |
| 2 CIRC. | 36.461494 | 84.898456 | 480433.302749 | 4637404.167456 | | -55.000000 |
| 167.3630040 | 480481.232087 | 4637431.144827 | 41°53'17.9726" | 2°45'50.9383" | | |
| 3 RECTA | | 38.796822 | | 121.359950 | 480460.057518 | 4637380.384236 |
| 125.1591707 | 0.9229198423 | -0.3849921617 | 41°53'17.2039" | 2°45'52.1021" | | |
| 4 CIRC. | 15.861359 | 160.156773 | 480495.863875 | 4637365.447763 | | -160.000000 |
| 125.1591707 | 480557.462621 | 4637513.114938 | 41°53'16.7227" | 2°45'53.6576" | | |
| | | 176.018131 | | 480510.781104 | | 4637360.076263 |
| 118.8481366 | | | 41°53'16.5499" | 2°45'54.3055" | | |

EJES EN PLANTA

#-----
 # Num Eje P.K. inicial N.Palabras Titulo del Eje
 #-----
 EJE 23 0.000000 3 CTRA. ACC. ESTACION
 REV 2112
 ALIAS4 N-634
 GRUPO 8
 TIPOL 401
 CM 2
 CAR 1
 VD 80.000
 MD 0
 RV 22.04 200356 (2022/04/22)
 VU 0 80.000
 NCE 1.000
 ACE 3.500

#-----
 #Anchos derecha derecha izquierda izquierda
 #-----
 ANCHOS 0.000 0.000 0.000 0.000
 #-----

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|----------|---------------|----------|---------------|----------------|------------|----------|----------|----------|
| L | D | Az | Etiq | Peralte | | | | |
| | ALI FIJA-2P+R | 0 | 480391.660255 | 4637478.151579 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | |
| | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -55.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | |
| | ALI FIJA-2P+R | 0 | 480460.063855 | 4637380.381592 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | |

480490.291500 4637367.772256
 ALI GIRATORIA 8 480510.781104 4637360.076263 -160.000000 0.000000 0.000000
 0.000000 0.000000 0.000000 0.000000 0 0.000 0 0 0.000 0.000 0
 #---
 FIN

1.1.2 Alzado

Istram 22.04.04.22 09/03/23 09:06:19 200356
 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 23 : CTRA. ACC. ESTACION

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | | LONGITUD | PARAMETRO | VÉRTICE | | ENTRADA AL ACUERDO | |
|--------------------|-------------|------------|--------------------|------------|------------|--------------------|-----------|
| SALIDA DEL ACUERDO | | BISECT. | DIF.PEN | | | | |
| PK | (%) | (m.) | (kv) | PK | Z | PK | Z |
| | Z | (m.) | (%) | | | | |
| | | | | | | | -1.189000 |
| 115.596001 | 5.98597879 | 31.943915 | 400.000000 | 21.668070 | 116.964220 | | 5.696112 |
| 116.008142 | 37.640028 | 116.644781 | 0.318879 -7.985979 | | | | |
| | -2.00000000 | 32.370852 | 1250.000000 | 100.843315 | 115.380715 | | 84.657890 |
| 115.704424 | 117.028741 | 115.476156 | 0.104787 2.589668 | | | | |
| | 0.58966813 | | | | | | |
| 176.068604 | 115.824295 | | | | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 23 : CTRA. ACC. ESTACION

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------|------------|--------------|
| 119.119000 | Rampa | 115.488481 | 0.58966813 % |
| 120.000000 | Rampa | 115.493676 | 0.58966813 % |
| 140.000000 | Rampa | 115.611610 | 0.58966813 % |
| 160.000000 | Rampa | 115.729544 | 0.58966813 % |
| 176.068614 | Rampa | 115.824295 | 0.58966813 % |

1.1.3 Puntos

Istram 22.04.04.22 09/03/23 12:13:
 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 23 : CTRA. ACC. ESTACION

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO DR. | AZIMUT (N) | DIST. Longitud (E) | P.K. EJE Pend (%) | X PERAL_I | Y PERAL_D | RADIO Z PROJ. | Z RAS IZ. (eje) | Z RAS TERR. Latitud |
|-----------------|---------------|-----------------------|----------------------|---------------|----------------|------------------|--------------------|------------------------|
| RECTA Rampa | 115.667174 | 167.363004 | 0.0000 | 480391.660255 | 4637478.151579 | 0.0000 | 115.667 | 115.599 |
| RECTA KV -400 | 116.608619 | 167.363004 | 0.0000 | 480401.470208 | 4637460.722729 | 0.0000 | 116.609 | 115.181 |
| RECTA Pendiente | 116.597582 | 167.363004 | 0.0000 | 480411.280161 | 4637443.293879 | 0.0000 | 116.598 | 115.131 |
| RECTA Pendiente | 116.197582 | 167.363004 | 0.0000 | 480421.090114 | 4637425.865028 | 0.0000 | 116.198 | 115.255 |
| RECTA Pendiente | 115.797582 | 167.363004 | 0.0000 | 480430.900068 | 4637408.436178 | 0.0000 | 115.798 | 115.663 |
| CIRC. KV 1250 | 115.699636 | 167.363004 | 0.0000 | 480433.302749 | 4637404.167456 | -55.0000 | 115.700 | 115.158 |
| CIRC. KV 1250 | 115.491734 | 149.883110 | 0.0000 | 480442.412687 | 4637392.182612 | -55.0000 | 115.492 | 114.530 |
| CIRC. Rampa | 115.493676 | 126.733300 | 0.0000 | 480458.808993 | 4637380.923269 | -55.0000 | 115.494 | 114.920 |
| RECTA Rampa | 115.501695 | 125.159171 | 0.0000 | 480460.057518 | 4637380.384236 | 0.0000 | 115.502 | 114.924 |
| RECTA Rampa | 115.611610 | 125.159171 | 0.0000 | 480477.260790 | 4637373.207962 | 0.0000 | 115.612 | 115.237 |
| RECTA Rampa | 115.729544 | 125.159171 | 0.0000 | 480495.719187 | 4637365.508119 | 0.0000 | 115.730 | 115.526 |
| CIRC. Rampa | 115.730468 | 125.159171 | 0.0000 | 480495.863875 | 4637365.447763 | -160.0000 | 115.730 | 115.528 |
| CIRC. Rampa | 115.823997 | 118.848189 | 0.0000 | 480510.780978 | 4637360.076301 | -160.0000 | 115.824 | 115.686 |

1.2 RC-T-48.24 (Eje A1-24)

1.2.1 Planta

Istram 22.04.04.22 09/03/23 09:05:
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 24 : RC-T-48+24

***** LISTADO DE LAS ALINEACIONES *****

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|----------------|----------------|----------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 CIRC. | 11.787174 | 0.000000 | 480623.363895 | 4637345.499148 | 48.000000 | |
| 171.9833754 | 480579.937535 | 4637325.050401 | 41°53'16.0872" | 2°45'59.1925" | | |
| 2 CIRC. | 29.225366 | 11.787174 | 480627.032301 | 4637334.328496 | -12.000000 | |
| 187.6166000 | 480638.805992 | 4637336.648019 | 41°53'15.7253" | 2°45'59.3530" | | |
| 3 RECTA | 67.017992 | | 41.012540 | 480649.269378 | 4637330.772856 | |
| 32.5712157 | 0.4895969566 | 0.8719488632 | 41°53'15.6120" | 2°46'00.3183" | | |

| | | | | | |
|-------------|---------------|----------------|----------------|----------------|----------------|
| 4 CIRC. | 43.541686 | 108.030532 | 480682.081183 | 4637389.209118 | -250.000000 |
| 32.5712157 | 480464.093967 | 4637511.608357 | 41°53'17.5096" | 2°46'01.7352" | |
| 5 RECTA | 113.136508 | | 151.572218 | 480699.993578 | 4637428.835332 |
| 21.4834165 | 0.3310920985 | 0.9435984433 | 41°53'18.7961" | 2°46'02.5078" | |
| 6 CIRC. | 25.938790 | 264.708726 | 480737.452182 | 4637535.590765 | 300.000000 |
| 21.4834165 | 481020.531715 | 4637436.263135 | 41°53'22.2608" | 2°46'04.1208" | |
| 7 RECTA | 52.928616 | | 290.647515 | 480747.087076 | 4637559.665037 |
| 26.9877986 | 0.4113396719 | 0.9114821306 | 41°53'23.0423" | 2°46'04.5360" | |
| 8 CIRC. | 18.793475 | 343.576131 | 480768.858716 | 4637607.908525 | 12.000000 |
| 26.9877986 | 480779.796501 | 4637602.972449 | 41°53'24.6085" | 2°46'05.4751" | |
| 9 RECTA | 62.557229 | | 362.369606 | 480784.681407 | 4637613.933183 |
| 126.6902794 | 0.9133945332 | -0.4070754558 | 41°53'24.8052" | 2°46'06.1610" | |
| 10 CIRC. | 19.561292 | 424.926836 | 480841.820838 | 4637588.467671 | 12.000000 |
| 126.6902794 | 480836.935933 | 4637577.506936 | 41°53'23.9845" | 2°46'08.6435" | |
| 11 RECTA | 196.191268 | | 444.488128 | 480847.587833 | 4637571.980905 |
| 230.4661572 | -0.4605025587 | -0.8876583765 | 41°53'23.4504" | 2°46'08.8957" | |
| 12 CIRC. | 42.196609 | 640.679396 | 480757.241252 | 4637397.830083 | -50.000000 |
| 230.4661572 | 480801.624171 | 4637374.804955 | 41°53'17.7958" | 2°46'04.9956" | |
| | | 682.876005 | 480754.924606 | 4637356.940168 | |
| 176.7397656 | | | 41°53'16.4697" | 2°46'04.8999" | |

EJES EN PLANTA

| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje |
|-------|--------------|--------------|------------|----------------|
| # | 24 | 0.000000 | 1 | RC-T-48+24 |
| REV | 2112 | | | |
| ALIAS | N-634 | | | |
| GRUPO | 8 | | | |
| TIPOL | 401 | | | |
| CM | 2 | | | |
| CAR | 1 | | | |
| VD | 80.000 | | | |
| MD | 0 | | | |
| RV | 22.04 200356 | (2022/04/22) | | |
| VU | 0 80.000 | | | |
| MRA | ESPA2i.ali | | | |
| NCE | 1.000 | | | |
| ACE | 3.500 | | | |

| # | Anchos | derecha | derecha | izquierda | izquierda |
|---|--------|---------|---------|-----------|-----------|
| # | ANCHOS | 0.000 | 0.000 | 0.000 | 0.000 |

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---|------|-------|-----------|------------|---|----|----|---|
| L | D | Az | Etiqu | Peralte | | | | |

| | | | | | | | | |
|----------------|----------|---------------|------------------|-----------|-------------|---------------|----------|----------|
| ALI FIJA-2P+R | 0 | 480623.363895 | 4637345.499148 | 48.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | -12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FIJA-2P+R | 0 | 480657.648282 | 4637333.440306 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -6.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | -250.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FIJA-2P+R | 0 | 480706.401416 | 4637447.097398 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 300.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FIJA-2P+R | 0 | 480746.412270 | 4637548.445420 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -4.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| ALI CONEC-P+PK | 1003 | 480814.315369 | 4637600.726119 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 99999999.0000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |
| PK | 0.000000 | EJE | 2 ALI | 0 xTP | 0 xJCA | 0 | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 0.000 0 | | |

```

ALI FIJA-2P+R      0 480847.285733 4637573.570122      0.000000      0.000000      0.000000
0.000000      0.000000      -1.000000      0.000000      0      0.000 0 0      0.000      0.000 0
      480750.438532 4637386.888794
ALI GIRATORIA      8 480754.924606 4637356.940168      -50.000000      0.000000      0.000000
0.000000      0.000000      0.000000      0.000000      0      0.000 0 0      0.000      0.000 0
    
```

1.2.2 Alzado

```

Istram      22.04.04.22      09/03/23      09:06:21      200356
pagina 1
PROYECTO :
GRUPO : 8 : Reposiciones
C.R.S. : ETRS89 (HUSO 31)
EJE : 24 : RC-T-48+24
    
```

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | | LONGITUD | PARAMETRO | VÉRTICE | | ENTRADA AL ACUERDO | |
|-------------|---|----------|-----------|---------|---|--------------------|---|
| DEL ACUERDO | | BISECT. | DIF.PEN | | | | |
| (%) | Z | (m.) | (kv) | PK | Z | PK | Z |

| | | | | | | | |
|-------------|------------|------------|---------------------|------------|------------|--|------------|
| | | | | | | | 0.000000 |
| 116.600000 | | | | | | | |
| -2.00000000 | | 19.000000 | 200.000000 | 9.597461 | 116.408051 | | 0.097461 |
| 116.598051 | 19.097461 | 117.120551 | 0.225625 9.500000 | | | | |
| 7.50000000 | | 32.500000 | 500.000000 | 36.775908 | 118.446434 | | 20.525908 |
| 117.227684 | 53.025908 | 118.608934 | 0.264062 -6.500000 | | | | |
| 1.00000000 | | 30.000000 | 500.000000 | 98.321419 | 119.061889 | | 83.321419 |
| 118.911889 | 113.321419 | 120.111889 | 0.225000 6.000000 | | | | |
| 7.00000000 | | 300.000000 | 2000.000000 | 379.015864 | 138.710501 | | 229.015864 |
| 128.210501 | 529.015864 | 126.710501 | 5.625000 -15.000000 | | | | |
| -8.00000000 | | 21.000000 | 300.000000 | 634.061435 | 118.306855 | | 623.561435 |
| 119.146855 | 644.561435 | 118.201855 | 0.183750 7.000000 | | | | |
| -1.00000000 | | | | | | | |
| 682.876126 | 117.818708 | | | | | | |

```

Istram      22.04.04.22      09/03/23      09:06:21      200356
pagina 2
PROYECTO :
GRUPO : 8 : Reposiciones
C.R.S. : ETRS89 (HUSO 31)
EJE : 24 : RC-T-48+24
    
```

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Pendiente | 116.600000 | -2.00000000 % |
| 0.097461 | tg. entrada | 116.598051 | -2.00000000 % |
| 4.097461 | Punto bajo | 116.558051 | 0.00000000 % |
| 19.097461 | tg. salida | 117.120551 | 7.50000000 % |
| 20.000000 | Rampa | 117.188241 | 7.50000000 % |
| 20.525908 | tg. entrada | 117.227684 | 7.50000000 % |
| 40.000000 | KV -500 | 118.309001 | 3.60518162 % |
| 53.025908 | tg. salida | 118.608934 | 1.00000000 % |
| 60.000000 | Rampa | 118.678675 | 1.00000000 % |
| 80.000000 | Rampa | 118.878675 | 1.00000000 % |
| 83.321419 | tg. entrada | 118.911889 | 1.00000000 % |
| 100.000000 | KV 500 | 119.356850 | 4.33571623 % |
| 113.321419 | tg. salida | 120.111889 | 7.00000000 % |
| 120.000000 | Rampa | 120.579390 | 7.00000000 % |

| | | | |
|------------|-------------|------------|---------------|
| 140.000000 | Rampa | 121.979390 | 7.00000000 % |
| 160.000000 | Rampa | 123.379390 | 7.00000000 % |
| 180.000000 | Rampa | 124.779390 | 7.00000000 % |
| 200.000000 | Rampa | 126.179390 | 7.00000000 % |
| 220.000000 | Rampa | 127.579390 | 7.00000000 % |
| 229.015864 | tg. entrada | 128.210501 | 7.00000000 % |
| 240.000000 | KV -2000 | 128.949227 | 6.45079319 % |
| 260.000000 | KV -2000 | 130.139386 | 5.45079319 % |
| 280.000000 | KV -2000 | 131.129545 | 4.45079319 % |
| 300.000000 | KV -2000 | 131.919703 | 3.45079319 % |
| 320.000000 | KV -2000 | 132.509862 | 2.45079319 % |
| 340.000000 | KV -2000 | 132.900020 | 1.45079319 % |
| 360.000000 | KV -2000 | 133.090179 | 0.45079319 % |
| 369.015864 | Punto alto | 133.110501 | 0.00000000 % |
| 380.000000 | KV -2000 | 133.080338 | -0.54920681 % |
| 400.000000 | KV -2000 | 132.870496 | -1.54920681 % |
| 420.000000 | KV -2000 | 132.460655 | -2.54920681 % |
| 440.000000 | KV -2000 | 131.850814 | -3.54920681 % |
| 460.000000 | KV -2000 | 131.040972 | -4.54920681 % |
| 480.000000 | KV -2000 | 130.031131 | -5.54920681 % |
| 500.000000 | KV -2000 | 128.821290 | -6.54920681 % |
| 520.000000 | KV -2000 | 127.411448 | -7.54920681 % |
| 529.015864 | tg. salida | 126.710501 | -8.00000000 % |
| 540.000000 | Pendiente | 125.831770 | -8.00000000 % |

```

Istram 22.04.04.22 09/03/23 09:06:21
PROYECTO :
GRUPO : 8 : Reposiciones
C.R.S. : ETRS89 (HUSO 31)
EJE : 24 : RC-T-48+24
    
```

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 560.000000 | Pendiente | 124.231770 | -8.00000000 % |
| 580.000000 | Pendiente | 122.631770 | -8.00000000 % |
| 600.000000 | Pendiente | 121.031770 | -8.00000000 % |
| 620.000000 | Pendiente | 119.431770 | -8.00000000 % |
| 623.561435 | tg. entrada | 119.146855 | -8.00000000 % |
| 640.000000 | KV 300 | 118.282147 | -2.52047819 % |
| 644.561435 | tg. salida | 118.201855 | -1.00000000 % |
| 660.000000 | Pendiente | 118.047469 | -1.00000000 % |
| 680.000000 | Pendiente | 117.847469 | -1.00000000 % |
| 682.876136 | Pendiente | 117.818708 | -1.00000000 % |

1.2.3 Puntos

```

Istram 22.04.04.22 09/03/23 12:14:05
PROYECTO :
C.R.S. : ETRS89 (HUSO 31)
EJE : 24 : RC-T-48+24
    
```

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS | | |
|-----------------|---------------------|-----------|---------------|----------------|-----------|------------------|-----------------|---------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE | Pend (%) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud | |
| CIRC. Pendiente | | 0.000000 | 480623.363895 | 4637345.499148 | 48.000 | 116.600000 | | |
| 116.600000 | 171.983375 | 0.0000 | -2.000000 | -2.000000 | 2.000000 | 116.600 | 116.535 | 116.535 |
| 41°53'16.0872" | 2°45'59.1925" | | | | | | | |
| CIRC. KV 200 | | 11.787174 | 480627.032301 | 4637334.328496 | -12.000 | 116.705880 | | |
| 116.705880 | 187.616600 | 0.0000 | 3.844856 | -2.000000 | 2.000000 | 116.706 | 116.177 | 116.177 |
| 41°53'15.7253" | 2°45'59.3530" | | | | | | | |

| | | | | | | | |
|-----------------------|---------------|---------------|----------------|----------|------------|---------|---------|
| CIRC. Rampa | 20.000000 | 480631.150196 | 4637327.407414 | -12.000 | 117.188241 | | |
| 117.188241 144.046203 | 0.0000 | 7.500000 | -2.000000 | 2.000000 | 117.188 | 116.556 | 116.556 |
| 41°53'15.5013" | 2°45'59.5325" | | | | | | |
| CIRC. KV -500 | 40.000000 | 480648.737004 | 4637329.911922 | -12.000 | 118.309001 | | |
| 118.309001 37.942907 | 0.0000 | 3.605182 | -2.000000 | 2.000000 | 118.309 | 117.824 | 117.824 |
| 41°53'15.5840" | 2°46'00.2953" | | | | | | |
| RECTA KV -500 | 41.012540 | 480649.269378 | 4637330.772856 | 0.000 | 118.344480 | | |
| 118.344480 32.571216 | 0.0000 | 3.402674 | -2.000000 | 2.000000 | 118.344 | 117.864 | 117.864 |
| 41°53'15.6120" | 2°46'00.3183" | | | | | | |
| RECTA Rampa | 60.000000 | 480658.565581 | 4637347.328950 | 0.000 | 118.678675 | | |
| 118.678675 32.571216 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 118.679 | 118.335 | 118.335 |
| 41°53'16.1496" | 2°46'00.7198" | | | | | | |
| RECTA Rampa | 80.000000 | 480668.357520 | 4637364.767927 | 0.000 | 118.878675 | | |
| 118.878675 32.571216 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 118.879 | 118.576 | 118.576 |
| 41°53'16.7159" | 2°46'01.1426" | | | | | | |
| RECTA KV 500 | 100.000000 | 480678.149459 | 4637382.206905 | 0.000 | 119.356850 | | |
| 119.356850 32.571216 | 0.0000 | 4.335716 | -2.000000 | 2.000000 | 119.357 | 118.694 | 118.694 |
| 41°53'17.2823" | 2°46'01.5655" | | | | | | |
| CIRC. KV 500 | 108.030532 | 480682.081183 | 4637389.209118 | -250.000 | 119.769521 | | |
| 119.769521 32.571216 | 0.0000 | 5.941823 | -2.000000 | 2.000000 | 119.770 | 118.767 | 118.767 |
| 41°53'17.5096" | 2°46'01.7352" | | | | | | |
| CIRC. Rampa | 120.000000 | 480687.689363 | 4637399.782156 | -250.000 | 120.579390 | | |
| 120.579390 29.523216 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 120.579 | 118.864 | 118.864 |
| 41°53'17.8530" | 2°46'01.9773" | | | | | | |
| CIRC. Rampa | 140.000000 | 480695.910795 | 4637418.008366 | -250.000 | 121.979390 | | |
| 121.979390 24.430257 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 121.979 | 118.990 | 118.990 |
| 41°53'18.4447" | 2°46'02.3320" | | | | | | |
| RECTA Rampa | 151.572218 | 480699.993578 | 4637428.835332 | 0.000 | 122.789445 | | |
| 122.789445 21.483416 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 122.789 | 119.102 | 119.102 |
| 41°53'18.7961" | 2°46'02.5078" | | | | | | |
| RECTA Rampa | 160.000000 | 480702.783950 | 4637436.787775 | 0.000 | 123.379390 | | |
| 123.379390 21.483416 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 123.379 | 119.148 | 119.148 |
| 41°53'19.0542" | 2°46'02.6280" | | | | | | |
| RECTA Rampa | 180.000000 | 480709.405792 | 4637455.659743 | 0.000 | 124.779390 | | |
| 124.779390 21.483416 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 124.779 | 119.355 | 119.355 |
| 41°53'19.6667" | 2°46'02.9131" | | | | | | |
| RECTA Rampa | 200.000000 | 480716.027634 | 4637474.531712 | 0.000 | 126.179390 | | |
| 126.179390 21.483416 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 126.179 | 119.560 | 119.560 |
| 41°53'20.2792" | 2°46'03.1982" | | | | | | |
| RECTA Rampa | 220.000000 | 480722.649476 | 4637493.403681 | 0.000 | 127.579390 | | |
| 127.579390 21.483416 | 0.0000 | 7.000000 | -2.000000 | 2.000000 | 127.579 | 119.641 | 119.641 |
| 41°53'20.8917" | 2°46'03.4834" | | | | | | |
| RECTA KV -2000 | 240.000000 | 480729.271318 | 4637512.275650 | 0.000 | 128.949227 | | |
| 128.949227 21.483416 | 0.0000 | 6.450793 | -2.000000 | 2.000000 | 128.949 | 119.840 | 119.840 |
| 41°53'21.5041" | 2°46'03.7685" | | | | | | |
| RECTA KV -2000 | 260.000000 | 480735.893160 | 4637531.147619 | 0.000 | 130.139386 | | |
| 130.139386 21.483416 | 0.0000 | 5.450793 | -2.000000 | 2.000000 | 130.139 | 120.213 | 120.213 |
| 41°53'22.1166" | 2°46'04.0536" | | | | | | |
| CIRC. KV -2000 | 264.708726 | 480737.452182 | 4637535.590765 | 300.000 | 130.390506 | | |
| 130.390506 21.483416 | 0.0000 | 5.215357 | -2.000000 | 2.000000 | 130.391 | 120.352 | 120.352 |
| 41°53'22.2608" | 2°46'04.1208" | | | | | | |
| CIRC. KV -2000 | 280.000000 | 480742.880456 | 4637549.884340 | 300.000 | 131.129545 | | |
| 131.129545 24.728326 | 0.0000 | 4.450793 | -2.000000 | 2.000000 | 131.130 | 120.655 | 120.655 |
| 41°53'22.7248" | 2°46'04.3546" | | | | | | |
| RECTA KV -2000 | 290.647515 | 480747.087076 | 4637559.665037 | 0.000 | 131.575101 | | |
| 131.575101 26.987799 | 0.0000 | 3.918417 | -2.000000 | 2.000000 | 131.575 | 120.887 | 120.887 |
| 41°53'23.0423" | 2°46'04.5360" | | | | | | |
| RECTA KV -2000 | 300.000000 | 480750.934124 | 4637568.189660 | 0.000 | 131.919703 | | |
| 131.919703 26.987799 | 0.0000 | 3.450793 | -2.000000 | 2.000000 | 131.920 | 121.133 | 121.133 |
| 41°53'23.3190" | 2°46'04.7020" | | | | | | |
| RECTA KV -2000 | 320.000000 | 480759.160917 | 4637586.419302 | 0.000 | 132.509862 | | |
| 132.509862 26.987799 | 0.0000 | 2.450793 | -2.000000 | 2.000000 | 132.510 | 122.085 | 122.085 |
| 41°53'23.9108" | 2°46'05.0568" | | | | | | |
| RECTA KV -2000 | 340.000000 | 480767.387711 | 4637604.648945 | 0.000 | 132.900020 | | |
| 132.900020 26.987799 | 0.0000 | 1.450793 | -2.000000 | 2.000000 | 132.900 | 122.667 | 122.667 |
| 41°53'24.5026" | 2°46'05.4117" | | | | | | |
| CIRC. KV -2000 | 343.576131 | 480768.858716 | 4637607.908525 | 12.000 | 132.948706 | | |
| 132.948706 26.987799 | 0.0000 | 1.271987 | -2.000000 | 2.000000 | 132.949 | 122.678 | 122.678 |
| 41°53'24.6085" | 2°46'05.4751" | | | | | | |
| CIRC. KV -2000 | 360.000000 | 480782.436130 | 4637614.678531 | 12.000 | 133.090179 | | |
| 133.090179 114.119128 | 0.0000 | 0.450793 | -2.000000 | 2.000000 | 133.090 | 122.852 | 122.852 |
| 41°53'24.8292" | 2°46'06.0635" | | | | | | |

| | | | | | | | |
|-----------------------|---------------|---------------|----------------|----------|------------|---------|---------|
| RECTA KV -2000 | 362.369606 | 480784.681407 | 4637613.933183 | 0.000 | 133.099457 | | |
| 133.099457 126.690279 | 0.0000 | 0.332313 | -2.000000 | 2.000000 | 133.099 | 122.757 | 122.757 |
| 41°53'24.8052" | 2°46'06.1610" | | | | | | |
| RECTA KV -2000 | 380.000000 | 480800.784912 | 4637606.756283 | 0.000 | 133.080338 | | |
| 133.080338 126.690279 | 0.0000 | -0.549207 | -2.000000 | 2.000000 | 133.080 | 122.800 | 122.800 |
| 41°53'24.5739" | 2°46'06.8607" | | | | | | |
| RECTA KV -2000 | 400.000000 | 480819.052803 | 4637598.614774 | 0.000 | 132.870496 | | |
| 132.870496 126.690279 | 0.0000 | -1.549207 | -2.000000 | 2.000000 | 132.870 | 123.573 | 123.573 |
| 41°53'24.3115" | 2°46'07.6543" | | | | | | |
| RECTA KV -2000 | 420.000000 | 480837.320693 | 4637590.473264 | 0.000 | 132.460655 | | |
| 132.460655 126.690279 | 0.0000 | -2.549207 | -2.000000 | 2.000000 | 132.461 | 121.786 | 121.786 |
| 41°53'24.0491" | 2°46'08.4480" | | | | | | |
| CIRC. KV -2000 | 424.926836 | 480841.820838 | 4637588.467671 | 12.000 | 132.328991 | | |
| 132.328991 126.690279 | 0.0000 | -2.795549 | -2.000000 | 2.000000 | 132.329 | 121.559 | 121.559 |
| 41°53'23.9845" | 2°46'08.6435" | | | | | | |
| CIRC. KV -2000 | 440.000000 | 480848.870407 | 4637576.254613 | 12.000 | 131.850814 | | |
| 131.850814 206.655899 | 0.0000 | -3.549207 | -2.000000 | 2.000000 | 131.851 | 121.070 | 121.070 |
| 41°53'23.5891" | 2°46'08.9509" | | | | | | |
| RECTA KV -2000 | 444.488128 | 480847.587833 | 4637571.980905 | 0.000 | 131.686485 | | |
| 131.686485 230.466157 | 0.0000 | -3.773613 | -2.000000 | 2.000000 | 131.686 | 121.010 | 121.010 |
| 41°53'23.4504" | 2°46'08.8957" | | | | | | |
| RECTA KV -2000 | 460.000000 | 480840.444576 | 4637558.211662 | 0.000 | 131.040972 | | |
| 131.040972 230.466157 | 0.0000 | -4.549207 | -2.000000 | 2.000000 | 131.041 | 120.828 | 120.828 |
| 41°53'23.0033" | 2°46'08.5873" | | | | | | |
| RECTA KV -2000 | 480.000000 | 480831.234525 | 4637540.458495 | 0.000 | 130.031131 | | |
| 130.031131 230.466157 | 0.0000 | -5.549207 | -2.000000 | 2.000000 | 130.031 | 120.119 | 120.119 |
| 41°53'22.4269" | 2°46'08.1897" | | | | | | |
| RECTA KV -2000 | 500.000000 | 480822.024474 | 4637522.705327 | 0.000 | 128.821290 | | |
| 128.821290 230.466157 | 0.0000 | -6.549207 | -2.000000 | 2.000000 | 128.821 | 119.446 | 119.446 |
| 41°53'21.8504" | 2°46'07.7922" | | | | | | |
| RECTA KV -2000 | 520.000000 | 480812.814423 | 4637504.952160 | 0.000 | 127.411448 | | |
| 127.411448 230.466157 | 0.0000 | -7.549207 | -2.000000 | 2.000000 | 127.411 | 119.011 | 119.011 |
| 41°53'21.2740" | 2°46'07.3946" | | | | | | |
| RECTA Pendiente | 540.000000 | 480803.604372 | 4637487.198992 | 0.000 | 125.831770 | | |
| 125.831770 230.466157 | 0.0000 | -8.000000 | -2.000000 | 2.000000 | 125.832 | 118.653 | 118.653 |
| 41°53'20.6976" | 2°46'06.9970" | | | | | | |
| RECTA Pendiente | 560.000000 | 480794.394320 | 4637469.445825 | 0.000 | 124.231770 | | |
| 124.231770 230.466157 | 0.0000 | -8.000000 | -2.000000 | 2.000000 | 124.232 | 118.156 | 118.156 |
| 41°53'20.1211" | 2°46'06.5994" | | | | | | |
| RECTA Pendiente | 580.000000 | 480785.184269 | 4637451.692657 | 0.000 | 122.631770 | | |
| 122.631770 230.466157 | 0.0000 | -8.000000 | -2.000000 | 2.000000 | 122.632 | 117.891 | 117.891 |
| 41°53'19.5447" | 2°46'06.2018" | | | | | | |
| RECTA Pendiente | 600.000000 | 480775.974218 | 4637433.939490 | 0.000 | 121.031770 | | |
| 121.031770 230.466157 | 0.0000 | -8.000000 | -2.000000 | 2.000000 | 121.032 | 117.803 | 117.803 |
| 41°53'18.9682" | 2°46'05.8043" | | | | | | |
| RECTA Pendiente | 620.000000 | 480766.764167 | 4637416.186322 | 0.000 | | | |

1.3 CS-D-44.02 (EjeA1-42)

1.3.1 Planta

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PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|------------|---------------|----------------|----------------|----------------|--------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 CIRC. | 37.242327 | 0.000000 | 479192.265584 | 4633302.883925 | -150.000000 | |
| 24.7148527 | 479053.427934 | 4633359.665146 | 41°51'04.8767" | 2°44'57.6058" | | |
| 2 CIRC. | 37.193209 | 37.242327 | 479201.961635 | 4633338.742915 | 150.000000 | |
| 8.9087181 | 479350.495336 | 4633317.820684 | 41°51'06.0404" | 2°44'58.0218" | | |
| 3 RECTA | 76.862961 | 74.435536 | 479211.639101 | 4633374.556439 | | |
| 24.6940063 | 0.3782383666 | 0.9257082359 | 41°51'07.2025" | 2°44'58.4370" | | |
| 4 CIRC. | 7.276406 | 151.298497 | 479240.711621 | 4633445.709115 | 200.000000 | |
| 24.6940063 | 479425.853268 | 4633370.061442 | 41°51'09.5124" | 2°44'59.6888" | | |
| 5 RECTA | 14.782075 | 158.574903 | 479243.585748 | 4633452.393398 | | |
| 27.0101581 | 0.4116597801 | 0.9113376023 | 41°51'09.7294" | 2°44'59.8126" | | |
| 6 CIRC. | 27.540177 | 173.356978 | 479249.670934 | 4633465.864859 | -300.000000 | |
| 27.0101581 | 478976.269653 | 4633589.362793 | 41°51'10.1668" | 2°45'00.0748" | | |
| 7 RECTA | 75.796138 | 200.897155 | 479259.840985 | 4633491.448035 | | |
| 21.1659511 | 0.3263825266 | 0.9452377724 | 41°51'10.9972" | 2°45'00.5126" | | |
| 8 CIRC. | 8.434518 | 276.693293 | 479284.579520 | 4633563.093407 | 300.000000 | |
| 21.1659511 | 479568.150852 | 4633465.178649 | 41°51'13.3226" | 2°45'01.5765" | | |
| 9 RECTA | 50.405363 | 285.127811 | 479287.444105 | 4633571.026286 | | |
| 22.9558115 | 0.3528254561 | 0.9356891565 | 41°51'13.5801" | 2°45'01.6997" | | |
| 10 CIRC. | 11.567491 | 335.533173 | 479305.228400 | 4633618.190037 | 120.000000 | |
| 22.9558115 | 479417.511098 | 4633575.850983 | 41°51'15.1111" | 2°45'02.4651" | | |
| 11 RECTA | 26.739370 | 347.100665 | 479309.824657 | 4633628.800301 | | |
| 29.0925562 | 0.4412443197 | 0.8973870126 | 41°51'15.4555" | 2°45'02.6631" | | |
| 12 CIRC. | 14.776163 | 373.840035 | 479321.623252 | 4633652.795865 | -110.000000 | |
| 29.0925562 | 479222.910681 | 4633701.332740 | 41°51'16.2347" | 2°45'03.1718" | | |
| 13 CIRC. | 58.546548 | 388.616198 | 479327.234303 | 4633666.453207 | -2500.000000 | |
| 20.5409221 | 476956.242887 | 4634459.169867 | 41°51'16.6780" | 2°45'03.4134" | | |
| 14 CIRC. | 9.195857 | 447.162746 | 479345.146802 | 4633722.190842 | -50.000000 | |
| 19.0500465 | 479297.368724 | 4633736.930422 | 41°51'18.4870" | 2°45'04.1833" | | |
| 15 CIRC. | 100.041170 | 456.358603 | 479347.036623 | 4633731.177179 | 500.000000 | |
| 7.3415180 | 479843.715613 | 4633673.644748 | 41°51'18.7785" | 2°45'04.2641" | | |
| 16 CIRC. | 10.864983 | 556.399773 | 479368.379834 | 4633828.744384 | -300.000000 | |
| 20.0791554 | 479083.178366 | 4633921.804165 | 41°51'21.9441" | 2°45'05.1775" | | |
| 17 CIRC. | 49.665683 | 567.264756 | 479371.562386 | 4633839.132180 | 1200.000000 | |
| 17.7735343 | 480525.098466 | 4633508.444243 | 41°51'22.2812" | 2°45'05.3142" | | |
| 18 CIRC. | 12.899317 | 616.930439 | 479386.232861 | 4633886.577993 | 12.000000 | |
| 20.4083806 | 479397.621517 | 4633882.796655 | 41°51'23.8210" | 2°45'05.9446" | -20.000000 | |
| 19 CIRC. | 20.608502 | 629.829756 | 479395.528921 | 4633894.612790 | | |
| 88.8413850 | 479392.041261 | 4633914.306348 | 41°51'24.0824" | 2°45'06.3467" | | |
| 20 CIRC. | 15.460629 | 650.438258 | 479410.723079 | 4633907.165642 | 50.000000 | |
| 23.2424857 | 479457.427623 | 4633889.313875 | 41°51'24.4909" | 2°45'07.0042" | | |
| 21 CIRC. | 12.439896 | 665.898887 | 479418.370560 | 4633920.531591 | -25.000000 | |
| 42.9275701 | 479398.842028 | 4633936.140450 | 41°51'24.9250" | 2°45'07.3342" | | |
| 22 RECTA | 48.319483 | 678.338784 | 479423.452718 | 4633931.745684 | | |
| 11.2496343 | 0.1757906248 | 0.9844275780 | 41°51'25.2891" | 2°45'07.5532" | | |
| 23 CIRC. | 7.615552 | 726.658267 | 479431.946830 | 4633979.312716 | 15.000000 | |
| 11.2496343 | 479446.713244 | 4633976.675856 | 41°51'26.8322" | 2°45'07.9156" | | |
| 24 CIRC. | 10.199879 | 734.273818 | 479435.091383 | 4633986.159123 | -15.000000 | |
| 43.5710401 | 479423.469522 | 4633995.642390 | 41°51'27.0545" | 2°45'08.0512" | | |
| 25 CIRC. | 17.438080 | 744.473697 | 479438.469375 | 4633995.576084 | 30.000000 | |
| 0.2814105 | 479468.469082 | 4633995.443473 | 41°51'27.3601" | 2°45'08.1965" | | |
| 26 CIRC. | 4.845767 | 761.911777 | 479443.469151 | 4634012.026701 | -12.000000 | |
| 37.2861659 | 479433.469179 | 4634018.659993 | 41°51'27.8940" | 2°45'08.4113" | | |

| | | | | | | |
|-------------|---------------|----------------|----------------|----------------|-------------|--|
| 27 RECTA | 20.096062 | 766.757545 | 479445.271253 | 4634016.489496 | | |
| 11.5785714 | 0.1808747262 | 0.9835061430 | 41°51'28.0389" | 2°45'08.4889" | | |
| 28 CIRC. | 9.222101 | 786.853606 | 479448.906122 | 4634036.254096 | -9.000000 | |
| 11.5785714 | 479440.054567 | 4634037.881968 | 41°51'28.6801" | 2°45'08.6441" | | |
| 29 CIRC. | 10.631253 | 796.075707 | 479446.042930 | 4634044.600563 | 9.000000 | |
| 346.3455514 | 479452.031293 | 4634051.319157 | 41°51'28.9504" | 2°45'08.5188" | | |
| 30 CIRC. | 38.182550 | 806.706960 | 479443.541853 | 4634054.307371 | -350.000000 | |
| 21.5462841 | 479113.396995 | 4634170.515688 | 41°51'29.2649" | 2°45'08.4091" | | |
| 31 CIRC. | 5.216842 | 844.889510 | 479454.231610 | 4634090.943294 | 9.000000 | |
| 14.6012081 | 479462.995928 | 4634088.897147 | 41°51'30.4538" | 2°45'08.8682" | | |
| 32 CIRC. | 3.577929 | 850.106352 | 479456.783955 | 4634095.409550 | -9.000000 | |
| 51.5028162 | 479450.571982 | 4634101.921953 | 41°51'30.5989" | 2°45'08.9783" | | |
| 33 CIRC. | 35.566339 | 853.684280 | 479458.820835 | 4634098.322449 | 150.000000 | |
| 26.1941481 | 479596.301713 | 4634038.330715 | 41°51'30.6935" | 2°45'09.0663" | | |
| 34 CIRC. | 65.434436 | 889.250620 | 479476.759059 | 4634128.937303 | -120.000000 | |
| 41.2889714 | 479381.124935 | 4634201.422573 | 41°51'31.6879" | 2°45'09.8405" | | |
| 35 CIRC. | 16.742516 | 954.685056 | 479500.485514 | 4634189.051152 | 50.000000 | |
| 6.5749248 | 479550.219089 | 4634183.896394 | 41°51'33.6393" | 2°45'10.8621" | | |
| 36 CIRC. | 5.626173 | 971.427572 | 479504.941739 | 4634205.108690 | -9.000000 | |
| 27.8921584 | 479496.791815 | 4634208.926904 | 41°51'34.1603" | 2°45'11.0534" | | |
| 37 CIRC. | 5.738217 | 977.053745 | 479505.634911 | 4634210.600124 | 9.000000 | |
| 388.0951269 | 479514.478006 | 4634212.273343 | 41°51'34.3384" | 2°45'11.0828" | | |
| 38 CIRC. | 23.402681 | 982.791962 | 479506.376248 | 4634216.192720 | -25.000000 | |
| 28.6847109 | 479483.871363 | 4634227.079877 | 41°51'34.5199" | 2°45'11.1142" | | |
| 39 CIRC. | 11.090633 | 1006.194643 | 479505.982070 | 4634238.746781 | 12.000000 | |
| 369.0902727 | 479516.595209 | 4634244.346895 | 41°51'35.2511" | 2°45'11.0943" | | |

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 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|----------------|----------------|-------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 40 CIRC. | 3.730766 | 1017.285276 | 479505.731506 | 4634249.443947 | -6.000000 | |
| 27.9279065 | 479500.299654 | 4634251.992473 | 41°51'35.5979" | 2°45'11.0821" | | |
| 41 CIRC. | 9.392119 | 1021.016042 | 479506.199353 | 4634253.084967 | 9.000000 | |
| 388.3432513 | 479515.048903 | 4634254.723708 | 41°51'35.7160" | 2°45'11.1020" | | |
| 42 CIRC. | 10.982473 | 1030.408160 | 479509.180138 | 4634261.547021 | -15.000000 | |
| 54.7789001 | 479499.398862 | 4634272.919208 | 41°51'35.9907" | 2°45'11.2302" | | |
| 43 CIRC. | 8.533361 | 1041.390633 | 479514.275574 | 4634270.999982 | 18.000000 | |
| 8.1678386 | 479532.127629 | 4634268.696911 | 41°51'36.2977" | 2°45'11.4500" | | |
| 44 CIRC. | 42.275928 | 1049.923994 | 479517.295776 | 4634278.895740 | -90.000000 | |
| 38.3484299 | 479443.136510 | 4634329.889889 | 41°51'36.5540" | 2°45'11.5800" | | |
| 45 CIRC. | 28.472803 | 1092.199923 | 479532.345930 | 4634317.986977 | 150.000000 | |
| 8.4443278 | 479681.028297 | 4634298.148791 | 41°51'37.8229" | 2°45'12.2279" | | |
| 46 CIRC. | 7.448317 | 1120.672726 | 479538.759580 | 4634345.684167 | -15.000000 | |
| 20.5285608 | 479524.532708 | 4634350.437705 | 41°51'38.7216" | 2°45'12.5027" | | |
| 47 CIRC. | 10.669808 | 1128.121043 | 479539.305970 | 4634353.035923 | 15.000000 | |
| 388.9169213 | 479554.079232 | 4634355.634140 | 41°51'38.9600" | 2°45'12.5255" | | |
| 48 CIRC. | 4.930386 | 1138.790851 | 479541.192273 | 4634363.310486 | -12.000000 | |
| 34.2009927 | 479530.882705 | 4634369.451563 | 41°51'39.2933" | 2°45'12.6060" | | |
| 49 CIRC. | 5.566286 | 1143.721236 | 479542.787028 | 4634367.939246 | 12.000000 | |
| 8.0444849 | 479554.691350 | 4634366.426928 | 41°51'39.4435" | 2°45'12.6746" | | |
| 50 CIRC. | 22.882465 | 1149.287522 | 479544.721529 | 4634373.105450 | -35.000000 | |
| 37.5745483 | 479515.642882 | 4634392.584473 | 41°51'39.6112" | 2°45'12.7579" | | |
| 51 CIRC. | 11.891402 | 1172.169987 | 479550.572197 | 4634394.807753 | 18.000000 | |
| 395.9533207 | 479568.535845 | 4634395.951154 | 41°51'40.3155" | 2°45'13.0089" | | |
| 52 CIRC. | 32.106341 | 1184.061390 | 479553.650072 | 4634406.071123 | -150.000000 | |
| 38.0105533 | 479429.601964 | 4634490.404194 | 41°51'40.6810" | 2°45'13.1410" | | |
| 53 CIRC. | 5.271874 | 1216.167730 | 479568.732655 | 4634434.344844 | 30.000000 | |
| 24.3841991 | 479596.558793 | 4634423.132974 | 41°51'41.5991" | 2°45'13.7917" | | |
| 54 CIRC. | 85.153584 | 1221.439604 | 479571.121324 | 4634439.036908 | -120.000000 | |
| 35.5714627 | 479469.371444 | 4634502.652646 | 41°51'41.7515" | 2°45'13.8947" | | |
| 55 CIRC. | 6.315688 | 1306.593188 | 479588.008545 | 4634520.687016 | 9.000000 | |
| 390.3960835 | 479596.906327 | 4634522.039593 | 41°51'44.4005" | 2°45'14.6171" | | |
| 56 CIRC. | 8.246003 | 1312.908876 | 479589.237773 | 4634526.750568 | -9.000000 | |
| 35.0704383 | 479581.569220 | 4634531.461543 | 41°51'44.5972" | 2°45'14.6696" | | |

| | | | | | | | | | | | | | |
|------------------|---------------|----------------|----------------|----------------|--------------|---------------|----------|---------------|----------------|----------------|-----------|-----------|-------|
| 57 CIRC. | 8.635759 | 1321.154879 | 479589.975249 | 4634534.676923 | 9.000000 | ALL FLOTANTE | 8 | 0.000000 | 0.000000 | 300.000000 | 0.000000 | 0.000000 | |
| 376.7419012 | 479598.381279 | 4634537.892302 | 41°51'44.8543" | 2°45'14.7006" | | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 |
| 58 CIRC. | 9.650897 | 1329.790637 | 479590.923866 | 4634542.930853 | -25.000000 | ALI FIJA-2P+R | 0 | 479294.098969 | 4633588.674912 | 0.000000 | 0.000000 | 0.000000 | |
| 37.8273988 | 479570.208829 | 4634556.926826 | 41°51'45.1220" | 2°45'14.7408" | 900.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 59 CIRC. | 155.576041 | 1339.441534 | 479594.669173 | 4634551.760436 | | | | | 479307.270634 | 4633623.606020 | | | |
| 13.2515918 | 480475.241549 | 4634365.770409 | 41°51'45.4087" | 2°45'14.9021" | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 120.000000 | 0.000000 | 0.000000 | |
| 60 CIRC. | 6.588587 | 1495.017575 | 479639.783576 | 4634700.449322 | -30.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 24.2563456 | 479611.934976 | 4634711.605285 | 41°51'50.2340" | 2°45'16.8405" | | ALI FIJA-2P+R | 0 | 479307.270634 | 4633623.606020 | 0.000000 | 0.000000 | 0.000000 | |
| 61 RECTA | 2.684511 | 1501.606162 | 479641.545083 | 4634706.784333 | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 10.2749297 | 0.1606984101 | 0.9870035567 | 41°51'50.4396" | 2°45'16.9162" | | | | | 479318.310262 | 4633646.058023 | | | |
| 62 CIRC. | 5.362426 | 1504.290673 | 479641.976480 | 4634709.433955 | 50.000000 | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -110.000000 | 0.000000 | 0.000000 | |
| 10.2749297 | 479691.326658 | 4634701.399034 | 41°51'50.5255" | 2°45'16.9346" | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 63 CIRC. | 75.156070 | 1509.653099 | 479643.120109 | 4634714.670382 | 9820.000000 | ALI FIJA-2P+R | 0 | 479331.726223 | 4633680.017174 | -2500.000000 | 0.000000 | 0.000000 | |
| 17.1025828 | 489110.886238 | 4632108.177616 | 41°51'50.6954" | 2°45'16.9835" | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 64 CIRC. | 48.932321 | 1584.809169 | 479663.345643 | 4634787.053634 | 500.000000 | | | | 479348.915423 | 4633734.519514 | | | |
| 17.5898113 | 480144.381315 | 4634650.654651 | 41°51'53.0443" | 2°45'17.8519" | | ALI GIRATORIA | 8 | 479347.279209 | 4633733.939861 | -50.000000 | 0.000000 | 0.000000 | |
| 65 CIRC. | 47.048562 | 1633.741490 | 479678.974702 | 4634833.402249 | -500.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 23.8200679 | 479213.568089 | 4635016.149847 | 41°51'54.5486" | 2°45'18.5241" | | ALI GIRATORIA | 8 | 479367.315529 | 4633825.443826 | 500.000000 | 0.000000 | 0.000000 | |
| 66 CIRC. | 156.025984 | 1680.790052 | 479694.086462 | 4634877.939526 | 2500.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 17.8296589 | 482096.678330 | 4634186.887923 | 41°51'55.9941" | 2°45'19.1741" | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -300.000000 | 0.000000 | 0.000000 | |
| 67 CIRC. | 9.467326 | 1836.816036 | 479741.864870 | 4635026.443502 | -12.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 21.8028280 | 479730.561765 | 4635030.473368 | 41°52'00.8136" | 2°45'21.2283" | | ALI FIJA-2P+R | 0 | 479364.360397 | 4633812.889862 | 1200.000000 | 0.000000 | 0.000000 | |
| 68 CIRC. | 6.926280 | 1846.283362 | 479741.385510 | 4635035.654734 | 9.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| 371.5771025 | 479749.503318 | 4635039.540759 | 41°52'01.1123" | 2°45'21.2063" | | | | | 479388.919345 | 4633894.575056 | | | |
| 69 CIRC. | 153.752862 | 1853.209642 | 479740.969076 | 4635042.398505 | 10260.000000 | ALI GIRATORIA | 8 | 479395.326026 | 4633894.575056 | 12.000000 | 0.000000 | 0.000000 | |
| 20.5705079 | 489470.004876 | 4631784.567568 | 41°52'01.3309" | 2°45'21.1874" | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| | | 2006.962504 | 479790.880397 | 4635187.823263 | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -20.000000 | 0.000000 | 0.000000 | |
| 21.5245246 | | | 41°52'06.0508" | 2°45'23.3346" | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # EJES EN PLANTA | | | | | | ALI FIJA-2P+R | 0 | 479410.808841 | 4633907.388420 | 50.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479419.884974 | 4633922.337344 | 0.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -25.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479426.825546 | 4633950.633523 | 0.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479432.164447 | 4633980.531371 | 15.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479438.037239 | 4633999.217527 | -15.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479443.702780 | 4634012.373632 | 30.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -12.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479446.730368 | 4634024.423434 | 0.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479448.668025 | 4634034.959442 | -9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479441.774470 | 4634049.403202 | -350.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479455.146039 | 4634094.967086 | 9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479465.265637 | 4634111.334460 | 150.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479476.684179 | 4634128.838425 | -120.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479504.699904 | 4634204.584646 | 50.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479505.623117 | 4634210.661295 | -9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 9.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI FIJA-2P+R | 0 | 479505.737524 | 4634214.960841 | -25.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |
| # | | | | | | ALI GIRATORIA | 8 | 479502.795018 | 4634243.416807 | 12.000000 | 0.000000 | 0.000000 | |
| # | | | | | | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 0.000 | 0.000 | |

| | | | | | | | |
|---------------|----------|---------------|----------------|--------------|----------|----------|----------|
| ALI GIRATORIA | 8 | 479505.218714 | 4634255.428000 | -6.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479506.256334 | 4634259.578478 | -15.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479513.826266 | 4634268.814331 | | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 18.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479516.113718 | 4634277.218008 | -90.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479530.121581 | 4634306.790163 | | | | |
| ALI GIRATORIA | 8 | 479538.422537 | 4634344.663274 | 150.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI GIRATORIA | 8 | 479539.515303 | 4634349.715316 | -15.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI GIRATORIA | 8 | 479541.535395 | 4634363.859234 | 15.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI GIRATORIA | 8 | 479542.573015 | 4634372.160190 | -12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479548.279922 | 4634379.942335 | -35.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479550.355161 | 4634397.063057 | | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 18.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479556.580878 | 4634410.552110 | -150.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479571.107550 | 4634440.643074 | | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 30.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479580.820345 | 4634458.165091 | -120.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479588.372105 | 4634518.107186 | | | | |
| ALI GIRATORIA | 8 | 479589.788060 | 4634527.546886 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI GIRATORIA | 8 | 479589.316075 | 4634536.042616 | -9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI GIRATORIA | 8 | 479589.626824 | 4634539.980249 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -25.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479612.238752 | 4634601.998550 | 900.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -5.250000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479620.945816 | 4634631.771091 | | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -30.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479638.874500 | 4634690.381712 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479646.226423 | 4634735.536945 | | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 50.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 5.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479652.197749 | 4634765.965621 | 9820.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 5.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479656.942194 | 4634782.792920 | | | | |
| ALI GIRATORIA | 8 | 479676.609897 | 4634827.261278 | 500.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | -500.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479691.203573 | 4634867.836669 | 2500.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479738.517509 | 4635016.994870 | | | | |
| ALI GIRATORIA | 8 | 479740.498021 | 4635037.201728 | -12.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| ALI FIJA-2P+R | 0 | 479735.936615 | 4635043.116339 | 10260.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 5.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 |
| | | 479786.163475 | 4635189.481770 | | | | |

1.3.2 Alzado

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 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

***** ESTADO DE RASANTES *****

| SALIDA DEL ACUERDO | | PENDIENTE (%) | LONGITUD BISECT. (m.) | PARAMETRO DIF.PEN (kv) (%) | VÉRTICE | | ENTRADA AL ACUERDO | |
|--------------------|---|---------------|-----------------------|------------------------------|-------------|------------|--------------------|----------|
| PK | Z | | (m.) | | PK | Z | PK | Z |
| | | | | | | | | 0.000000 |
| 99.605324 | | 6.18707973 | 52.122478 | 600.000000 | 68.092286 | 103.818248 | 42.031046 | |
| 102.205818 | | 94.153525 | 103.166717 | 0.565990 -8.687080 | | | | |
| | | -2.500000000 | 19.500000 | 650.000000 | 197.877805 | 100.573610 | 188.127805 | |
| 100.817360 | | 207.627805 | 100.622360 | 0.073125 3.000000 | | | | |
| | | 0.500000000 | 16.500000 | 500.000000 | 297.219724 | 101.070320 | 288.969724 | |
| 101.029070 | | 305.469724 | 100.839320 | 0.068062 -3.300000 | | | | |
| | | -2.800000000 | 22.000000 | 250.000000 | 403.780149 | 98.086628 | 392.780149 | |
| 98.394628 | | 414.780149 | 98.746628 | 0.242000 8.800000 | | | | |
| | | 6.000000000 | 22.000000 | 1000.000000 | 463.968910 | 101.697953 | 452.968910 | |
| 101.037953 | | 474.968910 | 102.599953 | 0.060500 2.200000 | | | | |
| | | 8.200000000 | 52.200000 | 600.000000 | 538.700932 | 107.825979 | 512.600932 | |
| 105.685779 | | 564.800932 | 107.695479 | 0.567675 -8.700000 | | | | |
| | | -0.500000000 | 16.500000 | 300.000000 | 580.913713 | 107.614915 | 572.663713 | |
| 107.656165 | | 589.163713 | 108.027415 | 0.113437 5.500000 | | | | |
| | | 5.000000000 | 10.000000 | 100.000000 | 607.733311 | 108.955895 | 602.733311 | |
| 108.705895 | | 612.733311 | 108.705895 | 0.125000 -10.000000 | | | | |
| | | -5.000000000 | 7.500000 | 30.000000 | 618.794656 | 108.402828 | 615.044656 | |
| 108.590328 | | 622.544656 | 109.152828 | 0.234375 25.000000 | | | | |
| | | 20.000000000 | 8.000000 | 200.000000 | 644.419633 | 113.527823 | 640.419633 | |
| 112.727823 | | 648.419633 | 114.167823 | 0.040000 -4.000000 | | | | |
| | | 16.000000000 | 40.000000 | 200.000000 | 675.182615 | 118.449901 | 655.182615 | |
| 115.249901 | | 695.182615 | 117.649901 | 1.000000 -20.000000 | | | | |
| | | -4.000000000 | 20.000000 | 200.000000 | 708.876660 | 117.102139 | 698.876660 | |
| 117.502139 | | 718.876660 | 115.702139 | 0.250000 -10.000000 | | | | |
| | | -14.000000000 | 10.500000 | 50.000000 | 725.526358 | 114.771181 | 720.276358 | |
| 115.506181 | | 730.776358 | 115.138681 | 0.275625 21.000000 | | | | |
| | | 7.000000000 | 17.000000 | 100.000000 | 741.914939 | 115.918382 | 733.414939 | |
| 115.323382 | | 750.414939 | 115.068382 | 0.361250 -17.000000 | | | | |
| | | -10.000000000 | 6.500000 | 50.000000 | 757.572963 | 114.352579 | 754.322963 | |
| 114.677579 | | 760.822963 | 114.450079 | 0.105625 13.000000 | | | | |
| | | 3.000000000 | 8.500000 | 50.000000 | 770.500416 | 114.740403 | 766.250416 | |
| 114.612903 | | 774.750416 | 114.145403 | 0.180625 -17.000000 | | | | |
| | | -14.000000000 | 51.300000 | 200.000000 | 822.934734 | 107.399598 | 797.284734 | |
| 110.990598 | | 848.584734 | 110.387823 | 1.644806 25.650000 | | | | |
| | | 11.650000000 | 17.550000 | 100.000000 | 926.914225 | 119.513209 | 918.139225 | |
| 118.490922 | | 935.689225 | 118.995484 | 0.385003 -17.550000 | | | | |
| | | -5.900000000 | 21.150000 | 150.000000 | 1004.706209 | 114.923482 | 994.131209 | |
| 115.547407 | | 1015.281209 | 112.808482 | 0.372769 -14.100000 | | | | |
| | | -20.000000000 | 20.000000 | 50.000000 | 1028.486547 | 110.167414 | 1018.486547 | |
| 112.167414 | | 1038.486547 | 112.167414 | 1.000000 40.000000 | | | | |
| | | | | | | | | |

| | | | | | |
|-------------|-------------|-------------|---------------------|------------|-------------|
| 14.00000000 | 14.500000 | 100.000000 | 1355.728490 | 117.239458 | 1348.478490 |
| 116.224458 | 1362.978490 | 117.203208 | 0.262813 -14.500000 | | |
| -0.50000000 | 14.107664 | 150.000000 | 1505.693579 | 116.489632 | 1498.639747 |
| 116.524901 | 1512.747411 | 117.117784 | 0.165855 9.405109 | | |
| 8.90510909 | 55.915009 | 1000.000000 | 1576.275137 | 122.774997 | 1548.317633 |
| 120.285351 | 1604.232642 | 123.701399 | 0.390811 -5.591501 | | |
| 3.31360815 | 23.412804 | 1000.000000 | 1623.958953 | 124.355052 | 1612.252551 |
| 123.967147 | 1635.665355 | 124.468876 | 0.068520 -2.341280 | | |
| 0.97232780 | 55.901717 | 1000.000000 | 1705.730305 | 125.150137 | 1677.779447 |
| 124.878363 | 1733.681164 | 126.984412 | 0.390625 5.590172 | | |
| 6.56249954 | 38.177081 | 750.000000 | 1774.958513 | 129.693238 | 1755.869973 |
| 128.440553 | 1794.047053 | 129.974264 | 0.242915 -5.090277 | | |
| 1.47222212 | 9.533334 | 300.000000 | 1810.080821 | 130.210317 | 1805.314154 |
| 130.140141 | 1814.847488 | 130.431967 | 0.037869 3.177778 | | |
| 4.65000000 | 20.475000 | 150.000000 | 1831.517809 | 131.207137 | 1821.280309 |
| 130.731093 | 1841.755309 | 130.285762 | 0.349355 -13.650000 | | |
| -9.00000000 | 12.500000 | 200.000000 | 1849.440339 | 129.594109 | 1843.190339 |
| 130.156609 | 1855.690339 | 129.422234 | 0.097656 6.250000 | | |
| -2.75000000 | 26.500000 | 1000.000000 | 1965.395985 | 126.405329 | 1952.145985 |
| 126.769704 | 1978.645985 | 125.689829 | 0.087781 -2.650000 | | |
| -5.40000000 | | | | | |
| 2006.962500 | 124.160737 | | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Rampa | 99.605324 | 6.18707973 % |
| 20.000000 | Rampa | 100.842740 | 6.18707973 % |
| 40.000000 | Rampa | 102.080156 | 6.18707973 % |
| 42.031046 | tg. entrada | 102.205818 | 6.18707973 % |
| 60.000000 | KV -600 | 103.048502 | 3.19225415 % |
| 79.153525 | Punto alto | 103.354217 | 0.00000000 % |
| 80.000000 | KV -600 | 103.353620 | -0.14107919 % |
| 94.153525 | tg. salida | 103.166717 | -2.50000000 % |
| 100.000000 | Pendiente | 103.020555 | -2.50000000 % |
| 120.000000 | Pendiente | 102.520555 | -2.50000000 % |
| 140.000000 | Pendiente | 102.020555 | -2.50000000 % |
| 160.000000 | Pendiente | 101.520555 | -2.50000000 % |
| 180.000000 | Pendiente | 101.020555 | -2.50000000 % |
| 188.127805 | tg. entrada | 100.817360 | -2.50000000 % |
| 200.000000 | KV 650 | 100.628977 | -0.67350854 % |
| 204.377805 | Punto bajo | 100.614235 | 0.00000000 % |
| 207.627805 | tg. salida | 100.622360 | 0.50000000 % |
| 220.000000 | Rampa | 100.684221 | 0.50000000 % |
| 240.000000 | Rampa | 100.784221 | 0.50000000 % |
| 260.000000 | Rampa | 100.884221 | 0.50000000 % |
| 280.000000 | Rampa | 100.984221 | 0.50000000 % |
| 288.969724 | tg. entrada | 101.029070 | 0.50000000 % |
| 291.469724 | Punto alto | 101.035320 | 0.00000000 % |
| 300.000000 | KV -500 | 100.962554 | -1.70605525 % |
| 305.469724 | tg. salida | 100.839320 | -2.80000000 % |
| 320.000000 | Pendiente | 100.432472 | -2.80000000 % |
| 340.000000 | Pendiente | 99.872472 | -2.80000000 % |
| 360.000000 | Pendiente | 99.312472 | -2.80000000 % |
| 380.000000 | Pendiente | 98.752472 | -2.80000000 % |
| 392.780149 | tg. entrada | 98.394628 | -2.80000000 % |
| 399.780149 | Punto bajo | 98.296628 | 0.00000000 % |
| 400.000000 | KV 250 | 98.296724 | 0.08794042 % |
| 414.780149 | tg. salida | 98.746628 | 6.00000000 % |
| 420.000000 | Rampa | 99.059819 | 6.00000000 % |
| 440.000000 | Rampa | 100.259819 | 6.00000000 % |
| 452.968910 | tg. entrada | 101.037953 | 6.00000000 % |
| 460.000000 | KV 1000 | 101.484537 | 6.70310900 % |

474.968910 tg. salida 102.599953 8.20000000 %
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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|----------------|
| 480.000000 | Rampa | 103.012503 | 8.20000000 % |
| 500.000000 | Rampa | 104.652503 | 8.20000000 % |
| 512.600932 | tg. entrada | 105.685779 | 8.20000000 % |
| 520.000000 | KV -600 | 106.246881 | 6.96682197 % |
| 540.000000 | KV -600 | 107.306912 | 3.63348864 % |
| 560.000000 | KV -600 | 107.700276 | 0.30015531 % |
| 561.800932 | Punto alto | 107.702979 | 0.00000000 % |
| 564.800932 | tg. salida | 107.695479 | -0.50000000 % |
| 572.663713 | tg. entrada | 107.656165 | -0.50000000 % |
| 574.163713 | Punto bajo | 107.652415 | 0.00000000 % |
| 580.000000 | KV 300 | 107.709186 | 1.94542903 % |
| 589.163713 | tg. salida | 108.027415 | 5.00000000 % |
| 600.000000 | Rampa | 108.569230 | 5.00000000 % |
| 602.733311 | tg. entrada | 108.705895 | 5.00000000 % |
| 607.733311 | Punto alto | 108.830895 | 0.00000000 % |
| 612.733311 | tg. salida | 108.705895 | -5.00000000 % |
| 615.044656 | tg. entrada | 108.590328 | -5.00000000 % |
| 616.544656 | Punto bajo | 108.552828 | 0.00000000 % |
| 620.000000 | KV 30 | 108.751818 | 11.51781400 % |
| 622.544656 | tg. salida | 109.152828 | 20.00000000 % |
| 640.000000 | Rampa | 112.643897 | 20.00000000 % |
| 640.419633 | tg. entrada | 112.727823 | 20.00000000 % |
| 648.419633 | tg. salida | 114.167823 | 16.00000000 % |
| 655.182615 | tg. entrada | 115.249901 | 16.00000000 % |
| 660.000000 | KV -200 | 115.962664 | 13.59130770 % |
| 680.000000 | KV -200 | 117.680926 | 3.59130770 % |
| 687.182615 | Punto alto | 117.809901 | 0.00000000 % |
| 695.182615 | tg. salida | 117.649901 | -4.00000000 % |
| 698.876660 | tg. entrada | 117.502139 | -4.00000000 % |
| 700.000000 | KV -200 | 117.454050 | -4.56167000 % |
| 718.876660 | tg. salida | 115.702139 | -14.00000000 % |
| 720.000000 | Pendiente | 115.544871 | -14.00000000 % |
| 720.276358 | tg. entrada | 115.506181 | -14.00000000 % |
| 727.276358 | Punto bajo | 115.016181 | 0.00000000 % |
| 730.776358 | tg. salida | 115.138681 | 7.00000000 % |
| 733.414939 | tg. entrada | 115.323382 | 7.00000000 % |
| 740.000000 | KV -100 | 115.567521 | 0.41493882 % |
| 740.414939 | Punto alto | 115.568382 | 0.00000000 % |

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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|----------------|
| 750.414939 | tg. salida | 115.068382 | -10.00000000 % |
| 754.322963 | tg. entrada | 114.677579 | -10.00000000 % |
| 759.322963 | Punto bajo | 114.427579 | 0.00000000 % |
| 760.000000 | KV 50 | 114.432163 | 1.35407415 % |
| 760.822963 | tg. salida | 114.450079 | 3.00000000 % |

| | | | |
|-------------|-------------|------------|----------------|
| 766.250416 | tg. entrada | 114.612903 | 3.00000000 % |
| 767.750416 | Punto alto | 114.635403 | 0.00000000 % |
| 774.750416 | tg. salida | 114.145403 | -14.00000000 % |
| 780.000000 | Pendiente | 113.410461 | -14.00000000 % |
| 797.284734 | tg. entrada | 110.990598 | -14.00000000 % |
| 800.000000 | KV 200 | 110.628893 | -12.64236696 % |
| 820.000000 | KV 200 | 109.100419 | -2.64236696 % |
| 825.284734 | Punto bajo | 109.030598 | 0.00000000 % |
| 840.000000 | KV 200 | 109.571946 | 7.35763304 % |
| 848.584734 | tg. salida | 110.387823 | 11.65000000 % |
| 860.000000 | Rampa | 111.717702 | 11.65000000 % |
| 880.000000 | Rampa | 114.047702 | 11.65000000 % |
| 900.000000 | Rampa | 116.377702 | 11.65000000 % |
| 918.139225 | tg. entrada | 118.490922 | 11.65000000 % |
| 920.000000 | KV -100 | 118.690389 | 9.78922489 % |
| 929.789225 | Punto alto | 119.169534 | 0.00000000 % |
| 935.689225 | tg. salida | 118.995484 | -5.90000000 % |
| 940.000000 | Pendiente | 118.741148 | -5.90000000 % |
| 960.000000 | Pendiente | 117.561148 | -5.90000000 % |
| 980.000000 | Pendiente | 116.381148 | -5.90000000 % |
| 994.131209 | tg. entrada | 115.547407 | -5.90000000 % |
| 1000.000000 | KV -150 | 115.086339 | -9.81252728 % |
| 1015.281209 | tg. salida | 112.808482 | -20.00000000 % |
| 1018.486547 | tg. entrada | 112.167414 | -20.00000000 % |
| 1020.000000 | KV 50 | 111.887629 | -16.97309500 % |
| 1028.486547 | Punto bajo | 111.167414 | 0.00000000 % |
| 1038.486547 | tg. salida | 112.167414 | 20.00000000 % |
| 1040.000000 | Rampa | 112.470105 | 20.00000000 % |
| 1047.227797 | tg. entrada | 113.915664 | 20.00000000 % |
| 1060.000000 | KV -100 | 115.654459 | 7.22779688 % |
| 1067.227797 | Punto alto | 115.915664 | 0.00000000 % |
| 1067.727797 | tg. salida | 115.914414 | -0.50000000 % |
| 1080.000000 | Pendiente | 115.853053 | -0.50000000 % |

| | | | |
|-------------|-------------|------------|---------------|
| 1362.478490 | Punto alto | 117.204458 | 0.00000000 % |
| 1362.978490 | tg. salida | 117.203208 | -0.50000000 % |
| 1380.000000 | Pendiente | 117.118100 | -0.50000000 % |
| 1400.000000 | Pendiente | 117.018100 | -0.50000000 % |
| 1420.000000 | Pendiente | 116.918100 | -0.50000000 % |
| 1440.000000 | Pendiente | 116.818100 | -0.50000000 % |
| 1460.000000 | Pendiente | 116.718100 | -0.50000000 % |
| 1480.000000 | Pendiente | 116.618100 | -0.50000000 % |
| 1498.639747 | tg. entrada | 116.524901 | -0.50000000 % |
| 1499.389747 | Punto bajo | 116.523026 | 0.00000000 % |
| 1500.000000 | KV 150 | 116.524268 | 0.40683504 % |
| 1512.747411 | tg. salida | 117.117784 | 8.90510909 % |

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 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|-------------|------------|---------------|
| 1520.000000 | Rampa | 117.763635 | 8.90510909 % |
| 1540.000000 | Rampa | 119.544656 | 8.90510909 % |
| 1548.317633 | tg. entrada | 120.285351 | 8.90510909 % |
| 1560.000000 | KV -1000 | 121.257439 | 7.73687235 % |
| 1580.000000 | KV -1000 | 122.604814 | 5.73687235 % |
| 1600.000000 | KV -1000 | 123.552188 | 3.73687235 % |
| 1604.232642 | tg. salida | 123.701399 | 3.31360815 % |
| 1612.252551 | tg. entrada | 123.967147 | 3.31360815 % |
| 1620.000000 | KV -1000 | 124.193856 | 2.53886326 % |
| 1635.665355 | tg. salida | 124.468876 | 0.97232780 % |
| 1640.000000 | Rampa | 124.511023 | 0.97232780 % |
| 1660.000000 | Rampa | 124.705489 | 0.97232780 % |
| 1677.779447 | tg. entrada | 124.878363 | 0.97232780 % |
| 1680.000000 | KV 1000 | 124.902420 | 1.19438313 % |
| 1700.000000 | KV 1000 | 125.341297 | 3.19438313 % |
| 1720.000000 | KV 1000 | 126.180173 | 5.19438313 % |
| 1733.681164 | tg. salida | 126.984412 | 6.56249954 % |
| 1740.000000 | Rampa | 127.399086 | 6.56249954 % |
| 1755.869973 | tg. entrada | 128.440553 | 6.56249954 % |
| 1760.000000 | KV -750 | 128.700214 | 6.01182924 % |
| 1780.000000 | KV -750 | 129.635914 | 3.34516257 % |
| 1794.047053 | tg. salida | 129.974264 | 1.47222212 % |
| 1800.000000 | Rampa | 130.061904 | 1.47222212 % |
| 1805.314154 | tg. entrada | 130.140141 | 1.47222212 % |
| 1814.847488 | tg. salida | 130.431967 | 4.65000000 % |
| 1820.000000 | Rampa | 130.671558 | 4.65000000 % |
| 1821.280309 | tg. entrada | 130.731093 | 4.65000000 % |
| 1828.255309 | Punto alto | 130.893262 | 0.00000000 % |
| 1840.000000 | KV -150 | 130.433469 | -7.82979370 % |
| 1841.755309 | tg. salida | 130.285762 | -9.00000000 % |
| 1843.190339 | tg. entrada | 130.156609 | -9.00000000 % |
| 1855.690339 | tg. salida | 129.422234 | -2.75000000 % |
| 1860.000000 | Pendiente | 129.303718 | -2.75000000 % |
| 1880.000000 | Pendiente | 128.753718 | -2.75000000 % |
| 1900.000000 | Pendiente | 128.203718 | -2.75000000 % |
| 1920.000000 | Pendiente | 127.653718 | -2.75000000 % |
| 1940.000000 | Pendiente | 127.103718 | -2.75000000 % |
| 1952.145985 | tg. entrada | 126.769704 | -2.75000000 % |

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 PROYECTO :
 GRUPO : 8 : Reposiciones
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 EJE : 42 : CS-D-44.02

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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|-------------|------------|----------------|
| 1100.000000 | Pendiente | 115.753053 | -0.50000000 % |
| 1110.704522 | tg. entrada | 115.699531 | -0.50000000 % |
| 1120.000000 | KV -180 | 115.413037 | -5.66415435 % |
| 1140.000000 | KV -180 | 113.169095 | -16.77526546 % |
| 1142.204522 | tg. salida | 112.785781 | -18.00000000 % |
| 1143.224056 | tg. entrada | 112.602264 | -18.00000000 % |
| 1159.424056 | Punto bajo | 111.144264 | 0.00000000 % |
| 1160.000000 | KV 90 | 111.146107 | 0.63993778 % |
| 1172.024056 | tg. salida | 112.026264 | 14.00000000 % |
| 1180.000000 | Rampa | 113.142897 | 14.00000000 % |
| 1200.000000 | Rampa | 115.942897 | 14.00000000 % |
| 1220.000000 | Rampa | 118.742897 | 14.00000000 % |
| 1230.883511 | tg. entrada | 120.266588 | 14.00000000 % |
| 1240.000000 | KV -200 | 121.335121 | 9.44175558 % |
| 1258.883511 | Punto alto | 122.226588 | 0.00000000 % |
| 1260.000000 | KV -200 | 122.223472 | -0.55824442 % |
| 1280.000000 | KV -200 | 121.111823 | -10.55824442 % |
| 1288.483511 | tg. salida | 120.036188 | -14.80000000 % |
| 1300.000000 | Pendiente | 118.331748 | -14.80000000 % |
| 1320.000000 | Pendiente | 115.371748 | -14.80000000 % |
| 1323.682912 | tg. entrada | 114.826677 | -14.80000000 % |
| 1331.082912 | Punto bajo | 114.279077 | 0.00000000 % |
| 1338.082912 | tg. salida | 114.769077 | 14.00000000 % |
| 1340.000000 | Rampa | 115.037469 | 14.00000000 % |
| 1348.478490 | tg. entrada | 116.224458 | 14.00000000 % |
| 1360.000000 | KV -100 | 117.173743 | 2.47849000 % |

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* * * PUNTOS DEL EJE EN ALZADO * * *
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P.K.          TIPO          COTA          PENDIENTE
-----
1960.000000   KV -1000       126.522875   -3.53540149 %
1978.645985   tg. salida     125.689829   -5.40000000 %
1980.000000   Pendiente     125.616712   -5.40000000 %
2000.000000   Pendiente     124.536712   -5.40000000 %
2006.962510   Pendiente     124.160737   -5.40000000 %
    
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1.3.3 Puntos

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* * * PUNTOS DEL EJE EN PLANTA * * *
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TIPO          P.K.          X          Y          RADIO          Z RAS IZ.          Z RAS
DR.          AZIMUT          DIST. EJE Pend (%)          PERAL_I          PERAL_D          Z PROJ.          ZT (eje)          Z TERR.          Latitud
(N)          Longitud (E)
-----

CIRC. Rampa          0.000000          479192.265584          4633302.883925          -150.000          99.605324
99.605324          24.714853          0.0000          6.187080          2.000000          2.000000          99.605          99.605          99.605
41°51'04.8767"          2°44'57.6058"

CIRC. Rampa          20.000000          479198.581716          4633321.844786          -150.000          100.842740
100.842740          16.226589          0.0000          6.187080          2.000000          2.000000          100.843          100.558          100.558
41°51'05.4921"          2°44'57.8774"

CIRC. Rampa          37.242327          479201.961635          4633338.742915          150.000          101.909536
101.909536          8.908718          0.0000          6.187080          2.000000          2.000000          101.910          101.542          101.542
41°51'06.0404"          2°44'58.0218"

CIRC. Rampa          40.000000          479202.371359          4633341.469941          150.000          102.080156
102.080156          10.079111          0.0000          6.187080          2.000000          2.000000          102.080          101.718          101.718
41°51'06.1288"          2°44'58.0392"

CIRC. KV -600          60.000000          479206.829966          4633360.951434          150.000          103.048502
103.048502          18.567374          0.0000          3.192254          2.000000          2.000000          103.049          102.709          102.709
41°51'06.7609"          2°44'58.2301"

RECTA KV -600          74.435536          479211.639101          4633374.556439          0.000          103.335668
103.335668          24.694006          0.0000          0.786331          2.000000          2.000000          103.336          102.895          102.895
41°51'07.2025"          2°44'58.4370"

RECTA KV -600          80.000000          479213.743794          4633379.707509          0.000          103.353620
103.353620          24.694006          0.0000          -0.141079          2.000000          2.000000          103.354          102.860          102.860
41°51'07.3697"          2°44'58.5276"

RECTA Pendiente          100.000000          479221.308562          4633398.221674          0.000          103.020555
103.020555          24.694006          0.0000          -2.500000          2.000000          2.000000          103.021          102.453          102.453
41°51'07.9708"          2°44'58.8533"

RECTA Pendiente          120.000000          479228.873329          4633416.735839          0.000          102.520555
102.520555          24.694006          0.0000          -2.500000          2.000000          2.000000          102.521          101.840          101.840
41°51'08.5718"          2°44'59.1790"

RECTA Pendiente          140.000000          479236.438096          4633435.250003          0.000          102.020555
102.020555          24.694006          0.0000          -2.500000          2.000000          2.000000          102.021          101.379          101.379
41°51'09.1728"          2°44'59.5048"

CIRC. Pendiente          151.298497          479240.711621          4633445.709115          200.000          101.738093
101.738093          24.694006          0.0000          -2.500000          2.000000          2.000000          101.738          101.234          101.234
41°51'09.5124"          2°44'59.6888"

RECTA Pendiente          158.574903          479243.585748          4633452.393398          0.000          101.556183
101.556183          27.010158          0.0000          -2.500000          2.000000          2.000000          101.556          101.077          101.077
41°51'09.7294"          2°44'59.8126"

RECTA Pendiente          160.000000          479244.172403          4633453.692143          0.000          101.520555
101.520555          27.010158          0.0000          -2.500000          2.000000          2.000000          101.521          101.110          101.110
41°51'09.7715"          2°44'59.8379"

CIRC. Pendiente          173.356978          479249.670934          4633465.864859          -300.000          101.186631
101.186631          27.010158          0.0000          -2.500000          2.000000          2.000000          101.187          100.647          100.647
41°51'10.1668"          2°45'00.0748"
    
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CIRC. Pendiente          180.000000          479252.338350          4633471.948676          -300.000          101.020555
101.020555          25.600465          0.0000          -2.500000          2.000000          2.000000          101.021          100.974          100.974
41°51'10.3643"          2°45'00.1897"

CIRC. KV 650          200.000000          479259.546902          4633490.600449          -300.000          100.628977
100.628977          21.356333          0.0000          -0.673509          2.000000          2.000000          100.629          100.443          100.443
41°51'10.9697"          2°45'00.5000"

RECTA KV 650          200.897155          479259.840985          4633491.448035          0.000          100.623554
100.623554          21.165951          0.0000          -0.535485          2.000000          2.000000          100.624          100.463          100.463
41°51'10.9972"          2°45'00.5126"

RECTA Rampa          220.000000          479266.075820          4633509.504766          0.000          100.684221
100.684221          21.165951          0.0000          0.500000          2.000000          2.000000          100.684          100.113          100.113
41°51'11.5833"          2°45'00.7808"

RECTA Rampa          240.000000          479272.603470          4633528.409521          0.000          100.784221
100.784221          21.165951          0.0000          0.500000          2.000000          2.000000          100.784          98.404          98.404
41°51'12.1969"          2°45'01.0615"

RECTA Rampa          260.000000          479279.131121          4633547.314277          0.000          100.884221
100.884221          21.165951          0.0000          0.500000          2.000000          2.000000          100.884          98.160          98.160
41°51'12.8105"          2°45'01.3422"

CIRC. Rampa          276.693293          479284.579520          4633563.093407          300.000          100.967687
100.967687          21.165951          0.0000          0.500000          2.000000          2.000000          100.968          96.923          96.923
41°51'13.3226"          2°45'01.5765"

CIRC. Rampa          280.000000          479285.675975          4633566.213021          300.000          100.984221
100.984221          21.867656          0.0000          0.500000          2.000000          2.000000          100.984          96.135          96.135
41°51'13.4239"          2°45'01.6237"

RECTA Rampa          285.127811          479287.444105          4633571.026286          0.000          101.009860
101.009860          22.955811          0.0000          0.500000          2.000000          2.000000          101.010          95.747          95.747
41°51'13.5801"          2°45'01.6997"

RECTA KV -500          300.000000          479292.691392          4633584.942032          0.000          100.962554
100.962554          22.955811          0.0000          -1.706055          2.000000          2.000000          100.963          95.941          95.941
41°51'14.0318"          2°45'01.9255"

RECTA Pendiente          320.000000          479299.747901          4633603.655815          0.000          100.432472
100.432472          22.955811          0.0000          -2.800000          2.000000          2.000000          100.432          96.158          96.158
41°51'14.6393"          2°45'02.2292"

CIRC. Pendiente          335.533173          479305.228400          4633618.190037          120.000          99.997543
99.997543          22.955811          0.0000          -2.800000          2.000000          2.000000          99.998          96.036          96.036
41°51'15.1111"          2°45'02.4651"

CIRC. Pendiente          340.000000          479306.881826          4633622.339304          120.000          99.872472
99.872472          25.325537          0.0000          -2.800000          2.000000          2.000000          99.872          96.071          96.071
41°51'15.2458"          2°45'02.5363"

RECTA Pendiente          347.100665          479309.824657          4633628.800301          0.000          99.673653
99.673653          29.092556          0.0000          -2.800000          2.000000          2.000000          99.674          96.254          96.254
41°51'15.4555"          2°45'02.6631"

RECTA Pendiente          360.000000          479315.516415          4633640.375997          0.000          99.312472
99.312472          29.092556          0.0000          -2.800000          2.000000          2.000000          99.312          96.543          96.543
41°51'15.8314"          2°45'02.9085"

CIRC. Pendiente          373.840035          479321.623252          4633652.795865          -110.000          98.924951
98.924951          29.092556          0.0000          -2.800000          2.000000          2.000000          98.925          97.692          97.692
41°51'16.2347"          2°45'03.1718"

CIRC. Pendiente          380.000000          479324.185142          4633658.396933          -110.000          98.752472
98.752472          25.527506          0.0000          -2.800000          2.000000          2.000000          98.752          97.782          97.782
41°51'16.4165"          2°45'03.2822"

CIRC. Pendiente          388.616198          479327.234303          4633666.453207          -2500.000          98.511218
98.511218          20.540922          0.0000          -2.800000          2.000000          2.000000          98.511          96.715          96.715
41°51'16.6780"          2°45'03.4134"

CIRC. KV 250          400.000000          479330.819362          4633677.257746          -2500.000          98.296724
98.296724          20.251036          0.0000          0.087940          2.000000          2.000000          98.297          97.344          97.344
41°51'17.0287"          2°45'03.5675"

CIRC. Rampa          420.000000          479336.998606          4633696.279177          -2500.000          99.059819
99.059819          19.741740          0.0000          6.000000          2.000000          2.000000          99.060          97.667          97.667
41°51'17.6461"          2°45'03.8331"

CIRC. Rampa          440.000000          479343.025483          4633715.349432          -2500.000          100.259819
100.259819          19.232444          0.0000          6.000000          2.000000          2.000000          100.260          99.105          99.105
41°51'18.2650"          2°45'04.0921"

CIRC. Rampa          447.162746          479345.146802          4633722.190842          -50.000          100.689584
100.689584          19.050046          0.0000          6.000000          2.000000          2.000000          100.690          99.598          99.598
41°51'18.4870"          2°45'04.1833"

CIRC. KV 1000          456.358603          479347.036623          4633731.177179          500.000          101.247080
101.247080          7.341518          0.0000          6.338969          2.000000          2.000000          101.247          100.603          100.603
41°51'18.7785"          2°45'04.2641"

CIRC. KV 1000          460.000000          479347.468788          4633734.792833          500.000          101.484537
101.484537          7.805155          0.0000          6.703109          2.000000          2.000000          101.485          101.049          101.049
41°51'18.8958"          2°45'04.2824"
    
```

| | | | | | | | | | | | |
|-----------------|------------------|---------------|----------------|----------|------------|-----------------|------------|---------------|----------------|-----------------|----------------|
| CIRC. Rampa | 480.000000 | 479350.311003 | 4633754.588501 | 500.000 | 103.012503 | RECTA Pendiente | 720.000000 | 479430.776369 | 4633972.758134 | 0.000 | 115.544871 |
| 103.012503 | 10.351634 | 0.0000 | 8.200000 | 2.000000 | 2.000000 | 103.013 | 101.978 | 101.978 | 115.544871 | 11.249634 | 0.0000 |
| 41°51'19.5380" | 2°45'04.4032" | | | | | | | | | -14.000000 | 2.000000 |
| CIRC. Rampa | 500.000000 | 479353.942561 | 4633774.254676 | 500.000 | 104.652503 | CIRC. KV 50 | 726.658267 | 479431.946830 | 4633979.312716 | 15.000 | 115.020001 |
| 104.652503 | 12.898113 | 0.0000 | 8.200000 | 2.000000 | 2.000000 | 104.653 | 104.107 | 104.107 | 115.020001 | 11.249634 | 0.0000 |
| 41°51'20.1760" | 2°45'04.5582" | | | | | | | | | -1.236183 | 2.000000 |
| CIRC. KV -600 | 520.000000 | 479358.357651 | 4633793.759898 | 500.000 | 106.246881 | CIRC. KV -100 | 734.273818 | 479435.091383 | 4633986.159123 | -15.000 | 115.379815 |
| 106.246881 | 15.444592 | 0.0000 | 6.966822 | 2.000000 | 2.000000 | 106.247 | 105.677 | 105.677 | 115.379815 | 43.571040 | 0.0000 |
| 41°51'20.8088" | 2°45'04.7472" | | | | | | | | | 6.141120 | 2.000000 |
| CIRC. KV -600 | 540.000000 | 479363.549211 | 4633813.072960 | 500.000 | 107.306912 | CIRC. KV -100 | 740.000000 | 479437.787696 | 4633991.171386 | -15.000 | 115.567521 |
| 107.306912 | 17.991071 | 0.0000 | 3.633489 | 2.000000 | 2.000000 | 107.307 | 107.194 | 107.194 | 115.567521 | 19.268370 | 0.0000 |
| 41°51'21.4355" | 2°45'04.9700" | | | | | | | | | 0.414939 | 2.000000 |
| CIRC. KV -600 | 556.399773 | 479368.379834 | 4633828.744384 | -300.000 | 107.678669 | CIRC. KV -100 | 744.473697 | 479438.469375 | 4633995.576084 | 30.000 | 115.486014 |
| 107.678669 | 20.079155 | 0.0000 | 0.900193 | 2.000000 | 2.000000 | 107.679 | 107.889 | 107.889 | 115.486014 | 0.281410 | 0.0000 |
| 41°51'21.9441" | 2°45'05.1775" | | | | | | | | | -4.058758 | 2.000000 |
| CIRC. KV -600 | 560.000000 | 479369.476058 | 4633832.173636 | -300.000 | 107.700276 | CIRC. KV 50 | 760.000000 | 479442.463830 | 4634010.400975 | 30.000 | 114.432163 |
| 107.700276 | 19.315163 | 0.0000 | 0.300155 | 2.000000 | 2.000000 | 107.700 | 107.380 | 107.380 | 114.432163 | 33.229249 | 0.0000 |
| 41°51'22.0554" | 2°45'05.2246" | | | | | | | | | 1.354074 | 2.000000 |
| CIRC. Pendiente | 567.264756 | 479371.562386 | 4633839.132180 | 1200.000 | 107.683160 | CIRC. Rampa | 761.911777 | 479443.469151 | 4634012.026701 | -12.000 | 114.482744 |
| 107.683160 | 17.773534 | 0.0000 | -0.500000 | 2.000000 | 2.000000 | 107.683 | 106.688 | 106.688 | 114.482744 | 37.286166 | 0.0000 |
| 41°51'22.2812" | 2°45'05.3142" | | | | | | | | | 3.000000 | 2.000000 |
| CIRC. KV 300 | 580.000000 | 479375.136774 | 4633851.355464 | 1200.000 | 107.709186 | RECTA KV -50 | 766.757545 | 479445.271253 | 4634016.489496 | 0.000 | 114.625545 |
| 107.709186 | 18.449160 | 0.0000 | 1.945429 | 2.000000 | 2.000000 | 107.709 | 107.611 | 107.611 | 114.625545 | 11.578571 | 0.0000 |
| 41°51'22.6779" | 2°45'05.4677" | | | | | | | | | 1.985742 | 2.000000 |
| CIRC. Rampa | 600.000000 | 479381.011409 | 4633870.472980 | 1200.000 | 108.569230 | RECTA Pendiente | 780.000000 | 479447.666478 | 4634029.513532 | 0.000 | 113.410461 |
| 108.569230 | 19.510193 | 0.0000 | 5.000000 | 2.000000 | 2.000000 | 108.569 | 109.261 | 109.261 | 113.410461 | 11.578571 | 0.0000 |
| 41°51'23.2983" | 2°45'05.7201" | | | | | | | | | -14.000000 | 2.000000 |
| CIRC. KV 30 | 616.930439 | 479386.232861 | 4633886.577993 | 12.000 | 108.555308 | CIRC. Pendiente | 786.853606 | 479448.906122 | 4634036.254096 | -9.000 | 112.450956 |
| 108.555308 | 20.408381 | 0.0000 | 1.285944 | 2.000000 | 2.000000 | 108.555 | 108.564 | 108.564 | 112.450956 | 786.853606 | 479448.906122 |
| 41°51'23.8210" | 2°45'05.9446" | | | | | | | | | -14.000000 | 2.000000 |
| CIRC. KV 30 | 620.000000 | 479387.560165 | 4633889.336472 | 12.000 | 108.751818 | CIRC. Pendiente | 796.075707 | 479446.042930 | 4634044.600563 | 9.000 | 111.159862 |
| 108.751818 | 36.692908 | 0.0000 | 11.517814 | 2.000000 | 2.000000 | 108.752 | 108.515 | 108.515 | 111.159862 | 346.345551 | 0.0000 |
| 41°51'23.9106" | 2°45'06.0018" | | | | | | | | | -14.000000 | 2.000000 |
| CIRC. Rampa | 629.829756 | 479395.528921 | 4633894.612790 | -20.000 | 110.609848 | CIRC. KV 200 | 800.000000 | 479443.765659 | 4634047.758356 | 9.000 | 110.628893 |
| 110.609848 | 88.841385 | 0.0000 | 20.000000 | 2.000000 | 2.000000 | 110.610 | 109.813 | 109.813 | 110.628893 | 374.104245 | 0.0000 |
| 41°51'24.0824" | 2°45'06.3467" | | | | | | | | | -12.642367 | 2.000000 |
| Istram | 22.04.04.22 | 09/03/23 | 12:14:23 | 200356 | | | | | | 806.706960 | 479443.541853 |
| pagina 2 | | | | | | | | | | 109.893433 | 21.546284 |
| PROYECTO : | | | | | | | | | | 0.0000 | -9.288887 |
| C.R.S. : | ETRS89 (HUSO 31) | | | | | | | | | 2.000000 | 2.000000 |
| EJE : | 42 : CS-D-44.02 | | | | | | | | | 2.000000 | 109.893 |
| | | | | | | | | | | 41°51'29.2649" | 2°45'08.4091" |
| | | | | | | | | | | CIRC. KV 200 | 820.000000 |
| | | | | | | | | | | 479447.716311 | 4634066.927101 |
| | | | | | | | | | | -350.000 | 109.100419 |
| | | | | | | | | | | 109.100419 | 19.128395 |
| | | | | | | | | | | 0.0000 | -2.642367 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'29.6745" | 2°45'08.5886" |
| | | | | | | | | | | CIRC. KV 200 | 840.000000 |
| | | | | | | | | | | 479453.086759 | 4634086.189745 |
| | | | | | | | | | | -350.000 | 109.571946 |
| | | | | | | | | | | 109.571946 | 15.490568 |
| | | | | | | | | | | 0.0000 | 7.357633 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'30.2996" | 2°45'08.8191" |
| | | | | | | | | | | CIRC. KV 200 | 844.889510 |
| | | | | | | | | | | 479454.231610 | 4634090.943294 |
| | | | | | | | | | | 9.000 | 109.991466 |
| | | | | | | | | | | 109.991466 | 14.601208 |
| | | | | | | | | | | 0.0000 | 9.802388 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'30.4538" | 2°45'08.8682" |
| | | | | | | | | | | CIRC. Rampa | 850.106352 |
| | | | | | | | | | | 479456.783955 | 4634095.409550 |
| | | | | | | | | | | -9.000 | 110.565092 |
| | | | | | | | | | | 110.565092 | 51.502816 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'30.5989" | 2°45'08.9783" |
| | | | | | | | | | | CIRC. Rampa | 853.684280 |
| | | | | | | | | | | 479458.820835 | 4634098.322449 |
| | | | | | | | | | | 150.000 | 110.981921 |
| | | | | | | | | | | 110.981921 | 26.194148 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'30.6935" | 2°45'09.0663" |
| | | | | | | | | | | CIRC. Rampa | 860.000000 |
| | | | | | | | | | | 479461.467874 | 4634104.056174 |
| | | | | | | | | | | 150.000 | 111.717702 |
| | | | | | | | | | | 111.717702 | 28.874623 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'30.8797" | 2°45'09.1804" |
| | | | | | | | | | | CIRC. Rampa | 880.000000 |
| | | | | | | | | | | 479471.402075 | 4634121.397437 |
| | | | | | | | | | | 150.000 | 114.047702 |
| | | | | | | | | | | 114.047702 | 37.362886 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'31.4429" | 2°45'09.6091" |
| | | | | | | | | | | CIRC. Rampa | 889.250620 |
| | | | | | | | | | | 479476.759059 | 4634128.937303 |
| | | | | | | | | | | -120.000 | 115.125399 |
| | | | | | | | | | | 115.125399 | 41.288971 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'31.6879" | 2°45'09.8405" |
| | | | | | | | | | | CIRC. Rampa | 900.000000 |
| | | | | | | | | | | 479482.860037 | 4634137.783206 |
| | | | | | | | | | | -120.000 | 116.377702 |
| | | | | | | | | | | 116.377702 | 35.586248 |
| | | | | | | | | | | 0.0000 | 11.650000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'31.9753" | 2°45'10.1040" |
| | | | | | | | | | | CIRC. KV -100 | 920.000000 |
| | | | | | | | | | | 479492.007842 | 4634155.542502 |
| | | | | | | | | | | -120.000 | 118.690389 |
| | | | | | | | | | | 118.690389 | 24.975919 |
| | | | | | | | | | | 0.0000 | 9.789225 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'32.5520" | 2°45'10.4986" |
| | | | | | | | | | | CIRC. Pendiente | 940.000000 |
| | | | | | | | | | | 479498.082689 | 4634174.573297 |
| | | | | | | | | | | -120.000 | 118.741148 |
| | | | | | | | | | | 118.741148 | 14.365589 |
| | | | | | | | | | | 0.0000 | -5.900000 |
| | | | | | | | | | | 2.000000 | 2.000000 |
| | | | | | | | | | | 41°51'33.1696" | 2°45'10.7597" |

| | | | | | |
|------------------------------|-------------|---------------|----------------|---------|-----------------|
| CIRC. Pendiente | 954.685056 | 479500.485514 | 4634189.051152 | 50.000 | 117.874730 |
| 117.874730 6.574925 | 0.0000 | -5.900000 | 2.000000 | 117.875 | 117.762 117.762 |
| 41°51'33.6393" 2°45'10.8621" | | | | | |
| CIRC. Pendiente | 960.000000 | 479501.313145 | 4634194.298730 | 50.000 | 117.561148 |
| 117.561148 13.342122 | 0.0000 | -5.900000 | 2.000000 | 117.561 | 117.396 117.396 |
| 41°51'33.8095" 2°45'10.8974" | | | | | |
| CIRC. Pendiente | 971.427572 | 479504.941739 | 4634205.108690 | -9.000 | 116.886922 |
| 116.886922 27.892158 | 0.0000 | -5.900000 | 2.000000 | 116.887 | 116.942 116.942 |
| 41°51'34.1603" 2°45'11.0534" | | | | | |
| CIRC. Pendiente | 977.053745 | 479505.634911 | 4634210.600124 | 9.000 | 116.554977 |
| 116.554977 388.095127 | 0.0000 | -5.900000 | 2.000000 | 116.555 | 116.758 116.758 |
| 41°51'34.3384" 2°45'11.0828" | | | | | |
| CIRC. Pendiente | 980.000000 | 479505.566515 | 4634213.532443 | 9.000 | 116.381148 |
| 116.381148 8.935619 | 0.0000 | -5.900000 | 2.000000 | 116.381 | 116.177 116.177 |
| 41°51'34.4335" 2°45'11.0794" | | | | | |
| CIRC. Pendiente | 982.791962 | 479506.376248 | 4634216.192720 | -25.000 | 116.216423 |
| 116.216423 28.684711 | 0.0000 | -5.900000 | 2.000000 | 116.216 | 115.996 115.996 |
| 41°51'34.5199" 2°45'11.1142" | | | | | |
| CIRC. KV -150 | 1000.000000 | 479508.168163 | 4634232.967622 | -25.000 | 115.086339 |
| 115.086339 384.864802 | 0.0000 | -9.812527 | 2.000000 | 115.086 | 114.208 114.208 |
| 41°51'35.0639" 2°45'11.1899" | | | | | |
| CIRC. KV -150 | 1006.194643 | 479505.982070 | 4634238.746781 | 12.000 | 114.350576 |
| 114.350576 369.090273 | 0.0000 | -13.942289 | 2.000000 | 114.351 | 114.206 114.206 |
| 41°51'35.2511" 2°45'11.0943" | | | | | |
| CIRC. Pendiente | 1017.285276 | 479505.731506 | 4634249.443947 | -6.000 | 112.407669 |
| 112.407669 27.927907 | 0.0000 | -20.000000 | 2.000000 | 112.408 | 111.727 111.727 |
| 41°51'35.5979" 2°45'11.0821" | | | | | |
| CIRC. KV 50 | 1020.000000 | 479506.299085 | 4634252.075051 | -6.000 | 111.887629 |
| 111.887629 399.123790 | 0.0000 | -16.973095 | 2.000000 | 111.888 | 110.701 110.701 |
| 41°51'35.6833" 2°45'11.1064" | | | | | |
| CIRC. KV 50 | 1021.016042 | 479506.199353 | 4634253.084967 | 9.000 | 111.725499 |
| 111.725499 388.343251 | 0.0000 | -14.941011 | 2.000000 | 111.726 | 110.384 110.384 |
| 41°51'35.7160" 2°45'11.1020" | | | | | |
| CIRC. KV 50 | 1030.408160 | 479509.180138 | 4634261.547021 | -15.000 | 111.204340 |
| 111.204340 54.778900 | 0.0000 | 3.843226 | 2.000000 | 111.204 | 109.974 109.974 |
| 41°51'35.9907" 2°45'11.2302" | | | | | |
| CIRC. Rampa | 1040.000000 | 479514.034014 | 4634269.630996 | -15.000 | 112.470105 |
| 112.470105 14.069868 | 0.0000 | 20.000000 | 2.000000 | 112.470 | 112.385 112.385 |
| 41°51'36.2533" 2°45'11.4397" | | | | | |
| CIRC. Rampa | 1041.390633 | 479514.275574 | 4634270.999982 | 18.000 | 112.748231 |
| 112.748231 8.167839 | 0.0000 | 20.000000 | 2.000000 | 112.748 | 112.412 112.412 |
| 41°51'36.2977" 2°45'11.4500" | | | | | |
| CIRC. KV -100 | 1049.923994 | 479517.295776 | 4634278.895740 | -90.000 | 114.418556 |
| 114.418556 38.348430 | 0.0000 | 17.303803 | 2.000000 | 114.419 | 114.463 114.463 |
| 41°51'36.5540" 2°45'11.5800" | | | | | |
| CIRC. KV -100 | 1060.000000 | 479522.528666 | 4634287.500202 | -90.000 | 115.654459 |
| 115.654459 31.221114 | 0.0000 | 7.227797 | 2.000000 | 115.654 | 115.387 115.387 |
| 41°51'36.8335" 2°45'11.8059" | | | | | |
| CIRC. Pendiente | 1080.000000 | 479529.919011 | 4634306.040413 | -90.000 | 115.853053 |
| 115.853053 17.074008 | 0.0000 | -0.500000 | 2.000000 | 115.853 | 115.516 115.516 |
| 41°51'37.4353" 2°45'12.1242" | | | | | |
| CIRC. Pendiente | 1092.199923 | 479532.345930 | 4634317.986977 | 150.000 | 115.792054 |
| 115.792054 8.444328 | 0.0000 | -0.500000 | 2.000000 | 115.792 | 115.511 115.511 |
| 41°51'37.8229" 2°45'12.2279" | | | | | |
| CIRC. Pendiente | 1100.000000 | 479533.578038 | 4634325.688237 | 150.000 | 115.753053 |
| 115.753053 11.754784 | 0.0000 | -0.500000 | 2.000000 | 115.753 | 115.219 115.219 |
| 41°51'38.0727" 2°45'12.2804" | | | | | |

Istram 22.04.04.22 09/03/23 12:14:23 200356
 pagina 3
 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|---------|---------------------|--------------------|-----------------|------------------|-----------------|-------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE Pend (%) | PERAL_I PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud | |
| ----- | ----- | ----- | ----- | ----- | ----- | ----- |

| | | | | | |
|------------------------------|-------------|---------------|----------------|----------|-----------------|
| CIRC. KV -180 | 1120.000000 | 479538.547823 | 4634345.045639 | 150.000 | 115.413037 |
| 115.413037 20.243047 | 0.0000 | -5.664154 | 2.000000 | 115.413 | 114.967 114.967 |
| 41°51'38.7008" 2°45'12.4936" | | | | | |
| CIRC. KV -180 | 1120.672726 | 479538.759580 | 4634345.684167 | -15.000 | 115.373675 |
| 115.373675 20.528561 | 0.0000 | -6.037891 | 2.000000 | 115.374 | 115.032 115.032 |
| 41°51'38.7216" 2°45'12.5027" | | | | | |
| CIRC. KV -180 | 1128.121043 | 479539.305970 | 4634353.035923 | 15.000 | 114.769850 |
| 114.769850 388.916921 | 0.0000 | -10.175845 | 2.000000 | 114.770 | 114.237 114.237 |
| 41°51'38.9600" 2°45'12.5255" | | | | | |
| CIRC. KV -180 | 1138.790851 | 479541.192273 | 4634363.310486 | -12.000 | 113.367872 |
| 113.367872 34.200993 | 0.0000 | -16.103516 | 2.000000 | 113.368 | 112.232 112.232 |
| 41°51'39.2933" 2°45'12.6060" | | | | | |
| CIRC. KV -180 | 1140.000000 | 479541.757723 | 4634364.378696 | -12.000 | 113.169095 |
| 113.169095 27.786257 | 0.0000 | -16.775265 | 2.000000 | 113.169 | 112.092 112.092 |
| 41°51'39.3280" 2°45'12.6304" | | | | | |
| CIRC. KV 90 | 1143.721236 | 479542.787028 | 4634367.939246 | 12.000 | 112.514145 |
| 112.514145 8.044485 | 0.0000 | -17.447577 | 2.000000 | 112.514 | 111.671 111.671 |
| 41°51'39.4435" 2°45'12.6746" | | | | | |
| CIRC. KV 90 | 1149.287522 | 479544.721529 | 4634373.105450 | -35.000 | 111.715094 |
| 111.715094 37.574548 | 0.0000 | -11.262815 | 2.000000 | 111.715 | 111.281 111.281 |
| 41°51'39.6112" 2°45'12.7579" | | | | | |
| CIRC. KV 90 | 1160.000000 | 479549.239404 | 4634382.772555 | -35.000 | 111.146107 |
| 111.146107 18.089476 | 0.0000 | 0.639938 | 2.000000 | 111.146 | 111.614 111.614 |
| 41°51'39.9251" 2°45'12.9526" | | | | | |
| CIRC. Rampa | 1172.169987 | 479550.572197 | 4634394.807753 | 18.000 | 112.046695 |
| 112.046695 395.953321 | 0.0000 | 14.000000 | 2.000000 | 112.047 | 112.149 112.149 |
| 41°51'40.3155" 2°45'13.0089" | | | | | |
| CIRC. Rampa | 1180.000000 | 479551.763314 | 4634402.484318 | 18.000 | 113.142897 |
| 113.142897 23.646326 | 0.0000 | 14.000000 | 2.000000 | 113.143 | 112.868 112.868 |
| 41°51'40.5645" 2°45'13.0596" | | | | | |
| CIRC. Rampa | 1184.061390 | 479553.650072 | 4634406.071123 | -150.000 | 113.711491 |
| 113.711491 38.010553 | 0.0000 | 14.000000 | 2.000000 | 113.711 | 113.328 113.328 |
| 41°51'40.6810" 2°45'13.1410" | | | | | |
| CIRC. Rampa | 1200.000000 | 479561.894599 | 4634419.703002 | -150.000 | 115.942897 |
| 115.942897 31.245997 | 0.0000 | 14.000000 | 2.000000 | 115.943 | 115.189 115.189 |
| 41°51'41.1237" 2°45'13.4969" | | | | | |
| CIRC. Rampa | 1216.167730 | 479568.732655 | 4634434.344844 | 30.000 | 118.206379 |
| 118.206379 24.384199 | 0.0000 | 14.000000 | 2.000000 | 118.206 | 117.024 117.024 |
| 41°51'41.5991" 2°45'13.7917" | | | | | |
| CIRC. Rampa | 1220.000000 | 479570.387720 | 4634437.798406 | 30.000 | 118.742897 |
| 118.742897 32.516528 | 0.0000 | 14.000000 | 2.000000 | 118.743 | 117.311 117.311 |
| 41°51'41.7113" 2°45'13.8631" | | | | | |
| CIRC. Rampa | 1221.439604 | 479571.121324 | 4634439.036908 | -120.000 | 118.944441 |
| 118.944441 35.571463 | 0.0000 | 14.000000 | 2.000000 | 118.944 | 117.431 117.431 |
| 41°51'41.7515" 2°45'13.8947" | | | | | |
| CIRC. KV -200 | 1240.000000 | 479579.706937 | 4634455.471303 | -120.000 | 121.335121 |
| 121.335121 25.724867 | 0.0000 | 9.441756 | 2.000000 | 121.335 | 120.966 120.966 |
| 41°51'42.2852" 2°45'14.2651" | | | | | |
| CIRC. KV -200 | 1260.000000 | 479586.005246 | 4634474.429316 | -120.000 | 122.223472 |
| 122.223472 15.114537 | 0.0000 | -0.558244 | 2.000000 | 122.223 | 121.653 121.653 |
| 41°51'42.9005" 2°45'14.5359" | | | | | |
| CIRC. KV -200 | 1280.000000 | 479589.071220 | 4634494.169496 | -120.000 | 121.111823 |
| 121.111823 4.504208 | 0.0000 | -10.558244 | 2.000000 | 121.112 | 121.210 121.210 |
| 41°51'43.5408" 2°45'14.6665" | | | | | |
| CIRC. Pendiente | 1300.000000 | 479588.819889 | 4634514.144775 | -120.000 | 118.331748 |
| 118.331748 393.893878 | 0.0000 | -14.800000 | 2.000000 | 118.332 | 116.889 116.889 |
| 41°51'44.1885" 2°45'14.6531" | | | | | |
| CIRC. Pendiente | 1306.593188 | 479588.008545 | 4634520.687016 | 9.000 | 117.355956 |
| 117.355956 390.396084 | 0.0000 | -14.800000 | 2.000000 | 117.356 | 115.843 115.843 |
| 41°51'44.4005" 2°45'14.6171" | | | | | |
| CIRC. Pendiente | 1312.908876 | 479589.237773 | 4634526.750568 | -9.000 | 116.421234 |
| 116.421234 35.070438 | 0.0000 | -14.800000 | 2.000000 | 116.421 | 114.801 114.801 |
| 41°51'44.5972" 2°45'14.6696" | | | | | |
| CIRC. Pendiente | 1320.000000 | 479590.317603 | 4634533.574784 | -9.000 | 115.371748 |
| 115.371748 384.910996 | 0.0000 | -14.800000 | 2.000000 | 115.372 | 113.464 113.464 |
| 41°51'44.8186" 2°45'14.7156" | | | | | |
| CIRC. Pendiente | 1321.154879 | 479589.975249 | 4634534.676923 | 9.000 | 115.200826 |
| 115.200826 376.741901 | 0.0000 | -14.800000 | 2.000000 | 115.201 | 113.375 113.375 |
| 41°51'44.8543" 2°45'14.7006" | | | | | |
| CIRC. KV 50 | 1329.790637 | 479590.923866 | 4634542.930853 | -25.000 | 114.295777 |
| 114.295777 37.827399 | 0.0000 | -2.584550 | 2.000000 | 114.296 | 113.313 113.313 |
| 41°51'45.1220" 2°45'14.7408" | | | </ | | |

| | | | | | |
|----------------------|---------------|---------------|----------------|----------|------------|
| CIRC. Rampa | 1339.441534 | 479594.669173 | 4634551.760436 | 900.000 | 114.959284 |
| 114.959284 13.251592 | 0.0000 | 14.000000 | 2.000000 | 114.959 | 113.718 |
| 41°51'45.4087" | 2°45'14.9021" | | | | |
| CIRC. Rampa | 1340.000000 | 479594.784752 | 4634552.306811 | 900.000 | 115.037469 |
| 115.037469 13.291095 | 0.0000 | 14.000000 | 2.000000 | 115.037 | 113.720 |
| 41°51'45.4264" | 2°45'14.9071" | | | | |
| CIRC. KV -100 | 1360.000000 | 479599.147052 | 4634571.824851 | 900.000 | 117.173743 |
| 117.173743 14.705806 | 0.0000 | 2.478490 | 2.000000 | 117.174 | 114.068 |
| 41°51'46.0597" | 2°45'15.0939" | | | | |
| CIRC. Pendiente | 1380.000000 | 479603.941974 | 4634591.241139 | 900.000 | 117.118100 |
| 117.118100 16.120516 | 0.0000 | -0.500000 | 2.000000 | 117.118 | 114.661 |
| 41°51'46.6897" | 2°45'15.2994" | | | | |
| CIRC. Pendiente | 1400.000000 | 479609.167149 | 4634610.546089 | 900.000 | 117.018100 |
| 117.018100 17.535227 | 0.0000 | -0.500000 | 2.000000 | 117.018 | 115.270 |
| 41°51'47.3161" | 2°45'15.5237" | | | | |
| CIRC. Pendiente | 1420.000000 | 479614.819998 | 4634629.730167 | 900.000 | 116.918100 |
| 116.918100 18.949938 | 0.0000 | -0.500000 | 2.000000 | 116.918 | 115.252 |
| 41°51'47.9387" | 2°45'15.7665" | | | | |
| CIRC. Pendiente | 1440.000000 | 479620.897728 | 4634648.783900 | 900.000 | 116.818100 |
| 116.818100 20.364648 | 0.0000 | -0.500000 | 2.000000 | 116.818 | 115.165 |
| 41°51'48.5570" | 2°45'16.0278" | | | | |
| CIRC. Pendiente | 1460.000000 | 479627.397340 | 4634667.697878 | 900.000 | 116.718100 |
| 116.718100 21.779359 | 0.0000 | -0.500000 | 2.000000 | 116.718 | 115.450 |
| 41°51'49.1709" | 2°45'16.3073" | | | | |
| CIRC. Pendiente | 1480.000000 | 479634.315623 | 4634686.462763 | 900.000 | 116.618100 |
| 116.618100 23.194069 | 0.0000 | -0.500000 | 2.000000 | 116.618 | 115.318 |
| 41°51'49.7800" | 2°45'16.6051" | | | | |
| CIRC. Pendiente | 1495.017575 | 479639.783576 | 4634700.449322 | -30.000 | 116.543012 |
| 116.543012 24.256346 | 0.0000 | -0.500000 | 2.000000 | 116.543 | 115.957 |
| 41°51'50.2340" | 2°45'16.8405" | | | | |
| CIRC. KV 150 | 1500.000000 | 479641.244672 | 4634705.206710 | -30.000 | 116.524268 |
| 116.524268 13.683311 | 0.0000 | 0.406835 | 2.000000 | 116.524 | 116.317 |
| 41°51'50.3884" | 2°45'16.9033" | | | | |
| RECTA KV 150 | 1501.606162 | 479641.545083 | 4634706.784333 | 0.000 | 116.539401 |
| 116.539401 10.274930 | 0.0000 | 1.477610 | 2.000000 | 116.539 | 116.358 |
| 41°51'50.4396" | 2°45'16.9162" | | | | |
| CIRC. KV 150 | 1504.290673 | 479641.976480 | 4634709.433955 | 50.000 | 116.603090 |
| 116.603090 10.274930 | 0.0000 | 3.267284 | 2.000000 | 116.603 | 116.719 |
| 41°51'50.5255" | 2°45'16.9346" | | | | |
| CIRC. KV 150 | 1509.653099 | 479643.120109 | 4634714.670382 | 9820.000 | 116.874148 |
| 116.874148 17.102583 | 0.0000 | 6.842234 | 2.000000 | 116.874 | 116.518 |
| 41°51'50.6954" | 2°45'16.9835" | | | | |
| CIRC. Rampa | 1520.000000 | 479645.871711 | 4634724.644701 | 9820.000 | 117.763635 |
| 117.763635 17.169661 | 0.0000 | 8.905109 | 2.000000 | 117.764 | 117.756 |
| 41°51'51.0191" | 2°45'17.1016" | | | | |
| CIRC. Rampa | 1540.000000 | 479651.220191 | 4634743.916277 | 9820.000 | 119.544656 |
| 119.544656 17.299318 | 0.0000 | 8.905109 | 2.000000 | 119.545 | 119.122 |
| 41°51'51.6445" | 2°45'17.3312" | | | | |
| CIRC. KV -1000 | 1560.000000 | 479656.607910 | 4634763.176919 | 9820.000 | 121.257439 |
| 121.257439 17.428976 | 0.0000 | 7.736872 | 2.000000 | 121.257 | 121.607 |
| 41°51'52.2695" | 2°45'17.5626" | | | | |
| CIRC. KV -1000 | 1580.000000 | 479662.034844 | 4634782.426549 | 9820.000 | 122.604814 |
| 122.604814 17.558634 | 0.0000 | 5.736872 | 2.000000 | 122.605 | 122.828 |
| 41°51'52.8942" | 2°45'17.7956" | | | | |
| CIRC. KV -1000 | 1584.809169 | 479663.345643 | 4634787.053634 | 500.000 | 122.869146 |
| 122.869146 17.589811 | 0.0000 | 5.255955 | 2.000000 | 122.869 | 122.735 |
| 41°51'53.0443" | 2°45'17.8519" | | | | |
| CIRC. KV -1000 | 1600.000000 | 479667.711025 | 4634801.603102 | 500.000 | 123.552188 |
| 123.552188 19.523968 | 0.0000 | 3.736872 | 2.000000 | 123.552 | 123.546 |
| 41°51'53.5165" | 2°45'18.0394" | | | | |
| CIRC. KV -1000 | 1620.000000 | 479674.128639 | 4634820.544087 | 500.000 | 124.193856 |
| 124.193856 22.070447 | 0.0000 | 2.538863 | 2.000000 | 124.194 | 124.129 |
| 41°51'54.1312" | 2°45'18.3154" | | | | |
| CIRC. KV -1000 | 1633.741490 | 479678.974702 | 4634833.402249 | -500.000 | 124.448319 |
| 124.448319 23.820068 | 0.0000 | 1.164714 | 2.000000 | 124.448 | 124.111 |
| 41°51'54.5486" | 2°45'18.5241" | | | | |
| CIRC. Rampa | 1640.000000 | 479681.225639 | 4634839.241917 | -500.000 | 124.511023 |
| 124.511023 23.023210 | 0.0000 | 0.972328 | 2.000000 | 124.511 | 124.054 |
| 41°51'54.7381" | 2°45'18.6210" | | | | |
| CIRC. Rampa | 1660.000000 | 479687.925993 | 4634858.084738 | -500.000 | 124.705489 |
| 124.705489 20.476731 | 0.0000 | 0.972328 | 2.000000 | 124.705 | 124.001 |
| 41°51'55.3497" | 2°45'18.9093" | | | | |

| | | | | | |
|----------------------|---------------|---------------|----------------|----------|------------|
| CIRC. KV 1000 | 1680.000000 | 479693.867476 | 4634877.180430 | -500.000 | 124.902420 |
| 124.902420 17.930251 | 0.0000 | 1.194383 | 2.000000 | 124.902 | 124.459 |
| 41°51'55.9694" | 2°45'19.1647" | | | | |
| CIRC. KV 1000 | 1680.790052 | 479694.086462 | 4634877.939526 | 2500.000 | 124.912168 |
| 124.912168 17.829659 | 0.0000 | 1.273388 | 2.000000 | 124.912 | 124.483 |
| 41°51'55.9941" | 2°45'19.1741" | | | | |

Istram 22.04.04.22 09/03/23 12:14:23 200356
 pagina 4
 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 42 : CS-D-44.02

***** PUNTOS DEL EJE EN PLANTA *****

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|-----------------------|--|---------------|----------------|------------------|------------|-------------|
| DR. (N) | AZIMUT DIST. EJE Pend (%) Longitud (E) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Z | RAS Latitud |
| CIRC. KV 1000 | 1700.000000 | 479699.467365 | 4634896.380410 | 2500.000 | 125.341297 | |
| 125.341297 18.318836 | 0.0000 | 3.194383 | 2.000000 | 125.341 | 125.096 | 125.096 |
| 41°51'56.5925" | 2°45'19.4052" | | | | | |
| CIRC. KV 1000 | 1720.000000 | 479705.219954 | 4634915.535189 | 2500.000 | 126.180173 | |
| 126.180173 18.828132 | 0.0000 | 5.194383 | 2.000000 | 126.180 | 125.892 | 125.892 |
| 41°51'57.2141" | 2°45'19.6524" | | | | | |
| CIRC. Rampa | 1740.000000 | 479711.125597 | 4634934.643336 | 2500.000 | 127.399086 | |
| 127.399086 19.337428 | 0.0000 | 6.562500 | 2.000000 | 127.399 | 127.120 | 127.120 |
| 41°51'57.8342" | 2°45'19.9062" | | | | | |
| CIRC. KV -750 | 1760.000000 | 479717.183913 | 4634953.703626 | 2500.000 | 128.700214 | |
| 128.700214 19.846724 | 0.0000 | 6.011829 | 2.000000 | 128.700 | 128.590 | 128.590 |
| 41°51'58.4528" | 2°45'20.1666" | | | | | |
| CIRC. KV -750 | 1780.000000 | 479723.394517 | 4634972.714840 | 2500.000 | 129.635914 | |
| 129.635914 20.356019 | 0.0000 | 3.345163 | 2.000000 | 129.636 | 129.491 | 129.491 |
| 41°51'59.0698" | 2°45'20.4337" | | | | | |
| CIRC. Rampa | 1800.000000 | 479729.757010 | 4634991.675762 | 2500.000 | 130.061904 | |
| 130.061904 20.865315 | 0.0000 | 1.472222 | 2.000000 | 130.062 | 129.939 | 129.939 |
| 41°51'59.6852" | 2°45'20.7073" | | | | | |
| CIRC. Rampa | 1820.000000 | 479736.270985 | 4635010.585177 | 2500.000 | 130.671558 | |
| 130.671558 21.374611 | 0.0000 | 4.650000 | 2.000000 | 130.672 | 130.641 | 130.641 |
| 41°52'00.2989" | 2°45'20.9876" | | | | | |
| CIRC. KV -150 | 1836.816036 | 479741.864870 | 4635026.443502 | -12.000 | 130.648975 | |
| 130.648975 21.802828 | 0.0000 | -5.707151 | 2.000000 | 130.649 | 131.208 | 131.208 |
| 41°52'00.8136" | 2°45'21.2283" | | | | | |
| CIRC. KV -150 | 1840.000000 | 479742.526072 | 4635029.548514 | -12.000 | 130.433469 | |
| 130.433469 4.911374 | 0.0000 | -7.829794 | 2.000000 | 130.433 | 131.074 | 131.074 |
| 41°52'00.9144" | 2°45'21.2566" | | | | | |
| CIRC. KV 200 | 1846.283362 | 479741.385510 | 4635035.654734 | 9.000 | 129.902154 | |
| 129.902154 371.577103 | 0.0000 | -7.453488 | 2.000000 | 129.902 | 130.673 | 130.673 |
| 41°52'01.1123" | 2°45'21.2063" | | | | | |
| CIRC. KV 200 | 1853.209642 | 479740.969076 | 4635042.398505 | 10260.000 | 129.505838 | |
| 129.505838 20.570508 | 0.0000 | -3.990349 | 2.000000 | 129.506 | 129.912 | 129.912 |
| 41°52'01.3309" | 2°45'21.1874" | | | | | |
| CIRC. Pendiente | 1860.000000 | 479743.127332 | 4635048.836742 | 10260.000 | 129.303718 | |
| 129.303718 20.612641 | 0.0000 | -2.750000 | 2.000000 | 129.304 | 129.440 | 129.440 |
| 41°52'01.5399" | 2°45'21.2803" | | | | | |
| CIRC. Pendiente | 1880.000000 | 479749.508906 | 4635067.791303 | 10260.000 | 128.753718 | |
| 128.753718 20.736739 | 0.0000 | -2.750000 | 2.000000 | 128.754 | 128.940 | 128.940 |
| 41°52'02.1550" | 2°45'21.5547" | | | | | |
| CIRC. Pendiente | 1900.000000 | 479755.927416 | 4635086.733389 | 10260.000 | 128.203718 | |
| 128.203718 20.860836 | 0.0000 | -2.750000 | 2.000000 | 128.204 | 127.870 | 127.870 |
| 41°52'02.7698" | 2°45'21.8308" | | | | | |
| CIRC. Pendiente | 1920.000000 | 479762.382839 | 4635105.662926 | 10260.000 | 127.653718 | |
| 127.653718 20.984933 | 0.0000 | -2.750000 | 2.000000 | 127.654 | 127.368 | 127.368 |
| 41°52'03.3842" | 2°45'22.1085" | | | | | |
| CIRC. Pendiente | 1940.000000 | 479768.875148 | 4635124.579845 | 10260.000 | 127.103718 | |
| 127.103718 21.109031 | 0.0000 | -2.750000 | 2.000000 | 127.104 | 126.764 | 126.764 |
| 41°52'03.9982" | 2°45'22.3878" | | | | | |
| CIRC. KV -1000 | 1960.000000 | 479775.404321 | 4635143.484071 | 10260.000 | 126.522875 | |
| 126.522875 21.233128 | 0.0000 | -3.535401 | 2.000000 | 126.523 | 126.169 | 126.169 |
| 41°52'04.6117" | 2°45'22.6687" | | | | | |

| | | | | | |
|-----------------|---------------|---------------|----------------|-----------|------------|
| CIRC. Pendiente | 1980.000000 | 479781.970331 | 4635162.375534 | 10260.000 | 125.616712 |
| 125.616712 | 21.357226 | 0.0000 | -5.400000 | 2.000000 | 2.000000 |
| 41°52'05.2249" | 2°45'22.9512" | | | | |
| CIRC. Pendiente | 2000.000000 | 479788.573154 | 4635181.254162 | 10260.000 | 124.536712 |
| 124.536712 | 21.481323 | 0.0000 | -5.400000 | 2.000000 | 2.000000 |
| 41°52'05.8376" | 2°45'23.2353" | | | | |
| CIRC. Pendiente | 2006.962504 | 479790.880397 | 4635187.823263 | 10260.000 | 124.160737 |
| 124.160737 | 21.524525 | 0.0000 | -5.400000 | 2.000000 | 2.000000 |
| 41°52'06.0508" | 2°45'23.3346" | | | | |

1.4 CS-I-46.40 (Eje A1-43)

1.4.1 Planta

Istram 22.04.04.22 09/03/23 09:05:13 200356
 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 43 : CS-I-46.40

*** LISTADO DE LAS ALINEACIONES ***

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|----------------|----------------|----------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 37.288817 | | 0.000000 | 479846.962438 | 4635495.586996 | |
| 25.7762112 | 0.3939192923 | 0.9191450327 | 41°52'16.0350" | 2°45'25.7296" | | |
| 2 CIRC. | 37.925799 | 37.288817 | 479861.651222 | 4635529.860827 | -50.000000 | |
| 25.7762112 | 479815.693971 | 4635549.556791 | 41°52'17.1477" | 2°45'26.3627" | | |
| 3 CIRC. | 31.436246 | 75.214616 | 479862.600161 | 4635566.871792 | 50.000000 | |
| 377.4875842 | 479909.506352 | 4635584.186793 | 41°52'18.3478" | 2°45'26.3993" | | |
| 4 CIRC. | 260.473220 | 106.650861 | 479861.386460 | 4635597.768987 | 1130.000000 | |
| 17.5134554 | 480948.896024 | 4635290.811419 | 41°52'19.3496" | 2°45'26.3428" | | |
| | | 367.124081 | 479960.281439 | | 4635838.114994 | |
| 32.1880042 | | | 41°52'27.1517" | 2°45'30.6037" | | |

EJES EN PLANTA

| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje |
|---|---------|--------------|------------|----------------|
| # | 43 | 0.000000 | 1 | CS-I-46.40 |

REV 2112
 ALIAS4 N-634
 GRUPO 8
 TIPOL 401
 CM 2
 CAR 1
 VD 80.000
 MD 0
 RV 22.04 200356 (2022/04/22)
 VU 0 80.000
 NCE 1.000
 ACE 3.500

| # | Anchos | derecha | derecha | izquierda | izquierda |
|---|--------|---------|---------|-----------|-----------|
| # | ANCHOS | 0.000 | 0.000 | 0.000 | 0.000 |

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|----------|---------------|----------|---------------|----------------|----------|----------|----------|----------|
| L | D | Az | Etiq | Peralte | | | | |
| # | ALI FIJA-2P+R | 0 | 479846.962438 | 4635495.586996 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0.000 | 0 |
| | | | 479869.758604 | 4635548.778051 | | | | |

| | | | | | | |
|---------------|----------|---------------|----------------|-------------|---------------|----------------|
| ALI GIRATORIA | 8 | 479856.447368 | 4635578.525060 | -50.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 50.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 479865.524740 | 4635615.569269 | 1130.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 1.000000 | 0.000000 | 0 | 0.000 | 0.000 |
| | | | | | 479959.406559 | 4635838.599333 |

1.4.2 Alzado

Istram 22.04.04.22 09/03/23 09:06:37 200356
 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)

*** ESTADO DE RASANTES ***

| SALIDA DEL ACUERDO | PENDIENTE (%) | LONGITUD BISECT. (m.) | PARAMETRO DIF.PEN (kv) | VÉRTICE PK | Z | ENTRADA AL ACUERDO | PK | Z |
|--------------------|---------------|-----------------------|------------------------|------------|---|--------------------|----|---|
|--------------------|---------------|-----------------------|------------------------|------------|---|--------------------|----|---|

| | | | | | | | | |
|------------|-------------|------------|-------------|------------|------------|------------|--|----------|
| | | | | | | | | 0.000000 |
| 119.250000 | -1.75000000 | 37.500000 | 5000.000000 | 57.051717 | 118.251595 | 38.301717 | | |
| 118.579720 | 75.801717 | 117.782845 | 0.035156 | -0.750000 | | | | |
| 114.734869 | -2.50000000 | 42.500000 | 2500.000000 | 218.970752 | 114.203619 | 197.720752 | | |
| 113.390480 | -0.80000000 | 240.220752 | 114.033619 | 0.090313 | 1.700000 | | | |
| 367.124000 | -4.00000000 | 32.000000 | 1000.000000 | 336.613153 | 113.262480 | 320.613153 | | |
| | | 112.622480 | 0.128000 | -3.200000 | | | | |
| | | 112.042046 | | | | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 43 : CS-I-46.40

*** PUNTOS DEL EJE EN ALZADO ***

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Pendiente | 119.250000 | -1.75000000 % |
| 20.000000 | Pendiente | 118.900000 | -1.75000000 % |
| 38.301717 | tg. entrada | 118.579720 | -1.75000000 % |
| 40.000000 | KV -5000 | 118.549712 | -1.78396567 % |
| 60.000000 | KV -5000 | 118.152918 | -2.18396567 % |
| 75.801717 | tg. salida | 117.782845 | -2.50000000 % |
| 80.000000 | Pendiente | 117.677888 | -2.50000000 % |
| 100.000000 | Pendiente | 117.177888 | -2.50000000 % |
| 120.000000 | Pendiente | 116.677888 | -2.50000000 % |
| 140.000000 | Pendiente | 116.177888 | -2.50000000 % |
| 160.000000 | Pendiente | 115.677888 | -2.50000000 % |
| 180.000000 | Pendiente | 115.177888 | -2.50000000 % |
| 197.720752 | tg. entrada | 114.734869 | -2.50000000 % |
| 200.000000 | KV 2500 | 114.678927 | -2.40883007 % |
| 220.000000 | KV 2500 | 114.277161 | -1.60883007 % |
| 240.000000 | KV 2500 | 114.035395 | -0.80883007 % |
| 240.220752 | tg. salida | 114.033619 | -0.80000000 % |
| 260.000000 | Pendiente | 113.875385 | -0.80000000 % |
| 280.000000 | Pendiente | 113.715385 | -0.80000000 % |

| | | | | |
|------------|-------------|------------|-------------|---|
| 300.000000 | Pendiente | 113.555385 | -0.80000000 | % |
| 320.000000 | Pendiente | 113.395385 | -0.80000000 | % |
| 320.613153 | tg. entrada | 113.390480 | -0.80000000 | % |
| 340.000000 | KV -1000 | 113.047460 | -2.73868467 | % |
| 352.613153 | tg. salida | 112.622480 | -4.00000000 | % |
| 360.000000 | Pendiente | 112.327006 | -4.00000000 | % |
| 367.124010 | Pendiente | 112.042046 | -4.00000000 | % |

1.4.3 Puntos

Istram 22.04.04.22 09/03/23 12:14:46 200356
pagina 1
PROYECTO :
C.R.S. : ETRS89 (HUSO 31)
EJE : 43 : CS-I-46.40

* * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|------|--------------|-----------|---------|---------|------------------|-----------------|
| DR. | AZIMUT | DIST. EJE | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud |
| (N) | Longitud (E) | Pend (%) | | | | |

| | | | | | | | | |
|----------------|---------------|------------|---------------|----------------|----------|------------|---------|---------|
| RECTA | Pendiente | 0.000000 | 479846.962438 | 4635495.586996 | 0.000 | 119.250000 | | |
| 119.250000 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 119.250 | 119.191 | 119.191 |
| 41°52'16.0350" | 2°45'25.7296" | | | | | | | |
| RECTA | Pendiente | 20.000000 | 479854.840824 | 4635513.969897 | 0.000 | 118.900000 | | |
| 118.900000 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 118.900 | 118.842 | 118.842 |
| 41°52'16.6318" | 2°45'26.0692" | | | | | | | |
| CIRC. | Pendiente | 37.288817 | 479861.651222 | 4635529.860827 | -50.000 | 118.597446 | | |
| 118.597446 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 118.597 | 118.249 | 118.249 |
| 41°52'17.1477" | 2°45'26.3627" | | | | | | | |
| CIRC. | KV -5000 | 40.000000 | 479862.651141 | 4635532.380524 | -50.000 | 118.549712 | | |
| 118.549712 | 22.324225 | 0.0000 | -1.783966 | -2.000000 | 2.000000 | 118.550 | 118.189 | 118.189 |
| 41°52'17.2295" | 2°45'26.4057" | | | | | | | |
| CIRC. | KV -5000 | 60.000000 | 479865.633142 | 4635552.022385 | -50.000 | 118.152918 | | |
| 118.152918 | 396.859434 | 0.0000 | -2.183966 | -2.000000 | 2.000000 | 118.153 | 118.057 | 118.057 |
| 41°52'17.8666" | 2°45'26.5327" | | | | | | | |
| CIRC. | KV -5000 | 75.214616 | 479862.600161 | 4635566.871792 | 50.000 | 117.797488 | | |
| 117.797488 | 377.487584 | 0.0000 | -2.488258 | -2.000000 | 2.000000 | 117.797 | 117.284 | 117.284 |
| 41°52'18.3478" | 2°45'26.3993" | | | | | | | |
| CIRC. | Pendiente | 80.000000 | 479861.160177 | 4635571.433467 | 50.000 | 117.677888 | | |
| 117.677888 | 383.580525 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 117.678 | 117.013 | 117.013 |
| 41°52'18.4956" | 2°45'26.3363" | | | | | | | |
| CIRC. | Pendiente | 100.000000 | 479860.010197 | 4635591.267089 | 50.000 | 117.177888 | | |
| 117.177888 | 9.045316 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 117.178 | 116.400 | 116.400 |
| 41°52'19.1386" | 2°45'26.2839" | | | | | | | |
| CIRC. | Pendiente | 106.650861 | 479861.386460 | 4635597.768987 | 1130.000 | 117.011616 | | |
| 117.011616 | 17.513455 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 117.012 | 116.432 | 116.432 |
| 41°52'19.3496" | 2°45'26.3428" | | | | | | | |
| CIRC. | Pendiente | 120.000000 | 479865.088471 | 4635610.594452 | 1130.000 | 116.677888 | | |
| 116.677888 | 18.265520 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 116.678 | 116.268 | 116.268 |
| 41°52'19.7657" | 2°45'26.5019" | | | | | | | |
| CIRC. | Pendiente | 140.000000 | 479870.917804 | 4635629.725798 | 1130.000 | 116.177888 | | |
| 116.177888 | 19.392280 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 116.178 | 115.891 | 115.891 |
| 41°52'20.3866" | 2°45'26.7524" | | | | | | | |
| CIRC. | Pendiente | 160.000000 | 479877.084814 | 4635648.750980 | 1130.000 | 115.677888 | | |
| 115.677888 | 20.519041 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 115.678 | 115.586 | 115.586 |
| 41°52'21.0041" | 2°45'27.0176" | | | | | | | |
| CIRC. | Pendiente | 180.000000 | 479883.587569 | 4635667.664038 | 1130.000 | 115.177888 | | |
| 115.177888 | 21.645802 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 115.178 | 115.428 | 115.428 |
| 41°52'21.6179" | 2°45'27.2974" | | | | | | | |
| CIRC. | KV 2500 | 200.000000 | 479890.424033 | 4635686.459045 | 1130.000 | 114.678927 | | |
| 114.678927 | 22.772562 | 0.0000 | -2.408830 | -2.000000 | 2.000000 | 114.679 | 115.552 | 115.552 |
| 41°52'22.2279" | 2°45'27.5917" | | | | | | | |
| CIRC. | KV 2500 | 220.000000 | 479897.592064 | 4635705.130116 | 1130.000 | 114.277161 | | |
| 114.277161 | 23.899323 | 0.0000 | -1.608830 | -2.000000 | 2.000000 | 114.277 | 113.906 | 113.906 |
| 41°52'22.8340" | 2°45'27.9004" | | | | | | | |

| | | | | | | | | |
|----------------|---------------|------------|---------------|----------------|----------|------------|---------|---------|
| CIRC. | KV 2500 | 240.000000 | 479905.089416 | 4635723.671402 | 1130.000 | 114.035395 | | |
| 114.035395 | 25.026084 | 0.0000 | -0.808830 | -2.000000 | 2.000000 | 114.035 | 113.574 | 113.574 |
| 41°52'23.4359" | 2°45'28.2233" | | | | | | | |
| CIRC. | Pendiente | 260.000000 | 479912.913741 | 4635742.077094 | 1130.000 | 113.875385 | | |
| 113.875385 | 26.152844 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.875 | 113.482 | 113.482 |
| 41°52'24.0334" | 2°45'28.5605" | | | | | | | |
| CIRC. | Pendiente | 280.000000 | 479921.062588 | 4635760.341427 | 1130.000 | 113.715385 | | |
| 113.715385 | 27.279605 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.715 | 113.277 | 113.277 |
| 41°52'24.6263" | 2°45'28.9118" | | | | | | | |
| CIRC. | Pendiente | 300.000000 | 479929.533404 | 4635778.458679 | 1130.000 | 113.555385 | | |
| 113.555385 | 28.406366 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.555 | 112.798 | 112.798 |
| 41°52'25.2145" | 2°45'29.2771" | | | | | | | |
| CIRC. | Pendiente | 320.000000 | 479938.323537 | 4635796.423175 | 1130.000 | 113.395385 | | |
| 113.395385 | 29.533126 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.395 | 113.117 | 113.117 |
| 41°52'25.7978" | 2°45'29.6562" | | | | | | | |
| CIRC. | KV -1000 | 340.000000 | 479947.430231 | 4635814.229289 | 1130.000 | 113.047460 | | |
| 113.047460 | 30.659887 | 0.0000 | -2.738685 | -2.000000 | 2.000000 | 113.047 | 113.109 | 113.109 |
| 41°52'26.3760" | 2°45'30.0491" | | | | | | | |
| CIRC. | Pendiente | 360.000000 | 479956.850636 | 4635831.871441 | 1130.000 | 112.327006 | | |
| 112.327006 | 31.786648 | 0.0000 | -4.000000 | -2.000000 | 2.000000 | 112.327 | 112.201 | 112.201 |
| 41°52'26.9489" | 2°45'30.4557" | | | | | | | |
| CIRC. | Pendiente | 367.124000 | 479960.281400 | 4635838.114923 | 1130.000 | 112.042046 | | |
| 112.042046 | 32.188000 | 0.0000 | -4.000000 | -2.000000 | 2.000000 | 112.042 | 111.743 | 111.743 |
| 41°52'27.1517" | 2°45'30.6037" | | | | | | | |

1.5 CS-I-46.80 (Eje A1-44)

1.5.1 Planta

Istram 22.04.04.22 09/03/23 09:05:13 200356
pagina 1
PROYECTO :
GRUPO : 8 : Reposiciones
C.R.S. : ETRS89 (HUSO 31)
EJE : 44 : CS-I-46.80

* * * LISTADO DE LAS ALINEACIONES * * *

| DATO | TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|-------|---------------|----------------|----------------|----------------|-------|----------------|
| AZIMUT | | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 | RECTA | 186.251669 | | 0.000000 | 479984.826584 | | 4635902.379263 |
| 30.1688723 | | 0.4563524191 | 0.8897991175 | 41°52'29.2376" | 2°45'31.6608" | | |
| 2 | CIRC. | 50.701735 | 186.251669 | 480069.822983 | 4636068.105833 | | -1000.000000 |
| 30.1688723 | | 479180.023866 | 4636524.458253 | 41°52'34.6190" | 2°45'35.3281" | | |
| 3 | RECTA | 253.690030 | | 236.953405 | 480091.807488 | | 4636113.787306 |
| 26.9410996 | | 0.4106709469 | 0.9117836220 | 41°52'36.1022" | 2°45'36.2764" | | |
| 4 | CIRC. | 24.666861 | 490.643435 | 480195.990613 | 4636345.097720 | | 300.000000 |
| 26.9410996 | | 480469.525699 | 4636221.896436 | 41°52'43.6117" | 2°45'40.7684" | | |
| 5 | CIRC. | 38.554666 | 515.310296 | 480207.033275 | 4636367.147004 | | -250.000000 |
| 32.1755700 | | 479988.289589 | 4636488.189144 | 41°52'44.3276" | 2°45'41.2449" | | |
| 6 | CIRC. | 124.270459 | 553.864962 | 480223.030244 | 4636402.184349 | | 1200.000000 |
| 22.3577049 | | 481349.785389 | 4635989.361332 | 41°52'45.4651" | 2°45'41.9347" | | |
| 7 | RECTA | 95.222101 | | 678.135421 | 480271.741786 | | 4636516.449549 |
| 28.9504575 | | 0.4392401807 | 0.8983696698 | 41°52'49.1745" | 2°45'44.0344" | | |
| 8 | CIRC. | 14.262255 | 773.357522 | 480313.567158 | 4636601.994196 | | -9.000000 |
| 28.9504575 | | 480305.481831 | 4636605.947358 | 41°52'51.9520" | 2°45'45.8388" | | |
| 9 | CIRC. | 14.161817 | 787.619777 | 480309.322239 | 4636614.086846 | | 9.000000 |
| 328.0656406 | | 480313.162647 | 4636622.226334 | 41°52'52.3437" | 2°45'45.6532" | | |
| 10 | RECTA | 30.737563 | | 801.781594 | 480305.033708 | | 4636626.089021 |
| 28.2400053 | | 0.4291874510 | 0.9032154405 | 41°52'52.7325" | 2°45'45.4657" | | |
| 11 | CIRC. | 15.878996 | 832.519156 | 480318.225885 | 4636653.851662 | | 9.000000 |
| 28.2400053 | | 480326.354824 | 4636649.988975 | 41°52'53.6338" | 2°45'46.0348" | | |
| 12 | CIRC. | 15.159304 | 848.398152 | 480331.708839 | 4636657.223235 | | -9.000000 |
| 140.5609228 | | 480337.062854 | 4636664.457496 | 41°52'53.7444" | 2°45'46.6193" | | |

13 CIRC. 125.009848 863.557456 480344.857263 4636659.957808 -740.000000
 33.3307824 479703.983638 4637029.932129 41°52'53.8342" 2°45'47.1895"
 988.567303 480397.938068 4636772.974447
 22.5762229 41°52'57.5034" 2°45'49.4791"

EJES EN PLANTA

```

#-----#
# Num Eje P.K. inicial N.Palabras Titulo del Eje
#-----#
EJE 44 0.000000 1 CS-I-46.80
REV 2112
ALIAS4 N-634
GRUPO 8
TIPOL 401
CM 2
CAR 1
VD 80.000
MD 0
RV 22.04 200356 (2022/04/22)
VU 0 80.000
NCE 1.000
ACE 3.500
#-----#

```

```

#-----#
#Anchos derecha derecha izquierda izquierda
#-----#
ANCHOS 0.000 0.000 0.000 0.000
#-----#

```

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---------------|----------|---------------|----------------|-------------|--------------|----------|----------|----------|
| L | D | Az | Etiq | Peralte | | | | |
| ALI FIJA-2P+R | 0 | 479992.389876 | 4635898.500267 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -8.500000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FLOTANTE | 8 | 480089.087463 | 4636087.041894 | 0.000000 | -1000.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FIJA-2P+R | 8 | 480115.308564 | 4636144.049725 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI GIRATORIA | 8 | 480211.220814 | 4636355.909817 | 300.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FLOTANTE | 8 | 480235.191167 | 4636409.076378 | 1200.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FIJA-2P+R | 0 | 480290.743784 | 4636534.257541 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI GIRATORIA | 8 | 480311.062958 | 4636576.382474 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI GIRATORIA | 8 | 480313.435175 | 4636610.159759 | -9.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FLOTANTE | 8 | 480318.210897 | 4636653.237625 | 9.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI FIJA-2P+R | 0 | 480331.366336 | 4636657.464585 | -9.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| ALI GIRATORIA | 8 | 480350.408827 | 4636690.764802 | -740.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 10.000000 | 0.000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 | 0.000 0 |
| | | 480388.560305 | 4636776.446848 | | | | | |

FIN

1.5.2 Alzado

Istram 22.04.04.22 09/03/23 09:06:40 200356
 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 44 : CS-I-46.80

*** ESTADO DE RASANTES ***

| SALIDA DEL ACUERDO | | PENDIENTE (%) | LONGITUD BISECT. (m.) | PARAMETRO DIF.PEN (kv) | VÉRTICE PK Z | ENTRADA AL ACUERDO PK Z |
|--------------------|---|---------------|-----------------------|------------------------|-----------------|-------------------------|
| PK | Z | (%) | (m.) | (kv) | PK Z | PK Z |
| 112.257256 | | 2.00000000 | 30.875000 | 650.000000 | 30.485082 | 112.866958 |
| 112.558208 | | 45.922582 | 112.442426 | 0.183320 -4.750000 | 87.429332 | 111.300991 |
| 111.747302 | | -2.75000000 | 32.458995 | 850.000000 | 111.674943 | 104.711001 |
| 111.485681 | | 103.658830 | 111.474436 | 0.154939 3.818705 | 122.420454 | 111.674943 |
| 111.104440 | | 1.06870534 | 35.418906 | 1250.000000 | 173.719188 | 110.769619 |
| 110.337041 | | 140.129907 | 111.362405 | 0.125450 -2.833512 | 275.234875 | 110.262041 |
| 110.588091 | | -1.76480712 | 37.944214 | 3000.000000 | 355.444854 | 110.663091 |
| 110.462985 | | 192.691295 | 110.674759 | 0.059990 1.264807 | 412.340919 | 110.378610 |
| 111.680484 | | -0.50000000 | 30.000000 | 3000.000000 | 559.352513 | 111.848726 |
| 110.780358 | | 290.234875 | 110.337041 | 0.037500 1.000000 | 639.940000 | 110.485291 |
| 111.177876 | | 0.50000000 | 30.000000 | 3000.000000 | 720.241200 | 111.367459 |
| 111.694313 | | 370.444854 | 110.588091 | 0.037500 -1.000000 | 772.751249 | 113.756666 |
| 116.833719 | | -0.50000000 | 33.750000 | 2250.000000 | 929.867299 | 117.213219 |
| 116.694313 | | 429.215919 | 110.547360 | 0.063281 1.500000 | 976.703037 | 116.627772 |
| 988.565755 | | 1.00000000 | 33.648369 | 1250.000000 | 100.000000 | 100.000000 |
| | | 576.176698 | 111.564083 | 0.113221 -2.691870 | 1000.000000 | 1000.000000 |
| | | -1.69186954 | 34.880535 | 1250.000000 | 112.152658 | 112.152658 |
| | | 657.380268 | 110.676885 | 0.121665 2.790443 | 148904 3.451427 | 148904 3.451427 |
| | | 1.09857329 | 34.514267 | 1000.000000 | 1300.000000 | 1300.000000 |
| | | 737.498334 | 112.152658 | 0.148904 3.451427 | 772.751249 | 113.756666 |
| | | 4.55000000 | 30.550000 | 1300.000000 | 929.867299 | 117.213219 |
| | | 788.026249 | 114.092716 | 0.089741 -2.350000 | 1000.000000 | 1000.000000 |
| | | 2.20000000 | 34.500000 | 1000.000000 | 929.867299 | 117.213219 |
| | | 947.117299 | 116.997594 | 0.148781 -3.450000 | 976.703037 | 116.627772 |
| | | -1.25000000 | 10.646550 | 100.000000 | 976.703037 | 116.627772 |
| | | 982.026312 | 115.994486 | 0.141686 -10.646550 | | |
| | | -11.89654995 | | | | |

*** PUNTOS DEL EJE EN ALZADO ***

| P.K. | TIPO | COTA | PENDIENTE |
|-----------|-------------|------------|---------------|
| 0.000000 | Rampa | 112.257256 | 2.00000000 % |
| 15.047582 | tg. entrada | 112.558208 | 2.00000000 % |
| 20.000000 | KV -650 | 112.638390 | 1.23808955 % |
| 28.047582 | Punto alto | 112.688208 | 0.00000000 % |
| 40.000000 | KV -650 | 112.578315 | -1.83883353 % |
| 45.922582 | tg. salida | 112.442426 | -2.75000000 % |
| 60.000000 | Pendiente | 112.055297 | -2.75000000 % |

| | | | |
|------------|-------------|------------|---------------|
| 71.199834 | tg. entrada | 111.747302 | -2.75000000 % |
| 80.000000 | KV 850 | 111.550852 | -1.71468638 % |
| 94.574834 | Punto bajo | 111.425896 | 0.00000000 % |
| 100.000000 | KV 850 | 111.443209 | 0.63825480 % |
| 103.658830 | tg. salida | 111.474436 | 1.06870534 % |
| 104.711001 | tg. entrada | 111.485681 | 1.06870534 % |
| 118.069818 | Punto alto | 111.557064 | 0.00000000 % |
| 120.000000 | KV -1250 | 111.555574 | -0.15441458 % |
| 140.000000 | KV -1250 | 111.364691 | -1.75441458 % |
| 140.129907 | tg. salida | 111.362405 | -1.76480712 % |
| 154.747081 | tg. entrada | 111.104440 | -1.76480712 % |
| 160.000000 | KV 3000 | 111.016335 | -1.58970983 % |
| 180.000000 | KV 3000 | 110.765060 | -0.92304316 % |
| 192.691295 | tg. salida | 110.674759 | -0.50000000 % |
| 200.000000 | Pendiente | 110.638215 | -0.50000000 % |
| 220.000000 | Pendiente | 110.538215 | -0.50000000 % |
| 240.000000 | Pendiente | 110.438215 | -0.50000000 % |
| 260.000000 | Pendiente | 110.338215 | -0.50000000 % |
| 260.234875 | tg. entrada | 110.337041 | -0.50000000 % |
| 275.234875 | Punto bajo | 110.299541 | 0.00000000 % |
| 280.000000 | KV 3000 | 110.303325 | 0.15883752 % |
| 290.234875 | tg. salida | 110.337041 | 0.50000000 % |
| 300.000000 | Rampa | 110.385866 | 0.50000000 % |
| 320.000000 | Rampa | 110.485866 | 0.50000000 % |
| 340.000000 | Rampa | 110.585866 | 0.50000000 % |
| 340.444854 | tg. entrada | 110.588091 | 0.50000000 % |
| 355.444854 | Punto alto | 110.625591 | 0.00000000 % |
| 360.000000 | KV -3000 | 110.622132 | -0.15183820 % |
| 370.444854 | tg. salida | 110.588091 | -0.50000000 % |
| 380.000000 | Pendiente | 110.540315 | -0.50000000 % |
| 395.465919 | tg. entrada | 110.462985 | -0.50000000 % |

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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 44 : CS-I-46.80

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 400.000000 | KV 2250 | 110.444883 | -0.29848527 % |
| 406.715919 | Punto bajo | 110.434860 | 0.00000000 % |
| 420.000000 | KV 2250 | 110.474075 | 0.59040361 % |
| 429.215919 | tg. salida | 110.547360 | 1.00000000 % |
| 440.000000 | Rampa | 110.655201 | 1.00000000 % |
| 460.000000 | Rampa | 110.855201 | 1.00000000 % |
| 480.000000 | Rampa | 111.055201 | 1.00000000 % |
| 500.000000 | Rampa | 111.255201 | 1.00000000 % |
| 520.000000 | Rampa | 111.455201 | 1.00000000 % |
| 540.000000 | Rampa | 111.655201 | 1.00000000 % |
| 542.528329 | tg. entrada | 111.680484 | 1.00000000 % |
| 555.028329 | Punto alto | 111.742984 | 0.00000000 % |
| 560.000000 | KV -1250 | 111.733097 | -0.39773369 % |
| 576.176698 | tg. salida | 111.564083 | -1.69186954 % |
| 580.000000 | Pendiente | 111.499398 | -1.69186954 % |
| 600.000000 | Pendiente | 111.161024 | -1.69186954 % |
| 620.000000 | Pendiente | 110.822650 | -1.69186954 % |
| 622.499732 | tg. entrada | 110.780358 | -1.69186954 % |
| 640.000000 | KV 1250 | 110.606780 | -0.29184812 % |
| 643.648102 | Punto bajo | 110.601456 | 0.00000000 % |
| 657.380268 | tg. salida | 110.676885 | 1.09857329 % |
| 660.000000 | Rampa | 110.705665 | 1.09857329 % |
| 680.000000 | Rampa | 110.925379 | 1.09857329 % |
| 700.000000 | Rampa | 111.145094 | 1.09857329 % |
| 702.984067 | tg. entrada | 111.177876 | 1.09857329 % |
| 720.000000 | KV 1000 | 111.509580 | 2.80016660 % |
| 737.498334 | tg. salida | 112.152658 | 4.55000000 % |
| 740.000000 | Rampa | 112.266484 | 4.55000000 % |

| | | | |
|------------|-------------|------------|--------------|
| 757.476249 | tg. entrada | 113.061653 | 4.55000000 % |
| 760.000000 | KV -1300 | 113.174034 | 4.35586531 % |
| 780.000000 | KV -1300 | 113.891361 | 2.81740377 % |
| 788.026249 | tg. salida | 114.092716 | 2.20000000 % |
| 800.000000 | Rampa | 114.356138 | 2.20000000 % |
| 820.000000 | Rampa | 114.796138 | 2.20000000 % |
| 840.000000 | Rampa | 115.236138 | 2.20000000 % |
| 860.000000 | Rampa | 115.676138 | 2.20000000 % |
| 880.000000 | Rampa | 116.116138 | 2.20000000 % |
| 900.000000 | Rampa | 116.556138 | 2.20000000 % |

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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 44 : CS-I-46.80

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|----------------|
| 912.617299 | tg. entrada | 116.833719 | 2.20000000 % |
| 920.000000 | KV -1000 | 116.968886 | 1.46172990 % |
| 934.617299 | Punto alto | 117.075719 | 0.00000000 % |
| 940.000000 | KV -1000 | 117.061232 | -0.53827010 % |
| 947.117299 | tg. salida | 116.997594 | -1.25000000 % |
| 960.000000 | Pendiente | 116.836560 | -1.25000000 % |
| 971.379762 | tg. entrada | 116.694313 | -1.25000000 % |
| 980.000000 | KV -100 | 116.215018 | -9.87023753 % |
| 982.026312 | tg. salida | 115.994486 | -11.89654995 % |
| 988.565765 | Pendiente | 115.216518 | -11.89654995 % |

1.5.3 Puntos

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 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 44 : CS-I-46.80

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|-----------------|---------------------|--------------------|---------------|----------------|------------------|-----------------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE Pend (%) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud |
| RECTA Rampa | | 0.000000 | 479984.826584 | 4635902.379263 | 0.000 | 112.257256 |
| 112.257256 | 30.168872 | 0.0000 | 2.000000 | -2.000000 | 2.000000 | 112.257 |
| 41°52'29.2376" | 2°45'31.6608" | | | | | |
| RECTA KV -650 | | 20.000000 | 479993.953632 | 4635920.175245 | 0.000 | 112.638390 |
| 112.638390 | 30.168872 | 0.0000 | 1.238090 | -2.000000 | 2.000000 | 112.638 |
| 41°52'29.8155" | 2°45'32.0546" | | | | | |
| RECTA KV -650 | | 40.000000 | 480003.080680 | 4635937.971227 | 0.000 | 112.578315 |
| 112.578315 | 30.168872 | 0.0000 | -1.838834 | -2.000000 | 2.000000 | 112.578 |
| 41°52'30.3934" | 2°45'32.4484" | | | | | |
| RECTA Pendiente | | 60.000000 | 480012.207729 | 4635955.767210 | 0.000 | 112.055297 |
| 112.055297 | 30.168872 | 0.0000 | -2.750000 | -2.000000 | 2.000000 | 112.055 |
| 41°52'30.9712" | 2°45'32.8422" | | | | | |
| RECTA KV 850 | | 80.000000 | 480021.334777 | 4635973.563192 | 0.000 | 111.550852 |
| 111.550852 | 30.168872 | 0.0000 | -1.714686 | -2.000000 | 2.000000 | 111.551 |
| 41°52'31.5491" | 2°45'33.2360" | | | | | |
| RECTA KV 850 | | 100.000000 | 480030.461825 | 4635991.359174 | 0.000 | 111.443209 |
| 111.443209 | 30.168872 | 0.0000 | 0.638255 | -2.000000 | 2.000000 | 111.443 |
| 41°52'32.1269" | 2°45'33.6298" | | | | | |

| | | | | | | | | | | | |
|-----------------|---------------|---------------|----------------|-----------|------------|-----------------|------------|---------------|----------------|----------|------------|
| RECTA KV -1250 | 120.000000 | 480039.588874 | 4636009.155157 | 0.000 | 111.555574 | CIRC. Rampa | 520.000000 | 480209.265264 | 4636371.271432 | -250.000 | 111.455201 |
| 111.555574 | 30.168872 | 0.0000 | -0.154415 | -2.000000 | 2.000000 | 111.555 | 109.723 | 109.723 | 111.455 | 111.502 | 111.502 |
| 41°52'32.7048" | 2°45'34.0236" | | | | | | | | | | |
| RECTA KV -1250 | 140.000000 | 480048.715922 | 4636026.951139 | 0.000 | 111.364691 | CIRC. Rampa | 540.000000 | 480217.901962 | 4636389.304573 | -250.000 | 111.655201 |
| 111.364691 | 30.168872 | 0.0000 | -1.754415 | -2.000000 | 2.000000 | 111.365 | 111.129 | 111.129 | 111.655 | 107.788 | 107.788 |
| 41°52'33.2826" | 2°45'34.4174" | | | | | | | | | | |
| RECTA KV 3000 | 160.000000 | 480057.842971 | 4636044.747121 | 0.000 | 111.016335 | CIRC. KV -1250 | 553.864962 | 480223.030244 | 4636402.184349 | 1200.000 | 111.742443 |
| 111.016335 | 30.168872 | 0.0000 | -1.589710 | -2.000000 | 2.000000 | 111.016 | 110.645 | 110.645 | 111.742 | 109.804 | 109.804 |
| 41°52'33.8605" | 2°45'34.8112" | | | | | | | | | | |
| RECTA KV 3000 | 180.000000 | 480066.970019 | 4636062.543104 | 0.000 | 110.765060 | CIRC. KV -1250 | 560.000000 | 480225.155531 | 4636407.939500 | 1200.000 | 111.733097 |
| 110.765060 | 30.168872 | 0.0000 | -0.923043 | -2.000000 | 2.000000 | 110.765 | 110.544 | 110.544 | 111.733 | 111.356 | 111.356 |
| 41°52'34.4383" | 2°45'35.2050" | | | | | | | | | | |
| CIRC. KV 3000 | 186.251669 | 480069.822983 | 4636068.105833 | -1000.000 | 110.713868 | CIRC. Pendiente | 580.000000 | 480232.287706 | 4636426.624328 | 1200.000 | 111.499398 |
| 110.713868 | 30.168872 | 0.0000 | -0.714654 | -2.000000 | 2.000000 | 110.714 | 110.501 | 110.501 | 111.499 | 111.141 | 111.141 |
| 41°52'34.6190" | 2°45'35.3281" | | | | | | | | | | |
| CIRC. Pendiente | 200.000000 | 480076.012778 | 4636080.381829 | -1000.000 | 110.638215 | CIRC. Pendiente | 600.000000 | 480239.730290 | 4636445.187698 | 1200.000 | 111.161024 |
| 110.638215 | 29.293626 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.638 | 110.389 | 110.389 | 111.161 | 110.851 | 110.851 |
| 41°52'35.0176" | 2°45'35.5952" | | | | | | | | | | |
| CIRC. Pendiente | 220.000000 | 480084.714522 | 4636098.389225 | -1000.000 | 110.538215 | CIRC. Pendiente | 620.000000 | 480247.481215 | 4636463.624452 | 1200.000 | 110.822650 |
| 110.538215 | 28.020387 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.538 | 110.300 | 110.300 | 110.823 | 110.555 | 110.555 |
| 41°52'35.6022" | 2°45'35.9705" | | | | | | | | | | |
| RECTA Pendiente | 236.953405 | 480091.807488 | 4636113.787306 | 0.000 | 110.453448 | CIRC. KV 1250 | 640.000000 | 480255.538328 | 4636481.929469 | 1200.000 | 110.606780 |
| 110.453448 | 26.941100 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.453 | 110.305 | 110.305 | 110.607 | 110.460 | 110.460 |
| 41°52'36.1022" | 2°45'36.2764" | | | | | | | | | | |
| RECTA Pendiente | 240.000000 | 480093.058636 | 4636116.565141 | 0.000 | 110.438215 | CIRC. Rampa | 660.000000 | 480263.899392 | 4636500.097665 | 1200.000 | 110.705665 |
| 110.438215 | 26.941100 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.438 | 110.287 | 110.287 | 110.706 | 110.478 | 110.478 |
| 41°52'36.1923" | 2°45'36.3303" | | | | | | | | | | |
| RECTA Pendiente | 260.000000 | 480101.272055 | 4636134.800814 | 0.000 | 110.338215 | RECTA Rampa | 678.135421 | 480271.741786 | 4636516.449549 | 0.000 | 110.904896 |
| 110.338215 | 26.941100 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.338 | 110.078 | 110.078 | 110.905 | 110.570 | 110.570 |
| 41°52'36.7844" | 2°45'36.6844" | | | | | | | | | | |
| RECTA KV 3000 | 280.000000 | 480109.485474 | 4636153.036486 | 0.000 | 110.303325 | RECTA Rampa | 680.000000 | 480272.560784 | 4636518.124630 | 0.000 | 110.925379 |
| 110.303325 | 26.941100 | 0.0000 | 0.158838 | -2.000000 | 2.000000 | 110.303 | 110.134 | 110.134 | 110.925 | 110.523 | 110.523 |
| 41°52'37.3764" | 2°45'37.0386" | | | | | | | | | | |
| RECTA Rampa | 300.000000 | 480117.698893 | 4636171.272159 | 0.000 | 110.385866 | RECTA Rampa | 700.000000 | 480281.345587 | 4636536.092024 | 0.000 | 111.145094 |
| 110.385866 | 26.941100 | 0.0000 | 0.500000 | -2.000000 | 2.000000 | 110.386 | 110.090 | 110.090 | 111.145 | 110.825 | 110.825 |
| 41°52'37.9684" | 2°45'37.3927" | | | | | | | | | | |
| RECTA Rampa | 320.000000 | 480125.912312 | 4636189.507831 | 0.000 | 110.485866 | RECTA KV 1000 | 720.000000 | 480290.130391 | 4636554.059417 | 0.000 | 111.509580 |
| 110.485866 | 26.941100 | 0.0000 | 0.500000 | -2.000000 | 2.000000 | 110.486 | 110.172 | 110.172 | 111.509 | 111.029 | 111.029 |
| 41°52'38.5604" | 2°45'37.7468" | | | | | | | | | | |
| RECTA Rampa | 340.000000 | 480134.125731 | 4636207.743504 | 0.000 | 110.585866 | RECTA Rampa | 740.000000 | 480298.915194 | 4636572.026811 | 0.000 | 112.266484 |
| 110.585866 | 26.941100 | 0.0000 | 0.500000 | -2.000000 | 2.000000 | 110.586 | 110.283 | 110.283 | 112.266 | 111.265 | 111.265 |
| 41°52'39.1525" | 2°45'38.1010" | | | | | | | | | | |
| RECTA KV -3000 | 360.000000 | 480142.339150 | 4636225.979176 | 0.000 | 110.622132 | RECTA KV -1300 | 760.000000 | 480307.699998 | 4636589.994204 | 0.000 | 113.174034 |
| 110.622132 | 26.941100 | 0.0000 | -0.151838 | -2.000000 | 2.000000 | 110.622 | 110.335 | 110.335 | 113.174 | 111.754 | 111.754 |
| 41°52'39.7445" | 2°45'38.4551" | | | | | | | | | | |
| RECTA Pendiente | 380.000000 | 480150.552569 | 4636244.214848 | 0.000 | 110.540315 | CIRC. KV -1300 | 773.357522 | 480313.567158 | 4636601.994196 | -9.000 | 113.687245 |
| 110.540315 | 26.941100 | 0.0000 | -0.500000 | -2.000000 | 2.000000 | 110.540 | 110.322 | 110.322 | 113.687 | 112.492 | 112.492 |
| 41°52'40.3365" | 2°45'38.8092" | | | | | | | | | | |
| RECTA KV 2250 | 400.000000 | 480158.765987 | 4636262.450521 | 0.000 | 110.444883 | CIRC. KV -1300 | 780.000000 | 480314.123074 | 4636608.463092 | -9.000 | 113.891361 |
| 110.444883 | 26.941100 | 0.0000 | -0.298485 | -2.000000 | 2.000000 | 110.445 | 110.421 | 110.421 | 113.891 | 113.681 | 113.681 |
| 41°52'40.9285" | 2°45'39.1634" | | | | | | | | | | |
| RECTA KV 2250 | 420.000000 | 480166.979406 | 4636280.686193 | 0.000 | 110.474075 | CIRC. KV -1300 | 787.619777 | 480309.322239 | 4636614.086846 | 9.000 | 114.083710 |
| 110.474075 | 26.941100 | 0.0000 | 0.590404 | -2.000000 | 2.000000 | 110.474 | 110.453 | 110.453 | 114.084 | 113.838 | 113.838 |
| 41°52'41.5206" | 2°45'39.5175" | | | | | | | | | | |
| RECTA Rampa | 440.000000 | 480175.192825 | 4636298.921866 | 0.000 | 110.655201 | CIRC. Rampa | 800.000000 | 480304.432806 | 4636624.414912 | 9.000 | 114.356138 |
| 110.655201 | 26.941100 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 110.655 | 110.468 | 110.468 | 114.356 | 113.809 | 113.809 |
| 41°52'42.1126" | 2°45'39.8717" | | | | | | | | | | |
| RECTA Rampa | 460.000000 | 480183.406244 | 4636317.157538 | 0.000 | 110.855201 | RECTA Rampa | 801.781594 | 480305.033708 | 4636626.089021 | 0.000 | 114.395333 |
| 110.855201 | 26.941100 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 110.855 | 110.551 | 110.551 | 114.395 | 113.860 | 113.860 |
| 41°52'42.7046" | 2°45'40.2258" | | | | | | | | | | |
| RECTA Rampa | 480.000000 | 480191.619663 | 4636335.393211 | 0.000 | 111.055201 | RECTA Rampa | 801.781594 | 480305.033708 | 4636626.089021 | 0.000 | 114.395333 |
| 111.055201 | 26.941100 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 111.055 | 110.798 | 110.798 | 114.395 | 113.860 | 113.860 |
| 41°52'43.2966" | 2°45'40.5800" | | | | | | | | | | |
| CIRC. Rampa | 490.643435 | 480195.990613 | 4636345.097720 | 300.000 | 111.161635 | CIRC. Rampa | 800.000000 | 480304.432806 | 4636624.414912 | 9.000 | 114.356138 |
| 111.161635 | 26.941100 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 111.162 | 110.802 | 110.802 | 114.395 | 113.860 | 113.860 |
| 41°52'43.6117" | 2°45'40.7684" | | | | | | | | | | |
| CIRC. Rampa | 500.000000 | 480199.965486 | 4636353.567584 | 300.000 | 111.255201 | CIRC. Rampa | 800.000000 | 480304.432806 | 4636624.414912 | 9.000 | 114.356138 |
| 111.255201 | 28.926624 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 111.255 | 110.876 | 110.876 | 114.395 | 113.860 | 113.860 |
| 41°52'43.8867" | 2°45'40.9399" | | | | | | | | | | |
| CIRC. Rampa | 515.310296 | 480207.033275 | 4636367.147004 | -250.000 | 111.408304 | CIRC. Rampa | 800.000000 | 480304.432806 | 4636624.414912 | 9.000 | 114.356138 |
| 111.408304 | 32.175570 | 0.0000 | 1.000000 | -2.000000 | 2.000000 | 111.408 | 111.423 | 111.423 | 114.395 | 113.860 | 113.860 |
| 41°52'44.3276" | 2°45'41.2449" | | | | | | | | | | |

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 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 44 : CS-I-46.80

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|---|------------|---------------|----------------|----------|------------|-------|
| DR. AZIMUT DIST. EJE Pend (%) PERAL_I PERAL_D Z PROJ. ZT (eje) Z TERR. Latitud (N) Longitud (E) | | | | | | |
| RECTA Rampa | 820.000000 | 480312.852820 | 4636642.544167 | 0.000 | 114.796138 | |
| 114.796138 28.240005 0.0000 2.200000 -2.000000 2.000000 114.796 114.451 114.451 | | | | | | |
| 41°52'53.2667" 2°45'45.8030" | | | | | | |
| CIRC. Rampa | 832.519156 | 480318.225885 | 4636653.851662 | 9.000 | 115.071560 | |
| 115.071560 28.240005 0.0000 2.200000 -2.000000 2.000000 115.072 114.705 114.705 | | | | | | |
| 41°52'53.6338" 2°45'46.0348" | | | | | | |
| CIRC. Rampa | 840.000000 | 480323.729568 | 4636658.597577 | 9.000 | 115.236138 | |
| 115.236138 81.156150 0.0000 2.200000 -2.000000 2.000000 115.236 114.875 114.875 | | | | | | |
| 41°52'53.7882" 2°45'46.2730" | | | | | | |
| CIRC. Rampa | 848.398152 | 480331.708839 | 4636657.223235 | -9.000 | 115.420898 | |
| 115.420898 140.560923 0.0000 2.200000 -2.000000 2.000000 115.421 115.096 115.096 | | | | | | |
| 41°52'53.7444" 2°45'46.6193" | | | | | | |
| CIRC. Rampa | 860.000000 | 480342.523598 | 4636657.303457 | -9.000 | 115.676138 | |
| 115.676138 58.494635 0.0000 2.200000 -2.000000 2.000000 115.676 115.145 115.145 | | | | | | |
| 41°52'53.7479" 2°45'47.0886" | | | | | | |
| CIRC. Rampa | 863.557456 | 480344.857263 | 4636659.957808 | -740.000 | 115.754402 | |
| 115.754402 33.330782 0.0000 2.200000 -2.000000 2.000000 115.754 115.125 115.125 | | | | | | |
| 41°52'53.8342" 2°45'47.1895" | | | | | | |
| CIRC. Rampa | 880.000000 | 480352.919090 | 4636674.287954 | -740.000 | 116.116138 | |
| 116.116138 31.916235 0.0000 2.200000 -2.000000 2.000000 116.116 115.519 115.519 | | | | | | |
| 41°52'54.2996" 2°45'47.5376" | | | | | | |
| CIRC. Rampa | 900.000000 | 480362.292929 | 4636691.954499 | -740.000 | 116.556138 | |
| 116.556138 30.195641 0.0000 2.200000 -2.000000 2.000000 116.556 116.213 116.213 | | | | | | |
| 41°52'54.8732" 2°45'47.9422" | | | | | | |
| CIRC. KV -1000 | 920.000000 | 480371.185927 | 4636709.867908 | -740.000 | 116.968886 | |
| 116.968886 28.475047 0.0000 1.461730 -2.000000 2.000000 116.969 116.706 116.706 | | | | | | |
| 41°52'55.4549" 2°45'48.3259" | | | | | | |
| CIRC. KV -1000 | 940.000000 | 480379.591591 | 4636728.015097 | -740.000 | 117.061232 | |
| 117.061232 26.754453 0.0000 -0.538270 -2.000000 2.000000 117.061 116.858 116.858 | | | | | | |
| 41°52'56.0440" 2°45'48.6884" | | | | | | |
| CIRC. Pendiente | 960.000000 | 480387.503780 | 4636746.382811 | -740.000 | 116.836560 | |
| 116.836560 25.033859 0.0000 -1.250000 -2.000000 2.000000 116.837 116.673 116.673 | | | | | | |
| 41°52'56.6403" 2°45'49.0295" | | | | | | |
| CIRC. KV -100 | 980.000000 | 480394.916715 | 4636764.957633 | -740.000 | 116.215018 | |
| 116.215018 23.313265 0.0000 -9.870238 -2.000000 2.000000 116.215 116.049 116.049 | | | | | | |
| 41°52'57.2432" 2°45'49.3490" | | | | | | |
| CIRC. Pendiente | 988.567000 | 480397.937962 | 4636772.974162 | -740.000 | 115.216371 | |
| 115.216371 22.576249 0.0000 -11.896550 -2.000000 2.000000 115.216 115.160 115.160 | | | | | | |
| 41°52'57.5034" 2°45'49.4791" | | | | | | |

1.6 CS-I-48.24 (Eje A1-45)

1.6.1 Planta

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 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 45 : CS-I-48.24

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|--------------------|---------------|----------------|----------------|----------------|-------------|
| AZIMUT Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 3.231368 | 0.000000 | 480657.307289 | 4637345.087992 | |
| 332.5712164 | -0.8719488583 | 0.4895969653 | 41°53'16.0769" | 2°46'00.6654" | |
| 2 CIRC. | 7.339534 | 3.231368 | 480654.489701 | 4637346.670060 | 5.000000 |
| 332.5712164 | 480656.937686 | 4637351.029804 | 41°53'16.1279" | 2°46'00.5430" | |
| 3 RECTA | 56.608912 | 10.570903 | 480652.349570 | 4637353.017062 | |
| 26.0210693 | 0.3974516050 | 0.9176231371 | 41°53'16.3335" | 2°46'00.4494" | |
| 4 CIRC. | 37.180942 | 67.179815 | 480674.848873 | 4637404.962710 | -200.000000 |
| 26.0210693 | 480491.324246 | 4637484.453031 | 41°53'18.0198" | 2°46'01.4196" | |
| 5 RECTA | 93.116117 | 104.360757 | 480686.379291 | 4637440.254282 | |
| 14.1860079 | 0.2209937442 | 0.9752752253 | 41°53'19.1651" | 2°46'01.9157" | |
| 6 CIRC. | 44.313135 | 197.476874 | 480706.957371 | 4637531.068125 | 200.000000 |
| 14.1860079 | 480902.012416 | 4637486.869376 | 41°53'22.1115" | 2°46'02.7980" | |
| 7 RECTA | 51.701644 | 241.790009 | 480721.438571 | 4637572.852436 | |
| 28.2913168 | 0.4299153019 | 0.9028692227 | 41°53'23.4676" | 2°46'03.4215" | |
| 8 CIRC. | 57.432332 | 293.491653 | 480743.665899 | 4637619.532259 | 40.000000 |
| 28.2913168 | 480779.780668 | 4637602.335647 | 41°53'24.9831" | 2°46'04.3805" | |
| 9 CIRC. | 13.868231 | 350.923985 | 480791.960572 | 4637640.436171 | -9.000000 |
| 119.6977125 | 480794.701051 | 4637649.008789 | 41°53'25.6652" | 2°46'06.4738" | |
| 10 RECTA | 4.965702 | 364.792217 | 480803.187963 | 4637646.013408 | |
| 21.6000422 | 0.3328201702 | 0.9429903151 | 41°53'25.8470" | 2°46'06.9603" | |
| 21.6000422 | | 369.757918 | 480804.840649 | 4637650.696016 | |
| | | | 41°53'25.9990" | 2°46'07.0315" | |

EJES EN PLANTA

 # Num Eje P.K. inicial N.Palabras Titulo del Eje

EJE 45 0.000000 1 CS-I-48.24

REV 2112
 ALIAS4 N-634
 GRUPO 8
 TIPOL 401
 CM 2
 CAR 1
 VD 80.000
 MD 0
 RV 22.04 200356 (2022/04/22)
 VU 0 80.000
 NCE 1.000
 ACE 3.500

 #Anchos derecha derecha izquierda izquierda

ANCHOS 0.000 0.000 0.000 0.000

 # Tipo clave X (L ant) Y (dL ant) R A1 A2 A
 L D Az Etig Peralte

| | | | | | | | |
|----------------|----------|---------------|-------------------|----------|-----------|----------|----------|
| ALI CONEC-P+PK | 1003 | 480657.028655 | 4637345.244446 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | -99999999.0000000 | 0 | 0.000 0 0 | 0.000 | 0.000 0 |

| PK | EJE | 24 ALI | 0 xTP | 0 xJCA | 0 | 0 | 0 | 0 | 0 |
|---------------|-----|---------------|----------------|-----------|-------------|----------|----------|----------|----------|
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 5.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FIJA-2P+R | 0 | 480654.020683 | 4637356.875272 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | -200.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FIJA-2P+R | 0 | 480681.122684 | 4637428.368703 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 200.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FIJA-2P+R | 0 | 480725.022726 | 4637586.194653 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI GIRATORIA | 8 | 480781.759310 | 4637644.789563 | 40.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| ALI FIJA-2P+R | 0 | 480800.860075 | 4637639.417725 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| FIN | | 480804.840649 | 4637650.696016 | | | | | | |

1.6.2 Alzado

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 pagina 1
 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 45 : CS-I-48.24

 * * * ESTADO DE RASANTES * * *

| PENDIENTE SALIDA DEL ACUERDO | LONGITUD BISECT. | PARAMETRO DIF.PEN | VÉRTICE | ENTRADA AL ACUERDO |
|------------------------------|------------------|-------------------|------------|--------------------|
| (%) | (m.) | (kv) | PK | Z |
| 118.416214 | | | | 3.000000 |
| 1.10000000 | 38.000000 | 2000.000000 | 173.400149 | 120.290616 |
| 120.081616 | 192.400149 | 0.090250 | 1.900000 | 154.400149 |
| 3.00000000 | 35.000000 | 1000.000000 | 307.833218 | 124.323608 |
| 123.798608 | 325.333218 | 0.153125 | -3.500000 | 290.333218 |
| -0.50000000 | 15.420766 | 600.000000 | 355.820318 | 124.083672 |
| 124.122224 | 363.530701 | 0.049542 | 2.570128 | 348.109935 |
| 2.07012769 | | | | |
| 369.758000 | 124.372200 | | | |

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 PROYECTO :
 GRUPO : 8 : Reposiciones
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 45 : CS-I-48.24

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Rampa | 118.383214 | 1.10000000 % |
| 20.000000 | Rampa | 118.603214 | 1.10000000 % |
| 40.000000 | Rampa | 118.823214 | 1.10000000 % |
| 60.000000 | Rampa | 119.043214 | 1.10000000 % |
| 80.000000 | Rampa | 119.263214 | 1.10000000 % |
| 100.000000 | Rampa | 119.483214 | 1.10000000 % |
| 120.000000 | Rampa | 119.703214 | 1.10000000 % |
| 140.000000 | Rampa | 119.923214 | 1.10000000 % |
| 154.400149 | tg. entrada | 120.081616 | 1.10000000 % |
| 160.000000 | KV 2000 | 120.151054 | 1.37999255 % |
| 180.000000 | KV 2000 | 120.527052 | 2.37999255 % |
| 192.400149 | tg. salida | 120.860616 | 3.00000000 % |
| 200.000000 | Rampa | 121.088611 | 3.00000000 % |
| 220.000000 | Rampa | 121.688611 | 3.00000000 % |
| 240.000000 | Rampa | 122.288611 | 3.00000000 % |
| 260.000000 | Rampa | 122.888611 | 3.00000000 % |
| 280.000000 | Rampa | 123.488611 | 3.00000000 % |
| 290.333218 | tg. entrada | 123.798608 | 3.00000000 % |
| 300.000000 | KV -1000 | 124.041888 | 2.03332176 % |
| 320.000000 | KV -1000 | 124.248552 | 0.03332176 % |
| 320.333218 | Punto alto | 124.248608 | 0.00000000 % |
| 325.333218 | tg. salida | 124.236108 | -0.50000000 % |
| 340.000000 | Pendiente | 124.162774 | -0.50000000 % |
| 348.109935 | tg. entrada | 124.122224 | -0.50000000 % |
| 351.109935 | Punto bajo | 124.114724 | 0.00000000 % |
| 360.000000 | KV 600 | 124.180585 | 1.48167745 % |
| 363.530701 | tg. salida | 124.243287 | 2.07012769 % |
| 369.758010 | Rampa | 124.372200 | 2.07012769 % |

1.6.3 Puntos

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 pagina 1
 PROYECTO :
 C.R.S. : ETRS89 (HUSO 31)
 EJE : 45 : CS-I-48.24

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|----------------|---------------------|---------------|----------------|-----------------|------------------|-----------------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE | Pend (%) | PERAL_I PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud |
| RECTA Rampa | 0.000000 | 480657.307289 | 4637345.087992 | 0.0000 | 118.383 | 118.279 |
| 118.383214 | 332.571216 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.279 |
| 41°53'16.0769" | 2°46'00.6654" | | | | | |
| CIRC. Rampa | 3.231368 | 480654.489701 | 4637346.670060 | 5.0000 | 118.419 | 118.202 |
| 118.418759 | 332.571216 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.202 |
| 41°53'16.1279" | 2°46'00.5430" | | | | | |
| RECTA Rampa | 10.570903 | 480652.349570 | 4637353.017062 | 0.0000 | 118.419 | 118.234 |
| 118.499494 | 26.021069 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.234 |
| 41°53'16.3335" | 2°46'00.4494" | | | | | |
| RECTA Rampa | 20.000000 | 480656.097180 | 4637361.669420 | 0.0000 | 118.419 | 118.307 |
| 118.603214 | 26.021069 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.307 |
| 41°53'16.6144" | 2°46'00.6110" | | | | | |
| RECTA Rampa | 40.000000 | 480664.046212 | 4637380.021883 | 0.0000 | 118.419 | 118.479 |
| 118.823214 | 26.021069 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.479 |
| 41°53'17.2102" | 2°46'00.9537" | | | | | |
| RECTA Rampa | 60.000000 | 480671.995245 | 4637398.374346 | 0.0000 | 118.419 | 118.716 |
| 119.043214 | 26.021069 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.716 |
| 41°53'17.8059" | 2°46'01.2965" | | | | | |
| CIRC. Rampa | 67.179815 | 480674.848873 | 4637404.962710 | -200.0000 | 119.122 | 118.829 |
| 119.122192 | 26.021069 | 0.0000 | 1.100000 | -2.000000 | 2.000000 | 118.829 |
| 41°53'18.0198" | 2°46'01.4196" | | | | | |

| | | | | | |
|-------------|---------------|----------------|---------------|----------------|----------------|
| 24 CIRC. | 10.199879 | 734.273818 | 479435.091383 | 4633986.159123 | -15.000000 |
| 43.5710401 | 479423.469522 | 4633995.642390 | | | |
| 25 CIRC. | 17.438080 | 744.473697 | 479438.469375 | 4633995.576084 | 30.000000 |
| 0.2814105 | 479468.469082 | 4633995.443473 | | | |
| 26 CIRC. | 4.845767 | 761.911777 | 479443.469151 | 4634012.026701 | -12.000000 |
| 37.2861659 | 479433.469179 | 4634018.659993 | | | |
| 27 RECTA | 20.096062 | | 766.757545 | 479445.271253 | 4634016.489496 |
| 11.5785714 | 0.1808747262 | 0.9835061430 | | | |
| 28 CIRC. | 9.222101 | 786.853606 | 479448.906122 | 4634036.254096 | -9.000000 |
| 11.5785714 | 479440.054567 | 4634037.881968 | | | |
| 29 CIRC. | 10.631253 | 796.075707 | 479446.042930 | 4634044.600563 | 9.000000 |
| 346.3455514 | 479452.031293 | 4634051.319157 | | | |
| 30 CIRC. | 38.182550 | 806.706960 | 479443.541853 | 4634054.307371 | -350.000000 |
| 21.5462841 | 479113.396995 | 4634170.515688 | | | |
| 31 CIRC. | 5.216842 | 844.889510 | 479454.231610 | 4634090.943294 | 9.000000 |
| 14.6012081 | 479462.995928 | 4634088.897147 | | | |
| 32 CIRC. | 3.577929 | 850.106352 | 479456.783955 | 4634095.409550 | -9.000000 |
| 51.5028162 | 479450.571982 | 4634101.921953 | | | |
| 33 CIRC. | 35.566339 | 853.684280 | 479458.820835 | 4634098.322449 | 150.000000 |
| 26.1941481 | 479596.301713 | 4634038.330715 | | | |
| 34 CIRC. | 65.434436 | 889.250620 | 479476.759059 | 4634128.937303 | -120.000000 |
| 41.2889714 | 479381.124935 | 4634201.422573 | | | |
| 35 CIRC. | 16.742516 | 954.685056 | 479500.485514 | 4634189.051152 | 50.000000 |
| 6.5749248 | 479550.219089 | 4634183.896394 | | | |
| 36 CIRC. | 5.626173 | 971.427572 | 479504.941739 | 4634205.108690 | -9.000000 |
| 27.8921584 | 479496.791815 | 4634208.926904 | | | |
| 37 CIRC. | 5.738217 | 977.053745 | 479505.634911 | 4634210.600124 | 9.000000 |
| 388.0951269 | 479514.478006 | 4634212.273343 | | | |
| 38 CIRC. | 23.402681 | 982.791962 | 479506.376248 | 4634216.192720 | -25.000000 |
| 28.6847109 | 479483.871363 | 4634227.079877 | | | |
| 39 CIRC. | 11.090633 | 1006.194643 | 479505.982070 | 4634238.746781 | 12.000000 |
| 369.0902727 | 479516.595209 | 4634244.346895 | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|---------------|----------------|-------|------------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 40 CIRC. | 3.730766 | 1017.285276 | 479505.731506 | 4634249.443947 | | -6.000000 |
| 27.9279065 | 479500.299654 | 4634251.992473 | | | | |
| 41 CIRC. | 9.392119 | 1021.016042 | 479506.199353 | 4634253.084967 | | 9.000000 |
| 388.3432513 | 479515.048903 | 4634254.723708 | | | | |
| 42 CIRC. | 10.982473 | 1030.408160 | 479509.180138 | 4634261.547021 | | -15.000000 |
| 54.7789001 | 479499.398862 | 4634272.919208 | | | | |
| 43 CIRC. | 8.533361 | 1041.390633 | 479514.275574 | 4634270.999982 | | 18.000000 |
| 8.1678386 | 479532.127629 | 4634268.696911 | | | | |
| 44 CIRC. | 42.275928 | 1049.923994 | 479517.295776 | 4634278.895740 | | -90.000000 |
| 38.3484299 | 479443.136510 | 4634329.889889 | | | | |
| 45 CIRC. | 28.472803 | 1092.199923 | 479532.345930 | 4634317.986977 | | 150.000000 |
| 8.4443278 | 479681.028297 | 4634298.148791 | | | | |
| 46 CIRC. | 7.448317 | 1120.672726 | 479538.759580 | 4634345.684167 | | -15.000000 |
| 20.5285608 | 479524.532708 | 4634350.437705 | | | | |
| 47 CIRC. | 10.669808 | 1128.121043 | 479539.305970 | 4634353.035923 | | 15.000000 |
| 388.9169213 | 479554.079232 | 4634355.634140 | | | | |
| 48 CIRC. | 4.930386 | 1138.790851 | 479541.192273 | 4634363.310486 | | -12.000000 |
| 34.2009927 | 479530.882705 | 4634369.451563 | | | | |
| 49 CIRC. | 5.566286 | 1143.721236 | 479542.787028 | 4634367.939246 | | 12.000000 |
| 8.0444849 | 479554.691350 | 4634366.426928 | | | | |
| 50 CIRC. | 22.882465 | 1149.287522 | 479544.721529 | 4634373.105450 | | -35.000000 |
| 37.5745483 | 479515.642882 | 4634392.584473 | | | | |
| 51 CIRC. | 11.891402 | 1172.169987 | 479550.572197 | 4634394.807753 | | 18.000000 |
| 395.9533207 | 479568.535845 | 4634395.951154 | | | | |

| | | | | | |
|-------------|---------------|----------------|---------------|----------------|----------------|
| 52 CIRC. | 32.106341 | 1184.061390 | 479553.650072 | 4634406.071123 | -150.000000 |
| 38.0105533 | 479429.601964 | 4634490.404194 | | | |
| 53 CIRC. | 5.271874 | 1216.167730 | 479568.732655 | 4634434.344844 | 30.000000 |
| 24.3841991 | 479596.558793 | 4634423.132974 | | | |
| 54 CIRC. | 85.153584 | 1221.439604 | 479571.121324 | 4634439.036908 | -120.000000 |
| 35.5714627 | 479469.371444 | 4634502.652646 | | | |
| 55 CIRC. | 6.315688 | 1306.593188 | 479588.008545 | 4634520.687016 | 9.000000 |
| 390.3960835 | 479596.906327 | 4634522.039593 | | | |
| 56 CIRC. | 8.246003 | 1312.908876 | 479589.237773 | 4634526.750568 | -9.000000 |
| 35.0704383 | 479581.569220 | 4634531.461543 | | | |
| 57 CIRC. | 8.635759 | 1321.154879 | 479589.975249 | 4634534.676923 | 9.000000 |
| 376.7419012 | 479598.381279 | 4634537.892302 | | | |
| 58 CIRC. | 9.650897 | 1329.790637 | 479590.923866 | 4634542.930853 | -25.000000 |
| 37.8273988 | 479570.208829 | 4634556.926826 | | | |
| 59 CIRC. | 155.576041 | 1339.441534 | 479594.669173 | 4634551.760436 | 900.000000 |
| 13.2515918 | 480475.241549 | 4634365.770409 | | | |
| 60 CIRC. | 6.588587 | 1495.017575 | 479639.783576 | 4634700.449322 | -30.000000 |
| 24.2563456 | 479611.934976 | 4634711.605285 | | | |
| 61 RECTA | 2.684511 | | 1501.606162 | 479641.545083 | 4634706.784333 |
| 10.2749297 | 0.1606984101 | 0.9870035567 | | | |
| 62 CIRC. | 5.362426 | 1504.290673 | 479641.976480 | 4634709.433955 | 50.000000 |
| 10.2749297 | 479691.326658 | 4634701.399034 | | | |
| 63 CIRC. | 75.156070 | 1509.653099 | 479643.120109 | 4634714.670382 | 9820.000000 |
| 17.1025828 | 489110.886238 | 4632108.177616 | | | |
| 64 CIRC. | 48.932321 | 1584.809169 | 479663.345643 | 4634787.053634 | 500.000000 |
| 17.5898113 | 480144.381315 | 4634650.654651 | | | |
| 65 CIRC. | 47.048562 | 1633.741490 | 479678.974702 | 4634833.402249 | -500.000000 |
| 23.8200679 | 479213.568089 | 4635016.149847 | | | |
| 66 CIRC. | 156.025984 | 1680.790052 | 479694.086462 | 4634877.939526 | 2500.000000 |
| 17.8296589 | 482096.678330 | 4634186.887923 | | | |
| 67 CIRC. | 9.467326 | 1836.816036 | 479741.864870 | 4635026.443502 | -12.000000 |
| 21.8028280 | 479730.561765 | 4635030.473368 | | | |
| 68 CIRC. | 6.926280 | 1846.283362 | 479741.385510 | 4635035.654734 | 9.000000 |
| 371.5771025 | 479749.503318 | 4635039.540759 | | | |
| 69 CIRC. | 153.752862 | 1853.209642 | 479740.969076 | 4635042.398505 | 10260.000000 |
| 20.5705079 | 489470.004876 | 4631784.567568 | | | |
| | | 2006.962504 | 479790.880397 | | 4635187.823263 |
| 21.5245246 | | | | | |

EJES EN PLANTA

| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje | | | | |
|---------------|---------------------------|---------------|----------------|---------------------|----------------|----------|----------|----------|
| # | 31 | 0.000000 | | 1 CS-D-44.02 | | | | |
| REV | 2112 | | | | | | | |
| ALIAS4 | N-634 | | | | | | | |
| GRUPO | 6 | | | | | | | |
| TIPOL | 401 | | | | | | | |
| CM | 2 | | | | | | | |
| CAR | 1 | | | | | | | |
| VD | 80.000 | | | | | | | |
| MD | 0 | | | | | | | |
| RV | 22.04 200356 (2022/04/22) | | | | | | | |
| VU | 0 80.000 | | | | | | | |
| NCE | 1.000 | | | | | | | |
| ACE | 3.500 | | | | | | | |
| # | ----- | | | | | | | |
| # | Anchos | derecha | derecha | izquierda izquierda | | | | |
| # | ----- | | | | | | | |
| ANCHOS | 0.000 | 0.000 | 0.000 | 0.000 | | | | |
| # | ----- | | | | | | | |
| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
| L | D | Az | Etiq | Peralte | | | | |
| # | ----- | | | | | | | |
| ALI FIJA-2P+R | 0 | 479192.265584 | 4633302.883925 | -150.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 0 |
| | | | | 479201.882827 | 4633338.190862 | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 150.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 0 |
| ALI FIJA-2P+R | 0 | 479224.522261 | 4633406.086947 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 0 |
| | | | | 479242.087881 | 4633449.077401 | | | |

| | | | | | | | | | | | | | | | | | | | | | |
|---------------|----------|---------------|----------------|------------|--------------|----------|---|-------|---|---|-------|--|--|--|--|--|--|--|--|--|--|
| ALL FLOTANTE | 8 | 0.000000 | 0.000000 | 200.000000 | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALL FIJA-2P+R | 0 | 479242.087881 | 4633449.077401 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479276.160038 | 4633524.506771 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479277.169255 | 4633541.632509 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALL FLOTANTE | 8 | 479287.854402 | 4633572.577807 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479294.098969 | 4633588.674912 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479307.270634 | 4633623.606020 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479307.270634 | 4633623.606020 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479318.310262 | 4633646.058023 | | 0.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479331.726223 | 4633680.017174 | | -2500.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479347.279209 | 4633733.939861 | | -50.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479367.315529 | 4633825.443826 | | 500.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479364.360397 | 4633812.889862 | | 1200.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479388.919345 | 4633894.575056 | | 12.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479395.326026 | 4633894.575056 | | -20.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479410.808841 | 4633907.388420 | | 50.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479419.884974 | 4633922.337344 | | -25.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479426.825546 | 4633950.633523 | | 15.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479432.164447 | 4633980.531371 | | -15.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479434.834779 | 4633985.835664 | | 30.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479438.037239 | 4633999.217527 | | -12.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479443.702780 | 4634012.373632 | | 9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479446.730368 | 4634024.423434 | | -9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479448.668025 | 4634034.959442 | | 9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479446.045591 | 4634044.598190 | | -350.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479455.146039 | 4634094.967086 | | 9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479456.624444 | 4634095.253576 | | -9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479465.265637 | 4634111.334460 | | 50.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479476.684179 | 4634128.838425 | | -9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479497.436568 | 4634171.899633 | | 50.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479504.699904 | 4634204.584646 | | 50.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479505.623117 | 4634210.661295 | | -9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FLOTANTE | 8 | 479502.795018 | 4634243.416807 | | 9.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI FIJA-2P+R | 0 | 479505.737524 | 4634214.960841 | | -25.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0 | 0.000 | 0 | 0 | 0.000 | | | | | | | | | | |
| ALI GIRATORIA | 8 | 479505.218714 | 4634248.164663 | | 12.000000 | 0.000000 | | | | | | | | | | | | | | | |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | | | | | | | | | | | | | | | |

| | | | |
|------------|-------------|------------|---------------|
| 340.000000 | Pendiente | 99.872472 | -2.80000000 % |
| 360.000000 | Pendiente | 99.312472 | -2.80000000 % |
| 380.000000 | Pendiente | 98.752472 | -2.80000000 % |
| 392.780149 | tg. entrada | 98.394628 | -2.80000000 % |
| 399.780149 | Punto bajo | 98.296628 | 0.00000000 % |
| 400.000000 | KV 250 | 98.296724 | 0.08794042 % |
| 414.780149 | tg. salida | 98.746628 | 6.00000000 % |
| 420.000000 | Rampa | 99.059819 | 6.00000000 % |
| 440.000000 | Rampa | 100.259819 | 6.00000000 % |
| 452.968910 | tg. entrada | 101.037953 | 6.00000000 % |
| 460.000000 | KV 1000 | 101.484537 | 6.70310900 % |
| 474.968910 | tg. salida | 102.599953 | 8.20000000 % |

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 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

***** PUNTOS DEL EJE EN ALZADO *****

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|----------------|
| 480.000000 | Rampa | 103.012503 | 8.20000000 % |
| 500.000000 | Rampa | 104.652503 | 8.20000000 % |
| 512.600932 | tg. entrada | 105.685779 | 8.20000000 % |
| 520.000000 | KV -600 | 106.246881 | 6.96682197 % |
| 540.000000 | KV -600 | 107.306912 | 3.63348864 % |
| 560.000000 | KV -600 | 107.700276 | 0.30015531 % |
| 561.800932 | Punto alto | 107.702979 | 0.00000000 % |
| 564.800932 | tg. salida | 107.695479 | -0.50000000 % |
| 572.663713 | tg. entrada | 107.656165 | -0.50000000 % |
| 574.163713 | Punto bajo | 107.652415 | 0.00000000 % |
| 580.000000 | KV 300 | 107.709186 | 1.94542903 % |
| 589.163713 | tg. salida | 108.027415 | 5.00000000 % |
| 600.000000 | Rampa | 108.569230 | 5.00000000 % |
| 602.733311 | tg. entrada | 108.705895 | 5.00000000 % |
| 607.733311 | Punto alto | 108.830895 | 0.00000000 % |
| 612.733311 | tg. salida | 108.705895 | -5.00000000 % |
| 615.044656 | tg. entrada | 108.590328 | -5.00000000 % |
| 616.544656 | Punto bajo | 108.552828 | 0.00000000 % |
| 620.000000 | KV 30 | 108.751818 | 11.51781400 % |
| 622.544656 | tg. salida | 109.152828 | 20.00000000 % |
| 640.000000 | Rampa | 112.643897 | 20.00000000 % |
| 640.419633 | tg. entrada | 112.727823 | 20.00000000 % |
| 648.419633 | tg. salida | 114.167823 | 16.00000000 % |
| 655.182615 | tg. entrada | 115.249901 | 16.00000000 % |
| 660.000000 | KV -200 | 115.962664 | 13.59130770 % |
| 680.000000 | KV -200 | 117.680926 | 3.59130770 % |
| 687.182615 | Punto alto | 117.809901 | 0.00000000 % |
| 695.182615 | tg. salida | 117.649901 | -4.00000000 % |
| 698.876660 | tg. entrada | 117.502139 | -4.00000000 % |
| 700.000000 | KV -200 | 117.454050 | -4.56167000 % |
| 718.876660 | tg. salida | 115.702139 | -14.00000000 % |
| 720.000000 | Pendiente | 115.544871 | -14.00000000 % |
| 720.276358 | tg. entrada | 115.506181 | -14.00000000 % |
| 727.276358 | Punto bajo | 115.016181 | 0.00000000 % |
| 730.776358 | tg. salida | 115.138681 | 7.00000000 % |
| 733.414939 | tg. entrada | 115.323382 | 7.00000000 % |
| 740.000000 | KV -100 | 115.567521 | 0.41493882 % |
| 740.414939 | Punto alto | 115.568382 | 0.00000000 % |

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 pagina 4
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

***** PUNTOS DEL EJE EN ALZADO *****

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|-------------|------------|----------------|
| 750.414939 | tg. salida | 115.068382 | -10.00000000 % |
| 754.322963 | tg. entrada | 114.677579 | -10.00000000 % |
| 759.322963 | Punto bajo | 114.427579 | 0.00000000 % |
| 760.000000 | KV 50 | 114.432163 | 1.35407415 % |
| 760.822963 | tg. salida | 114.450079 | 3.00000000 % |
| 766.250416 | tg. entrada | 114.612903 | 3.00000000 % |
| 767.750416 | Punto alto | 114.635403 | 0.00000000 % |
| 774.750416 | tg. salida | 114.145403 | -14.00000000 % |
| 780.000000 | Pendiente | 113.410461 | -14.00000000 % |
| 797.284734 | tg. entrada | 110.990598 | -14.00000000 % |
| 800.000000 | KV 200 | 110.628893 | -12.64236696 % |
| 820.000000 | KV 200 | 109.100419 | -2.64236696 % |
| 825.284734 | Punto bajo | 109.030598 | 0.00000000 % |
| 840.000000 | KV 200 | 109.571946 | 7.35763304 % |
| 848.584734 | tg. salida | 110.387823 | 11.65000000 % |
| 860.000000 | Rampa | 111.717702 | 11.65000000 % |
| 880.000000 | Rampa | 114.047702 | 11.65000000 % |
| 900.000000 | Rampa | 116.377702 | 11.65000000 % |
| 918.139225 | tg. entrada | 118.490922 | 11.65000000 % |
| 920.000000 | KV -100 | 118.690389 | 9.78922489 % |
| 929.789225 | Punto alto | 119.169534 | 0.00000000 % |
| 935.689225 | tg. salida | 118.995484 | -5.90000000 % |
| 940.000000 | Pendiente | 118.741148 | -5.90000000 % |
| 960.000000 | Pendiente | 117.561148 | -5.90000000 % |
| 980.000000 | Pendiente | 116.381148 | -5.90000000 % |
| 994.131209 | tg. entrada | 115.547407 | -5.90000000 % |
| 1000.000000 | KV -150 | 115.086339 | -9.81252728 % |
| 1015.281209 | tg. salida | 112.808482 | -20.00000000 % |
| 1018.486547 | tg. entrada | 112.167414 | -20.00000000 % |
| 1020.000000 | KV 50 | 111.887629 | -16.97309500 % |
| 1028.486547 | Punto bajo | 111.167414 | 0.00000000 % |
| 1038.486547 | tg. salida | 112.167414 | 20.00000000 % |
| 1040.000000 | Rampa | 112.470105 | 20.00000000 % |
| 1047.227797 | tg. entrada | 113.915664 | 20.00000000 % |
| 1060.000000 | KV -100 | 115.654459 | 7.22779688 % |
| 1067.227797 | Punto alto | 115.915664 | 0.00000000 % |
| 1067.727797 | tg. salida | 115.914414 | -0.50000000 % |
| 1080.000000 | Pendiente | 115.853053 | -0.50000000 % |

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 pagina 5
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

***** PUNTOS DEL EJE EN ALZADO *****

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|-------------|------------|----------------|
| 1100.000000 | Pendiente | 115.753053 | -0.50000000 % |
| 1110.704522 | tg. entrada | 115.699531 | -0.50000000 % |
| 1120.000000 | KV -180 | 115.413037 | -5.66415435 % |
| 1140.000000 | KV -180 | 113.169095 | -16.77526546 % |
| 1142.204522 | tg. salida | 112.785781 | -18.00000000 % |
| 1143.224056 | tg. entrada | 112.602264 | -18.00000000 % |
| 1159.424056 | Punto bajo | 111.144264 | 0.00000000 % |
| 1160.000000 | KV 90 | 111.146107 | 0.63993778 % |
| 1172.024056 | tg. salida | 112.026264 | 14.00000000 % |
| 1180.000000 | Rampa | 113.142897 | 14.00000000 % |
| 1200.000000 | Rampa | 115.942897 | 14.00000000 % |
| 1220.000000 | Rampa | 118.742897 | 14.00000000 % |
| 1230.883511 | tg. entrada | 120.266588 | 14.00000000 % |
| 1240.000000 | KV -200 | 121.335121 | 9.44175558 % |
| 1258.883511 | Punto alto | 122.226588 | 0.00000000 % |
| 1260.000000 | KV -200 | 122.223472 | -0.55824442 % |
| 1280.000000 | KV -200 | 121.111823 | -10.55824442 % |
| 1288.483511 | tg. salida | 120.036188 | -14.80000000 % |

| | | | |
|-------------|-------------|------------|----------------|
| 1300.000000 | Pendiente | 118.331748 | -14.80000000 % |
| 1320.000000 | Pendiente | 115.371748 | -14.80000000 % |
| 1323.682912 | tg. entrada | 114.826677 | -14.80000000 % |
| 1331.082912 | Punto bajo | 114.279077 | 0.00000000 % |
| 1338.082912 | tg. salida | 114.769077 | 14.00000000 % |
| 1340.000000 | Rampa | 115.037469 | 14.00000000 % |
| 1348.478490 | tg. entrada | 116.224458 | 14.00000000 % |
| 1360.000000 | KV -100 | 117.173743 | 2.47849000 % |
| 1362.478490 | Punto alto | 117.204458 | 0.00000000 % |
| 1362.978490 | tg. salida | 117.203208 | -0.50000000 % |
| 1380.000000 | Pendiente | 117.118100 | -0.50000000 % |
| 1400.000000 | Pendiente | 117.018100 | -0.50000000 % |
| 1420.000000 | Pendiente | 116.918100 | -0.50000000 % |
| 1440.000000 | Pendiente | 116.818100 | -0.50000000 % |
| 1460.000000 | Pendiente | 116.718100 | -0.50000000 % |
| 1480.000000 | Pendiente | 116.618100 | -0.50000000 % |
| 1498.639747 | tg. entrada | 116.524901 | -0.50000000 % |
| 1499.389747 | Punto bajo | 116.523026 | 0.00000000 % |
| 1500.000000 | KV 150 | 116.524268 | 0.40683504 % |
| 1512.747411 | tg. salida | 117.117784 | 8.90510909 % |

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 pagina 7
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|------------|------------|---------------|
| 1960.000000 | KV -1000 | 126.522875 | -3.53540149 % |
| 1978.645985 | tg. salida | 125.689829 | -5.40000000 % |
| 1980.000000 | Pendiente | 125.616712 | -5.40000000 % |
| 2000.000000 | Pendiente | 124.536712 | -5.40000000 % |
| 2013.994498 | Pendiente | 123.781009 | -5.40000000 % |

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 pagina 6
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 31 : CS-D-44.02

2.1.3 Puntos

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 pagina 1
 PROYECTO :
 EJE : 31 : CS-D-44.02

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|-------------|-------------|------------|---------------|
| 1520.000000 | Rampa | 117.763635 | 8.90510909 % |
| 1540.000000 | Rampa | 119.544656 | 8.90510909 % |
| 1548.317633 | tg. entrada | 120.285351 | 8.90510909 % |
| 1560.000000 | KV -1000 | 121.257439 | 7.73687235 % |
| 1580.000000 | KV -1000 | 122.604814 | 5.73687235 % |
| 1600.000000 | KV -1000 | 123.552188 | 3.73687235 % |
| 1604.232642 | tg. salida | 123.701399 | 3.31360815 % |
| 1612.252551 | tg. entrada | 123.967147 | 3.31360815 % |
| 1620.000000 | KV -1000 | 124.193856 | 2.53886326 % |
| 1635.665355 | tg. salida | 124.468876 | 0.97232780 % |
| 1640.000000 | Rampa | 124.511023 | 0.97232780 % |
| 1660.000000 | Rampa | 124.705489 | 0.97232780 % |
| 1677.779447 | tg. entrada | 124.878363 | 0.97232780 % |
| 1680.000000 | KV 1000 | 124.902420 | 1.19438313 % |
| 1700.000000 | KV 1000 | 125.341297 | 3.19438313 % |
| 1720.000000 | KV 1000 | 126.180173 | 5.19438313 % |
| 1733.681164 | tg. salida | 126.984412 | 6.56249954 % |
| 1740.000000 | Rampa | 127.399086 | 6.56249954 % |
| 1755.869973 | tg. entrada | 128.440553 | 6.56249954 % |
| 1760.000000 | KV -750 | 128.700214 | 6.01182924 % |
| 1780.000000 | KV -750 | 129.635914 | 3.34516257 % |
| 1794.047053 | tg. salida | 129.974264 | 1.47222212 % |
| 1800.000000 | Rampa | 130.061904 | 1.47222212 % |
| 1805.314154 | tg. entrada | 130.140141 | 1.47222212 % |
| 1814.847488 | tg. salida | 130.431967 | 4.65000000 % |
| 1820.000000 | Rampa | 130.671558 | 4.65000000 % |
| 1821.280309 | tg. entrada | 130.731093 | 4.65000000 % |
| 1828.255309 | Punto alto | 130.893262 | 0.00000000 % |
| 1840.000000 | KV -150 | 130.433469 | -7.82979370 % |
| 1841.755309 | tg. salida | 130.285762 | -9.00000000 % |
| 1843.190339 | tg. entrada | 130.156609 | -9.00000000 % |
| 1855.690339 | tg. salida | 129.422234 | -2.75000000 % |
| 1860.000000 | Pendiente | 129.303718 | -2.75000000 % |
| 1880.000000 | Pendiente | 128.753718 | -2.75000000 % |
| 1900.000000 | Pendiente | 128.203718 | -2.75000000 % |
| 1920.000000 | Pendiente | 127.653718 | -2.75000000 % |
| 1940.000000 | Pendiente | 127.103718 | -2.75000000 % |
| 1952.145985 | tg. entrada | 126.769704 | -2.75000000 % |

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS | | | |
|-----------------|---------------------|-----------|----------|-----------------|------------------|-----------------|----------|------------|------------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE | Pend (%) | PERAL_I PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud | | | |
| CIRC. Rampa | 99.605324 | 24.714853 | 0.0000 | 6.187080 | 2.000000 | 2.000000 | 99.605 | 99.605 | 99.605 |
| CIRC. Rampa | 100.842740 | 16.226589 | 0.0000 | 6.187080 | 2.000000 | 2.000000 | 100.843 | 100.558 | 100.558 |
| CIRC. Rampa | 101.909536 | 8.908718 | 0.0000 | 6.187080 | 2.000000 | 2.000000 | 101.910 | 101.542 | 101.542 |
| CIRC. Rampa | 102.080156 | 10.079111 | 0.0000 | 6.187080 | 2.000000 | 2.000000 | 102.080 | 101.718 | 101.718 |
| CIRC. KV -600 | 103.048502 | 18.567374 | 0.0000 | 3.192254 | 2.000000 | 2.000000 | 103.049 | 102.709 | 102.709 |
| RECTA KV -600 | 103.335668 | 24.694006 | 0.0000 | 0.786331 | 2.000000 | 2.000000 | 103.336 | 102.895 | 102.895 |
| RECTA KV -600 | 103.353620 | 24.694006 | 0.0000 | -0.141079 | 2.000000 | 2.000000 | 103.354 | 102.860 | 102.860 |
| RECTA Pendiente | 103.020555 | 24.694006 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 103.021 | 102.453 | 102.453 |
| RECTA Pendiente | 102.520555 | 24.694006 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 102.521 | 101.840 | 101.840 |
| RECTA Pendiente | 102.020555 | 24.694006 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 102.021 | 101.379 | 101.379 |
| CIRC. Pendiente | 101.738093 | 24.694006 | 0.0000 | 151.298497 | 479240.711621 | 4633445.709115 | 200.000 | 101.738093 | 101.738 |
| RECTA Pendiente | 101.556183 | 27.010158 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 101.556 | 101.077 | 101.077 |
| RECTA Pendiente | 101.520555 | 27.010158 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 101.521 | 101.110 | 101.110 |
| CIRC. Pendiente | 101.186631 | 27.010158 | 0.0000 | 173.356978 | 479249.670934 | 4633465.864859 | -300.000 | 101.186631 | 101.186631 |
| CIRC. Pendiente | 101.020555 | 25.600465 | 0.0000 | -2.500000 | 2.000000 | 2.000000 | 101.021 | 100.974 | 100.974 |
| CIRC. KV 650 | 100.628977 | 21.356333 | 0.0000 | 200.000000 | 479259.546902 | 4633490.600449 | -300.000 | 100.628977 | 100.628977 |
| RECTA KV 650 | 100.623554 | 21.165951 | 0.0000 | -0.673509 | 2.000000 | 2.000000 | 100.629 | 100.443 | 100.443 |
| | | | | 200.897155 | 479259.840985 | 4633491.448035 | 0.000 | 100.623554 | 100.623554 |
| | | | | -0.535485 | 2.000000 | 2.000000 | 100.624 | 100.463 | 100.463 |

| | | | | | |
|----------------------|------------|---------------|----------------|-----------|------------|
| RECTA Rampa | 220.000000 | 479266.075820 | 4633509.504766 | 0.000 | 100.684221 |
| 100.684221 21.165951 | 0.0000 | 0.500000 | 2.000000 | 2.000000 | 100.684 |
| RECTA Rampa | 240.000000 | 479272.603470 | 4633528.409521 | 0.000 | 100.784221 |
| 100.784221 21.165951 | 0.0000 | 0.500000 | 2.000000 | 100.784 | 98.404 |
| RECTA Rampa | 260.000000 | 479279.131121 | 4633547.314277 | 0.000 | 100.884221 |
| 100.884221 21.165951 | 0.0000 | 0.500000 | 2.000000 | 100.884 | 98.160 |
| CIRC. Rampa | 276.693293 | 479284.579520 | 4633563.093407 | 300.000 | 100.967687 |
| 100.967687 21.165951 | 0.0000 | 0.500000 | 2.000000 | 100.968 | 96.923 |
| CIRC. Rampa | 280.000000 | 479285.675975 | 4633566.213021 | 300.000 | 100.984221 |
| 100.984221 21.867656 | 0.0000 | 0.500000 | 2.000000 | 100.984 | 96.135 |
| RECTA Rampa | 285.127811 | 479287.444105 | 4633571.026286 | 0.000 | 101.009860 |
| 101.009860 22.955811 | 0.0000 | 0.500000 | 2.000000 | 101.010 | 95.747 |
| RECTA KV -500 | 300.000000 | 479292.691392 | 4633584.942032 | 0.000 | 100.962554 |
| 100.962554 22.955811 | 0.0000 | -1.706055 | 2.000000 | 100.963 | 95.941 |
| RECTA Pendiente | 320.000000 | 479299.747901 | 4633603.655815 | 0.000 | 100.432472 |
| 100.432472 22.955811 | 0.0000 | -2.800000 | 2.000000 | 100.432 | 96.158 |
| CIRC. Pendiente | 335.533173 | 479305.228400 | 4633618.190037 | 120.000 | 99.997543 |
| 99.997543 22.955811 | 0.0000 | -2.800000 | 2.000000 | 99.998 | 96.036 |
| CIRC. Pendiente | 340.000000 | 479306.881826 | 4633622.339304 | 120.000 | 99.872472 |
| 99.872472 25.325537 | 0.0000 | -2.800000 | 2.000000 | 99.872 | 96.071 |
| RECTA Pendiente | 347.100665 | 479309.824657 | 4633628.800301 | 0.000 | 99.673653 |
| 99.673653 29.092556 | 0.0000 | -2.800000 | 2.000000 | 99.674 | 96.254 |
| RECTA Pendiente | 360.000000 | 479315.516415 | 4633640.375997 | 0.000 | 99.312472 |
| 99.312472 29.092556 | 0.0000 | -2.800000 | 2.000000 | 99.312 | 96.543 |
| CIRC. Pendiente | 373.840035 | 479321.623252 | 4633652.795865 | -110.000 | 98.924951 |
| 98.924951 29.092556 | 0.0000 | -2.800000 | 2.000000 | 98.925 | 97.692 |
| CIRC. Pendiente | 380.000000 | 479324.185142 | 4633658.396933 | -110.000 | 98.752472 |
| 98.752472 25.527506 | 0.0000 | -2.800000 | 2.000000 | 98.752 | 97.782 |
| CIRC. Pendiente | 388.616198 | 479327.234303 | 4633666.453207 | -2500.000 | 98.511218 |
| 98.511218 20.540922 | 0.0000 | -2.800000 | 2.000000 | 98.511 | 96.715 |
| CIRC. KV 250 | 400.000000 | 479330.819362 | 4633677.257746 | -2500.000 | 98.296724 |
| 98.296724 20.251036 | 0.0000 | 0.087940 | 2.000000 | 98.297 | 97.344 |
| CIRC. Rampa | 420.000000 | 479336.998606 | 4633696.279177 | -2500.000 | 99.059819 |
| 99.059819 19.741740 | 0.0000 | 6.000000 | 2.000000 | 99.060 | 97.667 |
| CIRC. Rampa | 440.000000 | 479343.025483 | 4633715.349432 | -2500.000 | 100.259819 |
| 100.259819 19.232444 | 0.0000 | 6.000000 | 2.000000 | 100.260 | 99.105 |
| CIRC. Rampa | 447.162746 | 479345.146802 | 4633722.190842 | -50.000 | 100.689584 |
| 100.689584 19.050046 | 0.0000 | 6.000000 | 2.000000 | 100.690 | 99.598 |
| CIRC. KV 1000 | 456.358603 | 479347.036623 | 4633731.177179 | 500.000 | 101.247080 |
| 101.247080 7.341518 | 0.0000 | 6.338969 | 2.000000 | 101.247 | 100.603 |
| CIRC. KV 1000 | 460.000000 | 479347.468788 | 4633734.792833 | 500.000 | 101.484537 |
| 101.484537 7.805155 | 0.0000 | 6.703109 | 2.000000 | 101.485 | 101.049 |
| CIRC. Rampa | 480.000000 | 479350.311003 | 4633754.588501 | 500.000 | 103.012503 |
| 103.012503 10.351634 | 0.0000 | 8.200000 | 2.000000 | 103.013 | 101.978 |
| CIRC. Rampa | 500.000000 | 479353.942561 | 4633774.254676 | 500.000 | 104.652503 |
| 104.652503 12.898113 | 0.0000 | 8.200000 | 2.000000 | 104.653 | 104.107 |
| CIRC. KV -600 | 520.000000 | 479358.357651 | 4633793.759898 | 500.000 | 106.246881 |
| 106.246881 15.444592 | 0.0000 | 6.966822 | 2.000000 | 106.247 | 105.677 |
| CIRC. KV -600 | 540.000000 | 479363.549211 | 4633813.072960 | 500.000 | 107.306912 |
| 107.306912 17.991071 | 0.0000 | 3.633489 | 2.000000 | 107.307 | 107.194 |
| CIRC. KV -600 | 556.399773 | 479368.379834 | 4633828.744384 | -300.000 | 107.678669 |
| 107.678669 20.079155 | 0.0000 | 0.900193 | 2.000000 | 107.679 | 107.889 |
| CIRC. KV -600 | 560.000000 | 479369.476058 | 4633832.173636 | -300.000 | 107.700276 |
| 107.700276 19.315163 | 0.0000 | 0.300155 | 2.000000 | 107.700 | 107.380 |
| CIRC. Pendiente | 567.264756 | 479371.562386 | 4633839.132180 | 1200.000 | 107.683160 |
| 107.683160 17.773534 | 0.0000 | -0.500000 | 2.000000 | 107.683 | 106.688 |
| CIRC. KV 300 | 580.000000 | 479375.136774 | 4633851.355464 | 1200.000 | 107.709186 |
| 107.709186 18.449160 | 0.0000 | 1.945429 | 2.000000 | 107.709 | 107.611 |
| CIRC. Rampa | 600.000000 | 479381.011409 | 4633870.472980 | 1200.000 | 108.569230 |
| 108.569230 19.510193 | 0.0000 | 5.000000 | 2.000000 | 108.569 | 109.261 |
| CIRC. KV 30 | 616.930439 | 479386.232861 | 4633886.577993 | 12.000 | 108.555308 |
| 108.555308 20.408381 | 0.0000 | 1.285944 | 2.000000 | 108.555 | 108.564 |
| CIRC. KV 30 | 620.000000 | 479387.560165 | 4633889.336472 | 12.000 | 108.751818 |
| 108.751818 36.692908 | 0.0000 | 11.517814 | 2.000000 | 108.752 | 108.515 |
| CIRC. Rampa | 629.829756 | 479395.528921 | 4633894.612790 | -20.000 | 110.609848 |
| 110.609848 88.841385 | 0.0000 | 20.000000 | 2.000000 | 110.610 | 109.813 |

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 pagina 2
 PROYECTO :
 EJE : 31 : CS-D-44.02

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|--------------------------------|--------------------|---------------|----------------|------------------|-----------------|-------|
| DR. AZIMUT (N) Longitud (E) | DIST. EJE Pend (%) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud | |
| CIRC. Rampa | 640.000000 | 479404.675991 | 4633898.802684 | -20.000 | 112.643897 | |
| 112.643897 56.468494 | 0.0000 | 20.000000 | 2.000000 | 112.644 | 112.778 | |
| CIRC. Rampa | 650.438258 | 479410.723079 | 4633907.165642 | 50.000 | 114.490803 | |
| 114.490803 23.242486 | 0.0000 | 16.000000 | 2.000000 | 114.491 | 113.945 | |
| CIRC. KV -200 | 660.000000 | 479414.967599 | 4633915.717405 | 50.000 | 115.962664 | |
| 115.962664 35.416873 | 0.0000 | 13.591308 | 2.000000 | 115.963 | 115.479 | |
| CIRC. KV -200 | 665.898887 | 479418.370560 | 4633920.531591 | -25.000 | 116.677408 | |
| 116.677408 42.927570 | 0.0000 | 10.641864 | 2.000000 | 116.677 | 116.648 | |
| RECTA KV -200 | 678.338784 | 479423.452718 | 4633931.745684 | 0.000 | 117.614367 | |
| 117.614367 11.249634 | 0.0000 | 4.421916 | 2.000000 | 117.614 | 118.114 | |
| RECTA KV -200 | 680.000000 | 479423.744744 | 4633933.381031 | 0.000 | 117.680926 | |
| 117.680926 11.249634 | 0.0000 | 3.591308 | 2.000000 | 117.681 | 118.319 | |
| RECTA KV -200 | 700.000000 | 479427.260557 | 4633953.069583 | 0.000 | 117.454050 | |
| 117.454050 11.249634 | 0.0000 | -4.561670 | 2.000000 | 117.454 | 116.782 | |
| RECTA Pendiente | 720.000000 | 479430.776369 | 4633972.758134 | 0.000 | 115.544871 | |
| 115.544871 11.249634 | 0.0000 | -14.000000 | 2.000000 | 115.545 | 115.158 | |
| CIRC. KV 50 | 726.658267 | 479431.946830 | 4633979.312716 | 15.000 | 115.020001 | |
| 115.020001 11.249634 | 0.0000 | -1.236183 | 2.000000 | 115.020 | 114.306 | |
| CIRC. KV -100 | 734.273818 | 479435.091383 | 4633986.159123 | -15.000 | 115.379815 | |
| 115.379815 43.571040 | 0.0000 | 6.141120 | 2.000000 | 115.380 | 115.502 | |
| CIRC. KV -100 | 740.000000 | 479437.787696 | 4633991.171386 | -15.000 | 115.567521 | |
| 115.567521 19.268370 | 0.0000 | 0.414939 | 2.000000 | 115.568 | 116.328 | |
| CIRC. KV -100 | 744.473697 | 479438.469375 | 4633995.576084 | 30.000 | 115.486014 | |
| 115.486014 0.281410 | 0.0000 | -4.058758 | 2.000000 | 115.486 | 115.405 | |
| CIRC. KV 50 | 760.000000 | 479442.463830 | 4634010.400975 | 30.000 | 114.432163 | |
| 114.432163 33.229249 | 0.0000 | 1.354074 | 2.000000 | 114.432 | 114.332 | |
| CIRC. Rampa | 761.911777 | 479443.469151 | 4634012.026701 | -12.000 | 114.482744 | |
| 114.482744 37.286166 | 0.0000 | 3.000000 | 2.000000 | 114.483 | 114.392 | |
| RECTA KV -50 | 766.757545 | 479445.271253 | 4634016.489496 | 0.000 | 114.625545 | |
| 114.625545 11.578571 | 0.0000 | 1.985742 | 2.000000 | 114.626 | 114.742 | |
| RECTA Pendiente | 780.000000 | 479447.666478 | 4634029.513532 | 0.000 | 113.410461 | |
| 113.410461 11.578571 | 0.0000 | -14.000000 | 2.000000 | 113.410 | 112.827 | |
| CIRC. Pendiente | 786.853606 | 479448.906122 | 4634036.254096 | -9.000 | 112.450956 | |
| 112.450956 11.578571 | 0.0000 | -14.000000 | 2.000000 | 112.451 | 111.541 | |
| CIRC. Pendiente | 796.075707 | 479446.042930 | 4634044.600563 | 9.000 | 111.159862 | |
| 111.159862 346.345551 | 0.0000 | -14.000000 | 2.000000 | 111.160 | 111.441 | |
| CIRC. KV 200 | 800.000000 | 479443.765659 | 4634047.758356 | 9.000 | 110.628893 | |
| 110.628893 374.104245 | 0.0000 | -12.642367 | 2.000000 | 110.629 | 111.240 | |
| CIRC. KV 200 | 806.706960 | 479443.541853 | 4634054.307371 | -350.000 | 109.893433 | |
| 109.893433 21.546284 | 0.0000 | -9.288887 | 2.000000 | 109.893 | 109.440 | |
| CIRC. KV 200 | 820.000000 | 479447.716311 | 4634066.927101 | -350.000 | 109.100419 | |
| 109.100419 19.128395 | 0.0000 | -2.642367 | 2.000000 | 109.100 | 108.798 | |
| CIRC. KV 200 | 840.000000 | 479453.086759 | 4634086.189745 | -350.000 | 109.571946 | |
| 109.571946 15.490568 | 0.0000 | 7.357633 | 2.000000 | 109.572 | 109.341 | |
| CIRC. KV 200 | 844.889510 | 479454.231610 | 4634090.943294 | 9.000 | 109.991466 | |
| 109.991466 14.601208 | 0.0000 | 9.802388 | 2.000000 | 109.991 | 109.598 | |
| CIRC. Rampa | 850.106352 | 479456.783955 | 4634095.409550 | -9.000 | 110.565092 | |
| 110.565092 51.502816 | 0.0000 | 11.650000 | 2.000000 | 110.565 | 109.989 | |
| CIRC. Rampa | 853.684280 | 479458.820835 | 4634098.322449 | 150.000 | 110.981921 | |
| 110.981921 26.194148 | 0.0000 | 11.650000 | 2.000000 | 110.982 | 110.548 | |
| CIRC. Rampa | 860.000000 | 479461.467874 | 4634104.056174 | 150.000 | 111.717702 | |
| 111.717702 28.874623 | 0.0000 | 11.650000 | 2.000000 | 111.718 | 111.055 | |
| CIRC. Rampa | 880.000000 | 479471.402075 | 4634121.397437 | 150.000 | 114.047702 | |
| 114.047702 37.362886 | 0.0000 | 11.650000 | 2.000000 | 114.048 | 112.969 | |
| CIRC. Rampa | 889.250620 | 479476.759059 | 4634128.937303 | -120.000 | 115.125399 | |
| 115.125399 41.288971 | 0.0000 | 11.650000 | 2.000000 | 115.125 | 113.779 | |

| | | | | | |
|----------------|-------------|---------------|----------------|----------|------------|
| CIRC. KV -1000 | 1600.000000 | 479667.711025 | 4634801.603102 | 500.000 | 123.552188 |
| 123.552188 | 19.523968 | 0.0000 | 3.736872 | 2.000000 | 2.000000 |
| CIRC. KV -1000 | 1620.000000 | 479674.128639 | 4634820.544087 | 500.000 | 124.193856 |
| 124.193856 | 22.070447 | 0.0000 | 2.538863 | 2.000000 | 2.000000 |
| CIRC. KV -1000 | 1633.741490 | 479678.974702 | 4634833.402249 | -500.000 | 124.448319 |
| 124.448319 | 23.820068 | 0.0000 | 1.164714 | 2.000000 | 2.000000 |
| CIRC. Rampa | 1640.000000 | 479681.225639 | 4634839.241917 | -500.000 | 124.511023 |
| 124.511023 | 23.023210 | 0.0000 | 0.972328 | 2.000000 | 2.000000 |
| CIRC. Rampa | 1660.000000 | 479687.925993 | 4634858.084738 | -500.000 | 124.705489 |
| 124.705489 | 20.476731 | 0.0000 | 0.972328 | 2.000000 | 2.000000 |
| CIRC. KV 1000 | 1680.000000 | 479693.867476 | 4634877.180430 | -500.000 | 124.902420 |
| 124.902420 | 17.930251 | 0.0000 | 1.194383 | 2.000000 | 2.000000 |
| CIRC. KV 1000 | 1680.790052 | 479694.086462 | 4634877.939526 | 2500.000 | 124.912168 |
| 124.912168 | 17.829659 | 0.0000 | 1.273388 | 2.000000 | 2.000000 |

```
Istram           22.04.04.22      09/03/23      12:16:44      200356
pagina          4
PROYECTO       :
EJE            : 31 : CS-D-44.02
```

***** PUNTOS DEL EJE EN PLANTA *****

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|-------------------------------|-------------|---------------|----------------|-----------|------------|------------|
| DR. AZIMUT DIST. EJE Pend (%) | PERAL_I | PERAL_D | Z PROJ. | ZT (eje) | Z TERR. | Latitud |
| (N) Longitud (E) | | | | | | |
| CIRC. KV 1000 | 1700.000000 | 479699.467365 | 4634896.380410 | 2500.000 | 125.341297 | 125.341297 |
| 125.341297 | 18.318836 | 0.0000 | 3.194383 | 2.000000 | 2.000000 | 125.096 |
| CIRC. KV 1000 | 1720.000000 | 479705.219954 | 4634915.535189 | 2500.000 | 126.180173 | 126.180173 |
| 126.180173 | 18.828132 | 0.0000 | 5.194383 | 2.000000 | 126.180 | 125.892 |
| CIRC. Rampa | 1740.000000 | 479711.125597 | 4634934.643336 | 2500.000 | 127.399086 | 127.399086 |
| 127.399086 | 19.337428 | 0.0000 | 6.562500 | 2.000000 | 127.399 | 127.120 |
| CIRC. KV -750 | 1760.000000 | 479717.183913 | 4634953.703626 | 2500.000 | 128.700214 | 128.700214 |
| 128.700214 | 19.846724 | 0.0000 | 6.011829 | 2.000000 | 128.700 | 128.590 |
| CIRC. KV -750 | 1780.000000 | 479723.394517 | 4634972.714840 | 2500.000 | 129.635914 | 129.635914 |
| 129.635914 | 20.356019 | 0.0000 | 3.345163 | 2.000000 | 129.636 | 129.491 |
| CIRC. Rampa | 1800.000000 | 479729.757010 | 4634991.675762 | 2500.000 | 130.061904 | 130.061904 |
| 130.061904 | 20.865315 | 0.0000 | 1.472222 | 2.000000 | 130.062 | 129.939 |
| CIRC. Rampa | 1820.000000 | 479736.270985 | 4635010.585177 | 2500.000 | 130.671558 | 130.671558 |
| 130.671558 | 21.374611 | 0.0000 | 4.650000 | 2.000000 | 130.672 | 130.641 |
| CIRC. KV -150 | 1836.816036 | 479741.864870 | 4635026.443502 | -12.000 | 130.648975 | 130.648975 |
| 130.648975 | 21.802828 | 0.0000 | -5.707151 | 2.000000 | 130.649 | 131.208 |
| CIRC. KV -150 | 1840.000000 | 479742.526072 | 4635029.548514 | -12.000 | 130.433469 | 130.433469 |
| 130.433469 | 4.911374 | 0.0000 | -7.829794 | 2.000000 | 130.433 | 131.074 |
| CIRC. KV 200 | 1846.283362 | 479741.385510 | 4635035.654734 | 9.000 | 129.902154 | 129.902154 |
| 129.902154 | 371.577103 | 0.0000 | -7.453488 | 2.000000 | 130.673 | 130.673 |
| CIRC. KV 200 | 1853.209642 | 479740.969076 | 4635042.398505 | 10260.000 | 129.505838 | 129.505838 |
| 129.505838 | 20.570508 | 0.0000 | -3.990349 | 2.000000 | 129.506 | 129.912 |
| CIRC. Pendiente | 1860.000000 | 479743.127332 | 4635048.836742 | 10260.000 | 129.303718 | 129.303718 |
| 129.303718 | 20.612641 | 0.0000 | -2.750000 | 2.000000 | 129.304 | 129.440 |
| CIRC. Pendiente | 1880.000000 | 479749.508906 | 4635067.791303 | 10260.000 | 128.753718 | 128.753718 |
| 128.753718 | 20.736739 | 0.0000 | -2.750000 | 2.000000 | 128.754 | 128.940 |
| CIRC. Pendiente | 1900.000000 | 479755.927416 | 4635086.733389 | 10260.000 | 128.203718 | 128.203718 |
| 128.203718 | 20.860836 | 0.0000 | -2.750000 | 2.000000 | 128.204 | 127.870 |
| CIRC. Pendiente | 1920.000000 | 479762.382839 | 4635105.662926 | 10260.000 | 127.653718 | 127.653718 |
| 127.653718 | 20.984933 | 0.0000 | -2.750000 | 2.000000 | 127.654 | 127.368 |
| CIRC. Pendiente | 1940.000000 | 479768.875148 | 4635124.579845 | 10260.000 | 127.103718 | 127.103718 |
| 127.103718 | 21.109031 | 0.0000 | -2.750000 | 2.000000 | 127.104 | 126.764 |
| CIRC. KV -1000 | 1960.000000 | 479775.404321 | 4635143.484071 | 10260.000 | 126.522875 | 126.522875 |
| 126.522875 | 21.233128 | 0.0000 | -3.535401 | 2.000000 | 126.523 | 126.169 |
| CIRC. Pendiente | 1980.000000 | 479781.970331 | 4635162.375534 | 10260.000 | 125.616712 | 125.616712 |
| 125.616712 | 21.357226 | 0.0000 | -5.400000 | 2.000000 | 125.617 | 125.313 |
| CIRC. Pendiente | 2000.000000 | 479788.573154 | 4635181.254162 | 10260.000 | 124.536712 | 124.536712 |
| 124.536712 | 21.481323 | 0.0000 | -5.400000 | 2.000000 | 124.537 | 124.151 |
| CIRC. Pendiente | 2006.962504 | 479790.880397 | 4635187.823263 | 10260.000 | 124.160737 | 124.160737 |
| 124.160737 | 21.524525 | 0.0000 | -5.400000 | 2.000000 | 124.161 | 123.816 |

2.2 CS-I-46.40 (Eje A2-32)

2.2.1 Planta

```
Istram           22.04.04.22      09/03/23      11:06:45      200356
pagina          1
PROYECTO       :
GRUPO          : 6 : Repo_ALT2
EJE            : 32 : CS-I-46.40
```

***** LISTADO DE LAS ALINEACIONES *****

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|---------------|----------------|-------|----------------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 37.288817 | | 0.000000 | 479846.962438 | | 4635495.586996 |
| 25.7762112 | 0.3939192923 | 0.9191450327 | | | | |
| 2 CIRC. | 37.925799 | 37.288817 | 479861.651222 | 4635529.860827 | | -50.000000 |
| 25.7762112 | 479815.693971 | 4635549.556791 | | | | |
| 3 CIRC. | 31.436246 | 75.214616 | 479862.600161 | 4635566.871792 | | 50.000000 |
| 377.4875842 | 479909.506352 | 4635584.186793 | | | | |
| 4 CIRC. | 260.473220 | 106.650861 | 479861.386460 | 4635597.768987 | | 1130.000000 |
| 17.5134554 | 480948.896024 | 4635290.811419 | | | | |
| | | 367.124081 | | 479960.281439 | | 4635838.114994 |
| 32.1880042 | | | | | | |

EJES EN PLANTA

```
#-----#
#      Num Eje P.K. inicial N.Palabras Titulo del Eje
#-----#
EJE      32      0.000000      1 CS-I-46.40
REV      2112
ALIAS4  N-634
GRUPO    6
TIPOL    401
CM        2
CAR        1
VD      80.000
MD        0
RV      22.04 200356 (2022/04/22)
VU        0 80.000
NCE      1.000
ACE      3.500
#-----#
```

```
#Anchos derecha derecha izquierda izquierda
#-----#
ANCHOS    0.000    0.000    0.000    0.000
#-----#
```

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---------------|----------|---------------|----------------|-------------|----------|----------|----------|----------|
| L | D | Az | Etq | Peralte | | | | |
| ALI FIJA-2P+R | 0 | 479846.962438 | 4635495.586996 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0.000 | 0.000 |
| | | | | | | | | |
| ALI GIRATORIA | 8 | 479856.447368 | 4635578.525060 | -50.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0.000 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 50.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 479865.524740 | 4635615.569269 | 1130.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 1.000000 | 0.000000 | 0 | 0.000 | 0 | 0.000 | 0.000 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

#---
FIN

2.2.2 Alzado

Istram 22.04.04.22 09/03/23 11:08:30 200356
 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 32 : CS-I-46.40

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | | LONGITUD | | PARAMETRO | | VÉRTICE | | ENTRADA AL ACUERDO | |
|--------------------|-------------|------------|------------|-------------|-----------|---------|------------|--------------------|------------|
| SALIDA DEL ACUERDO | | BISECT. | | DIF.PEN | | | | | |
| PK | (%) | Z | (m.) | (kv) | (%) | PK | Z | PK | Z |
| | | | | | | | | 0.000000 | |
| 119.250000 | -1.75000000 | | 37.500000 | 5000.000000 | | | 57.051717 | 118.251595 | 38.301717 |
| 118.579720 | -2.50000000 | 75.801717 | 117.782845 | 0.035156 | -0.750000 | | 218.970752 | 114.203619 | 197.720752 |
| 114.734869 | -0.80000000 | 240.220752 | 114.033619 | 0.090313 | 1.700000 | | 336.613153 | 113.262480 | 320.613153 |
| 113.390480 | -4.00000000 | 352.613153 | 112.622480 | 0.128000 | -3.200000 | | | | |
| 367.124000 | | 112.042046 | | | | | | | |

Istram 22.04.04.22 09/03/23 11:08:30 200356
 pagina 2
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 32 : CS-I-46.40

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Pendiente | 119.250000 | -1.75000000 % |
| 20.000000 | Pendiente | 118.900000 | -1.75000000 % |
| 38.301717 | tg. entrada | 118.579720 | -1.75000000 % |
| 40.000000 | KV -5000 | 118.549712 | -1.78396567 % |
| 60.000000 | KV -5000 | 118.152918 | -2.18396567 % |
| 75.801717 | tg. salida | 117.782845 | -2.50000000 % |
| 80.000000 | Pendiente | 117.677888 | -2.50000000 % |
| 100.000000 | Pendiente | 117.177888 | -2.50000000 % |
| 120.000000 | Pendiente | 116.677888 | -2.50000000 % |
| 140.000000 | Pendiente | 116.177888 | -2.50000000 % |
| 160.000000 | Pendiente | 115.677888 | -2.50000000 % |
| 180.000000 | Pendiente | 115.177888 | -2.50000000 % |
| 197.720752 | tg. entrada | 114.734869 | -2.50000000 % |
| 200.000000 | KV 2500 | 114.678927 | -2.40883007 % |
| 220.000000 | KV 2500 | 114.277161 | -1.60883007 % |
| 240.000000 | KV 2500 | 114.035395 | -0.80883007 % |
| 240.220752 | tg. salida | 114.033619 | -0.80000000 % |
| 260.000000 | Pendiente | 113.875385 | -0.80000000 % |
| 280.000000 | Pendiente | 113.715385 | -0.80000000 % |
| 300.000000 | Pendiente | 113.555385 | -0.80000000 % |
| 320.000000 | Pendiente | 113.395385 | -0.80000000 % |
| 320.613153 | tg. entrada | 113.390480 | -0.80000000 % |
| 340.000000 | KV -1000 | 113.047460 | -2.73868467 % |
| 352.613153 | tg. salida | 112.622480 | -4.00000000 % |
| 360.000000 | Pendiente | 112.327006 | -4.00000000 % |
| 367.124010 | Pendiente | 112.042046 | -4.00000000 % |

2.2.3 Puntos

Istram 22.04.04.22 09/03/23 12:17:08 200356
 pagina 1
 PROYECTO :
 EJE : 32 : CS-I-46.40

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|-----------------|---------------------|--------------------|----------------|-----------|------------------|-----------------|
| DR. (N) | AZIMUT Longitud (E) | DIST. EJE Pend (%) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud |
| RECTA Pendiente | 0.000000 | 479846.962438 | 4635495.586996 | 0.000 | 119.250000 | 119.191 |
| 119.250000 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 119.191 |
| RECTA Pendiente | 20.000000 | 479854.840824 | 4635513.969897 | 0.000 | 118.900000 | 118.842 |
| 118.900000 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 118.842 |
| CIRC. Pendiente | 37.288817 | 479861.651222 | 4635529.860827 | -50.000 | 118.597446 | 118.249 |
| 118.597446 | 25.776211 | 0.0000 | -1.750000 | -2.000000 | 2.000000 | 118.249 |
| CIRC. KV -5000 | 40.000000 | 479862.651141 | 4635532.380524 | -50.000 | 118.549712 | 118.189 |
| 118.549712 | 22.324225 | 0.0000 | -1.783966 | -2.000000 | 2.000000 | 118.189 |
| CIRC. KV -5000 | 60.000000 | 479865.633142 | 4635552.022385 | -50.000 | 118.152918 | 118.057 |
| 118.152918 | 396.859434 | 0.0000 | -2.183966 | -2.000000 | 2.000000 | 118.057 |
| CIRC. KV -5000 | 75.214616 | 479862.600161 | 4635566.871792 | 50.000 | 117.797488 | 117.284 |
| 117.797488 | 377.487584 | 0.0000 | -2.488258 | -2.000000 | 2.000000 | 117.284 |
| CIRC. Pendiente | 80.000000 | 479861.160177 | 4635571.433467 | 50.000 | 117.677888 | 117.013 |
| 117.677888 | 383.580525 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 117.013 |
| CIRC. Pendiente | 100.000000 | 479860.010197 | 4635591.267089 | 50.000 | 117.177888 | 116.400 |
| 117.177888 | 9.045316 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 116.400 |
| CIRC. Pendiente | 106.650861 | 479861.386460 | 4635597.768987 | 1130.000 | 117.011616 | 116.432 |
| 117.011616 | 17.513455 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 116.432 |
| CIRC. Pendiente | 120.000000 | 479865.088471 | 4635610.594452 | 1130.000 | 116.677888 | 116.268 |
| 116.677888 | 18.265520 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 116.268 |
| CIRC. Pendiente | 140.000000 | 479870.917804 | 4635629.725798 | 1130.000 | 116.177888 | 115.891 |
| 116.177888 | 19.392280 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 115.891 |
| CIRC. Pendiente | 160.000000 | 479877.084814 | 4635648.750980 | 1130.000 | 115.677888 | 115.586 |
| 115.677888 | 20.519041 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 115.586 |
| CIRC. Pendiente | 180.000000 | 479883.587569 | 4635667.664038 | 1130.000 | 115.177888 | 115.428 |
| 115.177888 | 21.645802 | 0.0000 | -2.500000 | -2.000000 | 2.000000 | 115.428 |
| CIRC. KV 2500 | 200.000000 | 479890.424033 | 4635686.459045 | 1130.000 | 114.678927 | 115.552 |
| 114.678927 | 22.772562 | 0.0000 | -2.408830 | -2.000000 | 2.000000 | 115.552 |
| CIRC. KV 2500 | 220.000000 | 479897.592064 | 4635705.130116 | 1130.000 | 114.277161 | 113.906 |
| 114.277161 | 23.899323 | 0.0000 | -1.608830 | -2.000000 | 2.000000 | 113.906 |
| CIRC. KV 2500 | 240.000000 | 479905.089416 | 4635723.671402 | 1130.000 | 114.035395 | 113.574 |
| 114.035395 | 25.026084 | 0.0000 | -0.808830 | -2.000000 | 2.000000 | 113.574 |
| CIRC. Pendiente | 260.000000 | 479912.913741 | 4635742.077094 | 1130.000 | 113.875385 | 113.482 |
| 113.875385 | 26.152844 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.482 |
| CIRC. Pendiente | 280.000000 | 479921.062588 | 4635760.341427 | 1130.000 | 113.715385 | 113.277 |
| 113.715385 | 27.279605 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.277 |
| CIRC. Pendiente | 300.000000 | 479929.533404 | 4635778.458679 | 1130.000 | 113.555385 | 112.798 |
| 113.555385 | 28.406366 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 112.798 |
| CIRC. Pendiente | 320.000000 | 479938.323537 | 4635796.423175 | 1130.000 | 113.395385 | 113.117 |
| 113.395385 | 29.533126 | 0.0000 | -0.800000 | -2.000000 | 2.000000 | 113.117 |
| CIRC. KV -1000 | 340.000000 | 479947.430231 | 4635814.229289 | 1130.000 | 113.047460 | 113.109 |
| 113.047460 | 30.659887 | 0.0000 | -2.738685 | -2.000000 | 2.000000 | 113.109 |
| CIRC. Pendiente | 360.000000 | 479956.850636 | 4635831.871441 | 1130.000 | 112.327006 | 112.201 |
| 112.327006 | 31.786648 | 0.0000 | -4.000000 | -2.000000 | 2.000000 | 112.201 |
| CIRC. Pendiente | 367.124000 | 479960.281400 | 4635838.114923 | 1130.000 | 112.042046 | 111.743 |
| 112.042046 | 32.188000 | 0.0000 | -4.000000 | -2.000000 | 2.000000 | 111.743 |

2.3 CS-I-46.80 (Eje A2-33)

2.3.1 Planta

Istram 22.04.04.22 09/03/23 11:06:45 200356
 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 33 : CS-I-46.80

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|---------------|----------------|----------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 186.251669 | | 0.000000 | 479984.826584 | 4635902.379263 | |
| 30.1688723 | 0.4563524191 | 0.8897991175 | | | | |
| 2 CIRC. | 50.701735 | 186.251669 | 480069.822983 | 4636068.105833 | -1000.000000 | |
| 30.1688723 | 479180.023866 | 4636524.458253 | | | | |
| 3 RECTA | 253.690030 | | 236.953405 | 480091.807488 | 4636113.787306 | |
| 26.9410996 | 0.4106709469 | 0.9117836220 | | | | |
| 4 CIRC. | 24.666861 | 490.643435 | 480195.990613 | 4636345.097720 | 300.000000 | |
| 26.9410996 | 480469.525699 | 4636221.896436 | | | | |
| 5 CIRC. | 38.554666 | 515.310296 | 480207.033275 | 4636367.147004 | -250.000000 | |
| 32.1755700 | 479988.289589 | 4636488.189144 | | | | |
| 6 CIRC. | 124.270459 | 553.864962 | 480223.030244 | 4636402.184349 | 1200.000000 | |
| 22.3577049 | 481349.785389 | 4635989.361332 | | | | |
| 7 RECTA | 95.222101 | | 678.135421 | 480271.741786 | 4636516.449549 | |
| 28.9504575 | 0.4392401807 | 0.8983696698 | | | | |
| 8 CIRC. | 14.262255 | 773.357522 | 480313.567158 | 4636601.994196 | -9.000000 | |
| 28.9504575 | 480305.481831 | 4636605.947358 | | | | |
| 9 CIRC. | 14.161817 | 787.619777 | 480309.322239 | 4636614.086846 | 9.000000 | |
| 328.0656406 | 480313.162647 | 4636622.226334 | | | | |
| 10 RECTA | 30.737563 | | 801.781594 | 480305.033708 | 4636626.089021 | |
| 28.2400053 | 0.4291874510 | 0.9032154405 | | | | |
| 11 CIRC. | 15.878996 | 832.519156 | 480318.225885 | 4636653.851662 | 9.000000 | |
| 28.2400053 | 480326.354824 | 4636649.988975 | | | | |
| 12 CIRC. | 15.159304 | 848.398152 | 480331.708839 | 4636657.223235 | -9.000000 | |
| 140.5609228 | 480337.062854 | 4636664.457496 | | | | |
| 13 CIRC. | 125.009848 | 863.557456 | 480344.857263 | 4636659.957808 | -740.000000 | |
| 33.3307824 | 479703.983638 | 4637029.932129 | | | | |
| | | 988.567303 | 480397.938068 | 4636772.974447 | | |
| 22.5762229 | | | | | | |

EJES EN PLANTA

| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje |
|---|------------------------------|--------------|------------|----------------|
| # | 33 | 0.000000 | 1 | CS-I-46.80 |
| # | REV 2112 | | | |
| # | ALIAS4 N-634 | | | |
| # | GRUPO 6 | | | |
| # | TIPOL 401 | | | |
| # | CM 2 | | | |
| # | CAR 1 | | | |
| # | VD 80.000 | | | |
| # | MD 0 | | | |
| # | RV 22.04 200356 (2022/04/22) | | | |
| # | VU 0 80.000 | | | |
| # | NCE 1.000 | | | |
| # | ACE 3.500 | | | |
| # | ANCHOS | 0.000 | 0.000 | 0.000 0.000 |

| # | Tipos | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---------------|----------|-----------|---------------|----------------|--------------|----------|----------|----------|
| L | D | Az | Etiqu | Peralte | | | | |
| ALI FIJA-2P+R | | 0 | 479992.389876 | 4635898.500267 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -8.500000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| | | | 480089.087463 | 4636087.041894 | | | | |
| ALI FLOTANTE | | 8 | 0.000000 | 0.000000 | -1000.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FIJA-2P+R | | 8 | 480115.308564 | 4636144.049725 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| | | | 480192.608750 | 4636315.673854 | | | | |
| ALI GIRATORIA | | 8 | 480211.220814 | 4636355.909817 | 300.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FLOTANTE | | 8 | 0.000000 | 0.000000 | -250.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FIJA-2P+R | | 0 | 480235.191167 | 4636409.076378 | 1200.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| | | | 480290.743784 | 4636534.257541 | | | | |
| ALI GIRATORIA | | 8 | 480311.062958 | 4636576.382474 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI GIRATORIA | | 8 | 480313.435175 | 4636610.159759 | -9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FLOTANTE | | 8 | 0.000000 | 0.000000 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FIJA-2P+R | | 0 | 480305.716916 | 4636626.944320 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -0.250000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| | | | 480318.210897 | 4636653.237625 | | | | |
| ALI GIRATORIA | | 8 | 480331.366336 | 4636657.464585 | 9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FLOTANTE | | 8 | 0.000000 | 0.000000 | -9.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| ALI FIJA-2P+R | | 0 | 480350.408827 | 4636690.764802 | -740.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 10.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0.000 | 0 |
| | | | 480388.560305 | 4636776.446848 | | | | |
| #--- | | | | | | | | |
| FIN | | | | | | | | |

2.3.2 Alzado

Istram 22.04.04.22 09/03/23 11:08:34 200356
 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 33 : CS-I-46.80

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | LONGITUD | PARAMETRO | VÉRTICE | ENTRADA AL ACUERDO |
|--------------------|-------------|------------|--------------------|----------------------------------|
| SALIDA DEL ACUERDO | BISECT. | DIF.PEN | | |
| (%) | (m.) | (kv) | PK | Z |
| PK | Z | (%) | PK | Z |
| | | | | 0.000000 |
| 112.257256 | | | | |
| | 2.00000000 | 30.875000 | 650.000000 | 30.485082 112.866958 15.047582 |
| 112.558208 | 45.922582 | 112.442426 | 0.183320 -4.750000 | |
| | -2.75000000 | 32.458995 | 850.000000 | 87.429332 111.300991 71.199834 |
| 111.747302 | 103.658830 | 111.474436 | 0.154939 3.818705 | |
| | 1.06870534 | 35.418906 | 1250.000000 | 122.420454 111.674943 104.711001 |
| 111.485681 | 140.129907 | 111.362405 | 0.125450 -2.833512 | |
| | -1.76480712 | 37.944214 | 3000.000000 | 173.719188 110.769619 154.747081 |
| 111.104440 | 192.691295 | 110.674759 | 0.059990 1.264807 | |

| | | | | | |
|--------------|------------|-------------|------------|------------|------------|
| -0.50000000 | 30.000000 | 3000.000000 | 275.234875 | 110.262041 | 260.234875 |
| 110.337041 | 290.234875 | 110.337041 | 0.037500 | 1.000000 | |
| 0.50000000 | 30.000000 | 3000.000000 | 355.444854 | 110.663091 | 340.444854 |
| 110.588091 | 370.444854 | 110.588091 | 0.037500 | -1.000000 | |
| -0.50000000 | 33.750000 | 2250.000000 | 412.340919 | 110.378610 | 395.465919 |
| 110.462985 | 429.215919 | 110.547360 | 0.063281 | 1.500000 | |
| 1.00000000 | 33.648369 | 1250.000000 | 559.352513 | 111.848726 | 542.528329 |
| 111.680484 | 576.176698 | 111.564083 | 0.113221 | -2.691870 | |
| -1.69186954 | 34.880535 | 1250.000000 | 639.940000 | 110.485291 | 622.499732 |
| 110.780358 | 657.380268 | 110.676885 | 0.121665 | 2.790443 | |
| 1.09857329 | 34.514267 | 1000.000000 | 720.241200 | 111.367459 | 702.984067 |
| 111.177876 | 737.498334 | 112.152658 | 0.148904 | 3.451427 | |
| 4.55000000 | 30.550000 | 1300.000000 | 772.751249 | 113.756666 | 757.476249 |
| 113.061653 | 788.026249 | 114.092716 | 0.089741 | -2.350000 | |
| 2.20000000 | 34.500000 | 1000.000000 | 929.867299 | 117.213219 | 912.617299 |
| 116.833719 | 947.117299 | 116.997594 | 0.148781 | -3.450000 | |
| -1.25000000 | 10.646550 | 100.000000 | 976.703037 | 116.627772 | 971.379762 |
| 116.694313 | 982.026312 | 115.994486 | 0.141686 | -10.646550 | |
| -11.89654995 | | | | | |
| 988.565755 | 115.216518 | | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 33 : CS-I-46.80

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Rampa | 112.257256 | 2.00000000 % |
| 15.047582 | tg. entrada | 112.558208 | 2.00000000 % |
| 20.000000 | KV -650 | 112.638390 | 1.23808955 % |
| 28.047582 | Punto alto | 112.688208 | 0.00000000 % |
| 40.000000 | KV -650 | 112.578315 | -1.83883353 % |
| 45.922582 | tg. salida | 112.442426 | -2.75000000 % |
| 60.000000 | Pendiente | 112.055297 | -2.75000000 % |
| 71.199834 | tg. entrada | 111.747302 | -2.75000000 % |
| 80.000000 | KV 850 | 111.550852 | -1.71468638 % |
| 94.574834 | Punto bajo | 111.425896 | 0.00000000 % |
| 100.000000 | KV 850 | 111.443209 | 0.63825480 % |
| 103.658830 | tg. salida | 111.474436 | 1.06870534 % |
| 104.711001 | tg. entrada | 111.485681 | 1.06870534 % |
| 118.069818 | Punto alto | 111.557064 | 0.00000000 % |
| 120.000000 | KV -1250 | 111.555574 | -0.15441458 % |
| 140.000000 | KV -1250 | 111.364691 | -1.75441458 % |
| 140.129907 | tg. salida | 111.362405 | -1.76480712 % |
| 154.747081 | tg. entrada | 111.104440 | -1.76480712 % |
| 160.000000 | KV 3000 | 111.016335 | -1.58970983 % |
| 180.000000 | KV 3000 | 110.765060 | -0.92304316 % |
| 192.691295 | tg. salida | 110.674759 | -0.50000000 % |
| 200.000000 | Pendiente | 110.638215 | -0.50000000 % |
| 220.000000 | Pendiente | 110.538215 | -0.50000000 % |
| 240.000000 | Pendiente | 110.438215 | -0.50000000 % |
| 260.000000 | Pendiente | 110.338215 | -0.50000000 % |
| 260.234875 | tg. entrada | 110.337041 | -0.50000000 % |
| 275.234875 | Punto bajo | 110.299541 | 0.00000000 % |
| 280.000000 | KV 3000 | 110.303325 | 0.15883752 % |
| 290.234875 | tg. salida | 110.337041 | 0.50000000 % |
| 300.000000 | Rampa | 110.385866 | 0.50000000 % |
| 320.000000 | Rampa | 110.485866 | 0.50000000 % |
| 340.000000 | Rampa | 110.585866 | 0.50000000 % |
| 340.444854 | tg. entrada | 110.588091 | 0.50000000 % |
| 355.444854 | Punto alto | 110.625591 | 0.00000000 % |
| 360.000000 | KV -3000 | 110.622132 | -0.15183820 % |
| 370.444854 | tg. salida | 110.588091 | -0.50000000 % |
| 380.000000 | Pendiente | 110.540315 | -0.50000000 % |
| 395.465919 | tg. entrada | 110.462985 | -0.50000000 % |

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 pagina 3
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 33 : CS-I-46.80

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 400.000000 | KV 2250 | 110.444883 | -0.29848527 % |
| 406.715919 | Punto bajo | 110.434860 | 0.00000000 % |
| 420.000000 | KV 2250 | 110.474075 | 0.59040361 % |
| 429.215919 | tg. salida | 110.547360 | 1.00000000 % |
| 440.000000 | Rampa | 110.655201 | 1.00000000 % |
| 460.000000 | Rampa | 110.855201 | 1.00000000 % |
| 480.000000 | Rampa | 111.055201 | 1.00000000 % |
| 500.000000 | Rampa | 111.255201 | 1.00000000 % |
| 520.000000 | Rampa | 111.455201 | 1.00000000 % |
| 540.000000 | Rampa | 111.655201 | 1.00000000 % |
| 542.528329 | tg. entrada | 111.680484 | 1.00000000 % |
| 555.028329 | Punto alto | 111.742984 | 0.00000000 % |
| 560.000000 | KV -1250 | 111.733097 | -0.39773369 % |
| 576.176698 | tg. salida | 111.564083 | -1.69186954 % |
| 580.000000 | Pendiente | 111.499398 | -1.69186954 % |
| 600.000000 | Pendiente | 111.161024 | -1.69186954 % |
| 620.000000 | Pendiente | 110.822650 | -1.69186954 % |
| 622.499732 | tg. entrada | 110.780358 | -1.69186954 % |
| 640.000000 | KV 1250 | 110.606780 | -0.29184812 % |
| 643.648102 | Punto bajo | 110.601456 | 0.00000000 % |
| 657.380268 | tg. salida | 110.676885 | 1.09857329 % |
| 660.000000 | Rampa | 110.705665 | 1.09857329 % |
| 680.000000 | Rampa | 110.925379 | 1.09857329 % |
| 700.000000 | Rampa | 111.145094 | 1.09857329 % |
| 702.984067 | tg. entrada | 111.177876 | 1.09857329 % |
| 720.000000 | KV 1000 | 111.509580 | 2.80016660 % |
| 737.498334 | tg. salida | 112.152658 | 4.55000000 % |
| 740.000000 | Rampa | 112.266484 | 4.55000000 % |
| 757.476249 | tg. entrada | 113.061653 | 4.55000000 % |
| 760.000000 | KV -1300 | 113.174034 | 4.35586531 % |
| 780.000000 | KV -1300 | 113.891361 | 2.81740377 % |
| 788.026249 | tg. salida | 114.092716 | 2.20000000 % |
| 800.000000 | Rampa | 114.356138 | 2.20000000 % |
| 820.000000 | Rampa | 114.796138 | 2.20000000 % |
| 840.000000 | Rampa | 115.236138 | 2.20000000 % |
| 860.000000 | Rampa | 115.676138 | 2.20000000 % |
| 880.000000 | Rampa | 116.116138 | 2.20000000 % |
| 900.000000 | Rampa | 116.556138 | 2.20000000 % |

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 pagina 4
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 33 : CS-I-46.80

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|----------------|
| 912.617299 | tg. entrada | 116.833719 | 2.20000000 % |
| 920.000000 | KV -1000 | 116.968886 | 1.46172990 % |
| 934.617299 | Punto alto | 117.075719 | 0.00000000 % |
| 940.000000 | KV -1000 | 117.061232 | -0.53827010 % |
| 947.117299 | tg. salida | 116.997594 | -1.25000000 % |
| 960.000000 | Pendiente | 116.836560 | -1.25000000 % |
| 971.379762 | tg. entrada | 116.694313 | -1.25000000 % |
| 980.000000 | KV -100 | 116.215018 | -9.87023753 % |
| 982.026312 | tg. salida | 115.994486 | -11.89654995 % |
| 988.565765 | Pendiente | 115.216518 | -11.89654995 % |

Istram 22.04.04.22 09/03/23 12:17:35 200356
 pagina 2
 PROYECTO :
 EJE : 33 : CS-I-46.80

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|---|------------|---------------|----------------|----------|------------|---------|
| DR. AZIMUT DIST. EJE Pend (%) PERAL_I PERAL_D Z PROJ. ZT (eje) Z TERR. Latitud (N) Longitud (E) | | | | | | |
| RECTA Rampa | 820.000000 | 480312.852820 | 4636642.544167 | 0.000 | 114.796138 | |
| 114.796138 28.240005 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 114.796 | 114.451 |
| CIRC. Rampa | 832.519156 | 480318.225885 | 4636653.851662 | 9.000 | 115.071560 | |
| 115.071560 28.240005 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 115.072 | 114.705 |
| CIRC. Rampa | 840.000000 | 480323.729568 | 4636658.597577 | 9.000 | 115.236138 | |
| 115.236138 81.156150 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 115.236 | 114.875 |
| CIRC. Rampa | 848.398152 | 480331.708839 | 4636657.223235 | -9.000 | 115.420898 | |
| 115.420898 140.560923 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 115.421 | 115.096 |
| CIRC. Rampa | 860.000000 | 480342.523598 | 4636657.303457 | -9.000 | 115.676138 | |
| 115.676138 58.494635 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 115.676 | 115.145 |
| CIRC. Rampa | 863.557456 | 480344.857263 | 4636659.957808 | -740.000 | 115.754402 | |
| 115.754402 33.330782 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 115.754 | 115.125 |
| CIRC. Rampa | 880.000000 | 480352.919090 | 4636674.287954 | -740.000 | 116.116138 | |
| 116.116138 31.916235 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 116.116 | 115.519 |
| CIRC. Rampa | 900.000000 | 480362.292929 | 4636691.954499 | -740.000 | 116.556138 | |
| 116.556138 30.195641 | 0.0000 | 2.200000 | -2.000000 | 2.000000 | 116.556 | 116.213 |
| CIRC. KV -1000 | 920.000000 | 480371.185927 | 4636709.867908 | -740.000 | 116.968886 | |
| 116.968886 28.475047 | 0.0000 | 1.461730 | -2.000000 | 2.000000 | 116.969 | 116.706 |
| CIRC. KV -1000 | 940.000000 | 480379.591591 | 4636728.015097 | -740.000 | 117.061232 | |
| 117.061232 26.754453 | 0.0000 | -0.538270 | -2.000000 | 2.000000 | 117.061 | 116.858 |
| CIRC. Pendiente | 960.000000 | 480387.503780 | 4636746.382811 | -740.000 | 116.836560 | |
| 116.836560 25.033859 | 0.0000 | -1.250000 | -2.000000 | 2.000000 | 116.837 | 116.673 |
| CIRC. KV -100 | 980.000000 | 480394.916715 | 4636764.957633 | -740.000 | 116.215018 | |
| 116.215018 23.313265 | 0.0000 | -9.870238 | -2.000000 | 2.000000 | 116.215 | 116.049 |
| CIRC. Pendiente | 988.567000 | 480397.937962 | 4636772.974162 | -740.000 | 115.216371 | |
| 115.216371 22.576249 | 0.0000 | -11.896550 | -2.000000 | 2.000000 | 115.216 | 115.160 |

2.4 CTRA-ACC-ESTACIÓN (Eje A2-41)

2.4.1 Planta

Istram 22.04.04.22 09/03/23 11:06:45 200356
 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 41 : Acceso Parking

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|-------------|---------------|----------------|---------------|----------------|----------------|-----------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 152.508724 | | 0.000000 | 480756.731444 | 4638138.986357 | |
| 117.7078241 | 0.9615639943 | -0.2745809261 | | | | |
| 2 CIRC. | 12.584708 | 152.508724 | 480903.378342 | 4638097.110370 | 90.000000 | |
| 117.7078241 | 480878.666059 | 4638010.569611 | | | | |

3 RECTA 81.770554 165.093432 480915.198749 4638092.821435
 126.6096843 0.9139091524 -0.4059187864
 246.863986 480989.929607 4638059.629231
 126.6096843

EJES EN PLANTA

| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje |
|--------|---------------------------|--------------|------------|----------------|
| EJE | 41 | 0.000000 | 2 | Acceso Parking |
| REV | 2112 | | | |
| ALIAS4 | N-634 | | | |
| GRUPO | 6 | | | |
| TIPOL | 401 | | | |
| CM | 2 | | | |
| CAR | 1 | | | |
| VD | 80.000 | | | |
| MD | 0 | | | |
| RV | 22.04 200356 (2022/04/22) | | | |
| VU | 0 80.000 | | | |
| NCE | 1.000 | | | |
| ACE | 3.500 | | | |

#Anchos derecha derecha izquierda izquierda

| ANCHOS | 0.000 | 0.000 | 0.000 | 0.000 |
|--------|-------|-------|-------|-------|
|--------|-------|-------|-------|-------|

#

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---------------|----------|---------------|----------------|---------------|----------------|----------|----------|----------|
| L | D | Az | Etiq | Peralte | | | | |
| ALI FIJA-2P+R | 0 | 480756.731444 | 4638138.986357 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| | | | | 480929.269359 | 4638089.717020 | | | |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 0.000000 | 90.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 480937.026233 | 4638125.253339 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 38.500000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| | | | | 481005.557480 | 4638094.814733 | | | |

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FIN

2.4.2 Alzado

Istram 22.04.04.22 09/03/23 11:09:47 200356
 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 41 : Acceso Parking

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | LONGITUD | PARAMETRO | VÉRTICE | ENTRADA AL ACUERDO |
|--------------------|-------------|------------|------------|--------------------|
| SALIDA DEL ACUERDO | BISECT. | DIF. PEN | | |
| (%) | (m.) | (kv) | PK | Z |
| PK | Z | (%) | | PK |
| | | | | Z |
| | | | | -0.000001 |
| 124.246246 | -1.83511283 | 24.175564 | 500.000000 | 20.559918 |
| 124.090773 | 32.647700 | 124.231582 | 0.146114 | 4.835113 |
| | 3.00000000 | 45.000000 | 750.000000 | 85.896154 |
| 125.154035 | 108.396154 | 125.154035 | 0.337500 | -6.000000 |
| | -3.00000000 | | | |
| 324.095855 | 118.683044 | | | |

Istram 22.04.04.22 09/03/23 11:09:47 200356
 pagina 2
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 41 : Acceso Parking

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Pendiente | 124.246246 | -1.83511283 % |
| 8.472136 | tg. entrada | 124.090773 | -1.83511283 % |
| 17.647700 | Punto bajo | 124.006582 | 0.00000000 % |
| 20.000000 | KV 500 | 124.012115 | 0.47046003 % |
| 32.647700 | tg. salida | 124.231582 | 3.00000000 % |
| 40.000000 | Rampa | 124.452151 | 3.00000000 % |
| 60.000000 | Rampa | 125.052151 | 3.00000000 % |
| 63.396154 | tg. entrada | 125.154035 | 3.00000000 % |
| 80.000000 | KV -750 | 125.468359 | 0.78615387 % |
| 85.896154 | Punto alto | 125.491535 | 0.00000000 % |
| 100.000000 | KV -750 | 125.358923 | -1.88051280 % |
| 108.396154 | tg. salida | 125.154035 | -3.00000000 % |
| 120.000000 | Pendiente | 124.805920 | -3.00000000 % |
| 140.000000 | Pendiente | 124.205920 | -3.00000000 % |
| 160.000000 | Pendiente | 123.605920 | -3.00000000 % |
| 180.000000 | Pendiente | 123.005920 | -3.00000000 % |
| 200.000000 | Pendiente | 122.405920 | -3.00000000 % |
| 220.000000 | Pendiente | 121.805920 | -3.00000000 % |
| 240.000000 | Pendiente | 121.205920 | -3.00000000 % |
| 260.000000 | Pendiente | 120.605920 | -3.00000000 % |
| 280.000000 | Pendiente | 120.005920 | -3.00000000 % |
| 300.000000 | Pendiente | 119.405920 | -3.00000000 % |
| 320.000000 | Pendiente | 118.805920 | -3.00000000 % |
| 324.095865 | Pendiente | 118.683044 | -3.00000000 % |

2.4.3 Puntos

Istram 22.04.04.22 09/03/23 12:17:54 200356
 pagina 1
 PROYECTO :
 EJE : 41 : Acceso Parking

 * * * PUNTOS DEL EJE EN PLANTA * * *

| TIPO | P.K. | X | Y | RADIO | Z RAS IZ. | Z RAS |
|-----------------------|---------------------|---------------|----------------|------------------|-----------------|------------|
| DR. (N) | AZIMUT Longitud (E) | PERAL_I | PERAL_D | Z PROJ. ZT (eje) | Z TERR. Latitud | |
| RECTA Pendiente | 0.000000 | 480756.731444 | 4638138.986357 | 0.000 | 124.246246 | |
| 124.246246 117.707824 | 0.0000 | -1.835113 | -2.000000 | 2.000000 | 124.246 | 124.245 |
| RECTA KV 500 | 20.000000 | 480775.962724 | 4638133.494738 | 0.000 | 124.012115 | 124.012115 |
| 124.012115 117.707824 | 0.0000 | 0.470460 | -0.500000 | 2.000000 | 124.012 | 122.955 |
| RECTA Rampa | 40.000000 | 480795.194004 | 4638128.003120 | 0.000 | 124.452151 | 124.452151 |
| 124.452151 117.707824 | 0.0000 | 3.000000 | 1.500000 | 2.000000 | 124.452 | 122.853 |
| RECTA Rampa | 60.000000 | 480814.425284 | 4638122.511501 | 0.000 | 125.052151 | 125.052151 |
| 125.052151 117.707824 | 0.0000 | 3.000000 | 2.000000 | 2.000000 | 125.052 | 123.644 |
| RECTA KV -750 | 80.000000 | 480833.656564 | 4638117.019883 | 0.000 | 125.468359 | 125.468359 |
| 125.468359 117.707824 | 0.0000 | 0.786154 | 2.000000 | 2.000000 | 125.468 | 123.850 |
| RECTA KV -750 | 100.000000 | 480852.887843 | 4638111.528264 | 0.000 | 125.358923 | 125.358923 |
| 125.358923 117.707824 | 0.0000 | -1.880513 | 2.000000 | 2.000000 | 125.359 | 124.432 |
| RECTA Pendiente | 120.000000 | 480872.119123 | 4638106.036646 | 0.000 | 124.805920 | 124.805920 |
| 124.805920 117.707824 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 124.806 | 124.789 |

| | | | | | | |
|-----------------------|------------|---------------|----------------|----------|------------|------------|
| RECTA Pendiente | 140.000000 | 480891.350403 | 4638100.545027 | 0.000 | 124.205920 | 124.206 |
| 124.205920 117.707824 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 124.206 | 124.611 |
| CIRC. Pendiente | 152.508724 | 480903.378342 | 4638097.110370 | 90.000 | 123.830659 | 123.830659 |
| 123.830659 117.707824 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 123.831 | 123.863 |
| CIRC. Pendiente | 160.000000 | 480910.487811 | 4638094.756166 | 90.000 | 123.605920 | 123.605920 |
| 123.605920 123.006818 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 123.606 | 123.594 |
| RECTA Pendiente | 165.093432 | 480915.198749 | 4638092.821435 | 0.000 | 123.453117 | 123.453117 |
| 123.453117 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 123.453 | 122.973 |
| RECTA Pendiente | 180.000000 | 480928.821998 | 4638086.770579 | 0.000 | 123.005920 | 123.005920 |
| 123.005920 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 123.006 | 122.680 |
| RECTA Pendiente | 200.000000 | 480947.100181 | 4638078.652203 | 0.000 | 122.405920 | 122.405920 |
| 122.405920 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 122.406 | 122.360 |
| RECTA Pendiente | 220.000000 | 480965.378364 | 4638070.533827 | 0.000 | 121.805920 | 121.805920 |
| 121.805920 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 121.806 | 122.578 |
| RECTA Pendiente | 240.000000 | 480983.656547 | 4638062.415452 | 0.000 | 121.205920 | 121.205920 |
| 121.205920 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 121.206 | 121.868 |
| RECTA Pendiente | 246.863986 | 480989.929607 | 4638059.629231 | 0.000 | 121.000001 | 121.000001 |
| 121.000001 126.609684 | 0.0000 | -3.000000 | 2.000000 | 2.000000 | 121.000 | 121.762 |

2.5 RC-D-48.50 (Eje A2-44)

2.5.1 Planta

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 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 44 : RC-D-48.5

 * * * LISTADO DE LAS ALINEACIONES * * *

| DATO TIPO | LONGITUD | P.K. | X TANGENCIA | Y TANGENCIA | RADIO | PARAMETRO |
|------------------|---------------|----------------|---------------|----------------|-------|----------------|
| AZIMUT | Cos/Xc/Xinf | Sen/Yc/Yinf | Latitud (N) | Longitud (E) | | |
| 1 RECTA | 4.090156 | | 0.000000 | 480899.405476 | | 4637648.483955 |
| 337.5201679 | -0.8312935678 | 0.5558336119 | | | | |
| 2 CIRC. | 19.616245 | 4.090156 | 480896.005355 | 4637650.757401 | | 18.000000 |
| 337.5201679 | 480906.010360 | 4637665.720686 | | | | |
| 3 RECTA | 29.274892 | | 23.706401 | 480888.115935 | | 4637667.667359 |
| 6.8984425 | 0.1081485446 | 0.9941347455 | | | | |
| 4 CIRC. | 28.048818 | 52.981293 | 480891.281972 | 4637696.770547 | | 90.000000 |
| 6.8984425 | 480980.754099 | 4637687.037178 | | | | |
| 5 RECTA | 380.040488 | | 81.030111 | 480898.576609 | | 4637723.736770 |
| 26.7389223 | 0.4077732455 | 0.9130832275 | | | | |
| 6 CIRC. | 46.461853 | 461.070599 | 481053.546952 | 4638070.745365 | | 90.000000 |
| 26.7389223 | 481135.724442 | 4638034.045773 | | | | |
| 7 CIRC. | 61.827384 | 507.532452 | 481082.371837 | 4638106.526802 | | -90.000000 |
| 59.6039602 | 481029.019232 | 4638179.007831 | | | | |
| 8 CIRC. | 35.589392 | 569.359836 | 481116.237229 | 4638156.803753 | | 150.000000 |
| 15.8700320 | 481261.600556 | 4638119.796956 | | | | |
| 9 CIRC. | 82.776373 | 604.949229 | 481129.007761 | 4638189.933614 | | -900.000000 |
| 30.9746393 | 480333.450991 | 4638610.753558 | | | | |
| 10 CIRC. | 16.296496 | 687.725601 | 481164.295100 | 4638264.779474 | | -30.000000 |
| 25.1194087 | 481136.600297 | 4638276.311944 | | | | |
| 11 CIRC. | 7.838632 | 704.022098 | 481166.269491 | 4638280.754795 | | 18.000000 |
| 390.5371693 | 481184.071007 | 4638283.420506 | | | | |
| 18.2606597 | | 711.860730 | 481166.806427 | | | 4638288.513077 |
| # EJES EN PLANTA | | | | | | |
| # | | | | | | |
| # | Num Eje | P.K. inicial | N.Palabras | Titulo del Eje | | |
| # | | | | | | |

EJE 44 0.000000 1 RC-D-48.5
 REV 2112
 ALIAS4 N-634
 GRUPO 6
 TIPOL 401
 CM 2
 CAR 1
 VD 80.000
 MD 0
 RV 22.04 200356 (2022/04/22)
 VU 0 80.000
 NCE 1.000
 ACE 3.500

```

#-----
#Anchos derecha derecha izquierda izquierda
#-----
ANCHOS 0.000 0.000 0.000 0.000
#-----
    
```

| # | Tipo | clave | X (L ant) | Y (dL ant) | R | A1 | A2 | A |
|---------------|----------|---------------|----------------|-------------|----------|----------|----------|----------|
| L | D | Az | Etiq | Peralte | | | | |
| ALI FIJA-2P+R | 0 | 480899.405476 | 4637648.483955 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 18.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 480888.589749 | 4637672.022803 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 90.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 480896.185866 | 4637738.002181 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI GIRATORIA | 8 | 481067.766167 | 4638106.036556 | 90.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI GIRATORIA | 8 | 481100.831335 | 4638124.758205 | -90.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FLOTANTE | 8 | 0.000000 | 0.000000 | 150.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI FIJA-2P+R | 0 | 481118.364598 | 4638183.842701 | -900.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI GIRATORIA | 8 | 481166.085594 | 4638285.883633 | -30.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | -1.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |
| ALI GIRATORIA | 8 | 481166.806427 | 4638288.513077 | 18.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0 | 0.000 | 0 0 | 0.000 | 0.000 |

2.5.2 Alzado

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 pagina 1
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 44 : RC-D-48.5

 * * * ESTADO DE RASANTES * * *

| PENDIENTE | LONGITUD | PARAMETRO | VÉRTICE | ENTRADA AL ACUERDO |
|--------------------|----------|-----------|---------|--------------------|
| SALIDA DEL ACUERDO | BISECT. | DIF.PEN | | |
| (%) | (m.) | (kv) | PK | Z |
| Z | (m.) | (%) | PK | Z |

| | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----------|
| 121.717339 | 2.80000000 | 24.300000 | 1350.000000 | 80.265757 | 123.975036 | 68.115757 |
| 123.634836 | 92.415757 | 124.096536 | 0.054675 | -1.800000 | | |
| 124.595447 | 182.306817 | 124.195447 | 0.200000 | -4.000000 | | |
| 123.362080 | 245.085696 | 122.924580 | 0.153125 | 3.500000 | | |
| 122.951844 | 277.138451 | 121.821344 | 0.315875 | -9.500000 | | |
| 119.486567 | 383.080415 | 118.686567 | 1.600000 | 16.000000 | | |
| 121.526588 | 472.652136 | 121.526588 | 0.857500 | -14.000000 | | |
| 120.423094 | 521.416328 | 116.298094 | 0.453750 | -11.000000 | | |
| 113.807726 | 564.126710 | 111.136788 | 0.631641 | 17.500000 | | |
| 110.889497 | 709.885063 | 112.984022 | 0.644006 | 5.350000 | | |
| 733.448039 | 114.126826 | | | | | |

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 pagina 2
 PROYECTO :
 GRUPO : 6 : Repo_ALT2
 EJE : 44 : RC-D-48.5

 * * * PUNTOS DEL EJE EN ALZADO * * *

| P.K. | TIPO | COTA | PENDIENTE |
|------------|-------------|------------|---------------|
| 0.000000 | Rampa | 121.727595 | 2.80000000 % |
| 20.000000 | Rampa | 122.287595 | 2.80000000 % |
| 40.000000 | Rampa | 122.847595 | 2.80000000 % |
| 60.000000 | Rampa | 123.407595 | 2.80000000 % |
| 68.115757 | tg. entrada | 123.634836 | 2.80000000 % |
| 80.000000 | KV -1350 | 123.915286 | 1.91968571 % |
| 92.415757 | tg. salida | 124.096536 | 1.00000000 % |
| 100.000000 | Rampa | 124.172379 | 1.00000000 % |
| 120.000000 | Rampa | 124.372379 | 1.00000000 % |
| 140.000000 | Rampa | 124.572379 | 1.00000000 % |
| 142.306817 | tg. entrada | 124.595447 | 1.00000000 % |
| 152.306817 | Punto alto | 124.645447 | 0.00000000 % |
| 160.000000 | KV -1000 | 124.615854 | -0.76931832 % |
| 180.000000 | KV -1000 | 124.261991 | -2.76931832 % |
| 182.306817 | tg. salida | 124.195447 | -3.00000000 % |
| 200.000000 | Pendiente | 123.664651 | -3.00000000 % |
| 210.085696 | tg. entrada | 123.362080 | -3.00000000 % |
| 220.000000 | KV 1000 | 123.113798 | -2.00856961 % |
| 240.000000 | KV 1000 | 122.912084 | -0.00856961 % |
| 240.085696 | Punto bajo | 122.912080 | 0.00000000 % |
| 245.085696 | tg. salida | 122.924580 | 0.50000000 % |
| 250.538451 | tg. entrada | 122.951844 | 0.50000000 % |
| 251.938451 | Punto alto | 122.955344 | 0.00000000 % |
| 260.000000 | KV -280 | 122.839293 | -2.87912476 % |
| 277.138451 | tg. salida | 121.821344 | -9.00000000 % |
| 280.000000 | Pendiente | 121.563805 | -9.00000000 % |
| 300.000000 | Pendiente | 119.763805 | -9.00000000 % |
| 303.080415 | tg. entrada | 119.486567 | -9.00000000 % |
| 320.000000 | KV 500 | 118.250077 | -5.61608296 % |
| 340.000000 | KV 500 | 117.526860 | -1.61608296 % |
| 348.080415 | Punto bajo | 117.461567 | 0.00000000 % |
| 360.000000 | KV 500 | 117.603644 | 2.38391704 % |
| 380.000000 | KV 500 | 118.480427 | 6.38391704 % |
| 383.080415 | tg. salida | 118.686567 | 7.00000000 % |
| 400.000000 | Rampa | 119.870938 | 7.00000000 % |
| 420.000000 | Rampa | 121.270938 | 7.00000000 % |

| | | | | | | | |
|-----------------------|------------|---------------|----------------|----------|------------|---------|---------|
| CIRC. KV 1800 | 680.000000 | 481161.294684 | 4638257.660341 | -900.000 | 111.782684 | | |
| 111.782684 25.665883 | 0.0000 | 3.189719 | -2.000000 | 2.000000 | 111.783 | 111.603 | 111.603 |
| CIRC. KV 1800 | 687.725601 | 481164.295100 | 4638264.779474 | -30.000 | 112.045688 | | |
| 112.045688 25.119409 | 0.0000 | 3.618919 | -2.000000 | 2.000000 | 112.046 | 111.882 | 111.882 |
| CIRC. KV 1800 | 700.000000 | 481166.597111 | 4638276.749084 | -30.000 | 112.531739 | | |
| 112.531739 399.072326 | 0.0000 | 4.300830 | -2.000000 | 2.000000 | 112.532 | 112.266 | 112.266 |
| CIRC. KV 1800 | 704.022098 | 481166.269491 | 4638280.754795 | 18.000 | 112.709216 | | |
| 112.709216 390.537169 | 0.0000 | 4.524280 | -2.000000 | 2.000000 | 112.709 | 112.506 | 112.506 |
| CIRC. Rampa | 711.860730 | 481166.806427 | 4638288.513077 | 18.000 | 113.079841 | | |
| 113.079841 18.260660 | 0.0000 | 4.850000 | -2.000000 | 2.000000 | 113.080 | 112.936 | 112.936 |