Anejo nº 6
Trazado.

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1. Introducción

El objeto del presente anejo es definir el Estudio del Trazado Geométrico de las vías que componen el tramo San Bernardo – Centro Nervión, del Proyecto de Construcción del Metro Ligero en Superficie del Centro de Sevilla

Dicho trazado es el resultado del estudio y análisis de las distintas alternativas estudiadas, a la luz de los condicionantes de tipo urbanístico, funcional, medioambiental, geológico y geotécnico, de propiedad y servicios existentes y en general del conjunto de variables que definen la realidad del entorno en el que se asienta la línea de tranvía y el resto de sus elementos funcionales.

En la exposición que se sigue a continuación se realiza primero un repaso a las bases de partida tenidas en cuenta en el establecimiento del trazado, para poder fijar los parámetros de diseño y los parámetros geométricos y cinemáticos de las curvas, y posteriormente describir el trazado en planta y alzado.

Finalmente aparece la definición analítica del trazado en planta y alzado mediante los listados de alineaciones y coordenadas de los ejes que conforman las vías.

El principal antecedente técnico empleado para la realización del trazado este proyecto es el **Plan Especial de la Plataforma Reservada del Metro Ligero de Sevilla. Tramo: San Bernardo – Santa Justa**.

2. Descripción del trazado

2.1. Justificación del trazado

Se recoge en este apartado la descripción pormenorizada de la plataforma reservada de Metro Ligero en Superficie en el tramo comprendido entre San Bernardo y Centro Nervión.

El inicio de la actuación se sitúa en el culatón de maniobras existente en la estación de San Bernardo, en la Av. Ramón y Cajal, punto de conexión de la nueva infraestructura con la línea en explotación entre Plaza Nueva y San Bernardo.

El trazado propuesto discurrirá por el tramo central de la calle, dejando a ambos lados los edificios destinados las facultades de Derecho y Ciencias del Trabajo (margen derecha) y de Ciencias Económicas y Empresariales (margen izquierda). Se realizará en este tramo una reordenación del tráfico existente, destinando parte del tráfico de salida hacia San Francisco Javier por la calle Avión Cuatro Vientos.

El giro hacia la Avenida San Francisco Javier se realizará mediante paso inferior, evitando así interferir en el tráfico rodado de la intersección existente. Se elimina así el cruce a nivel de los tranvías con los flujos vehiculares de una vía catalogada como Vía Principal Urbana de la ciudad.

Figura 1. Sección Futura Avenida Ramón y Cajal.

La ejecución del citado paso inferior tendrá que estar condicionado a la defensa previa del núcleo urbano ante avenidas de 500 años de periodo de retorno o bien, a que las instalaciones proyectadas tengan en cuenta en su diseño los riesgos de inundación de los terrenos por los que discurre. En este sentido, cabe indicar que la inundación de la plataforma no supone una afección significativa de la misma ni ésta produce un efecto barrera que empeore las condiciones de inundabilidad de la zona, más allá de que, a partir de cierta altura de la lámina de agua, se produzca una lógica interrupción del servicio.

A lo largo de la Avenida de San Francisco Javier, una vez superado el paso inferior, la plataforma reservada se sitúa en el eje de la misma, eliminándose la mediana existente y los carriles destinados en la actualidad a realizar giros a izquierdas. Se realizará en este sentido, una remodelación de las intersecciones de la Avenida San Francisco Javier con los viales de Camilo José Cela y Santa Joaquina de Vedruna, a fin de regular los movimientos existentes en la actualidad y dotar de una funcionalidad adecuada a los resultantes de la actuación. En este punto se produce la reconfiguración de la zona libre asociada al viario existente, pasando parte de ella a ser desarrollada como viario propiamente.

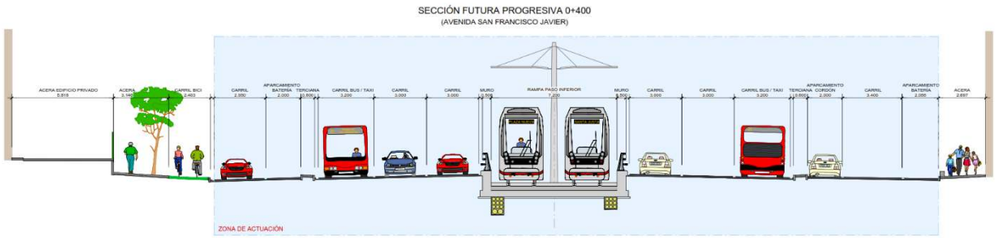


Figura 2. Sección Futura Avenida San Francisco Javier 0+400

Se prevén dos paradas en esta avenida, si bien, la ubicación de estas se define en la siguiente tabla:

Parada	PK Inicio	PK Final	Longitud
Parada San Francisco Javier	0+457,96	0+502,96	45,00
Parada Eduardo Dato	0+778,88	0+823,88	45,00

Tabla 1. Ubicación de las Paradas.

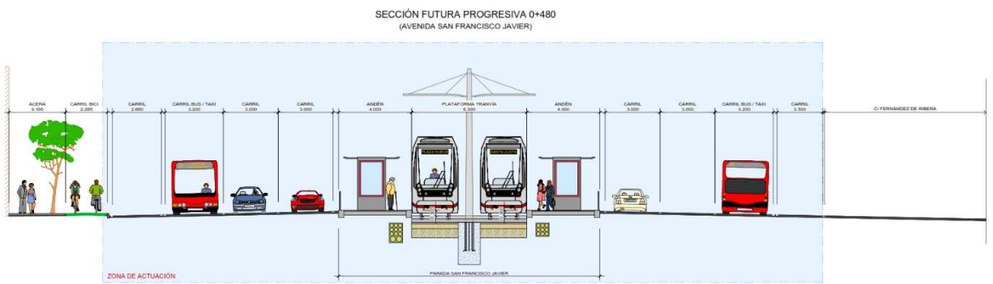


Figura 3. Sección Futura Avenida San Francisco Javier 0+480

Con objeto de dotar de mayor capacidad a las vías de servicio existentes, se plantea con la implantación de la nueva plataforma reservada, la reconfiguración de las zonas destinadas a estacionamiento a lo largo de la avenida, eliminándose las zonas destinadas a estacionamiento en batería en favor de plazas destinadas a aparcamiento en línea. De igual manera, se establecerán en dichas zonas áreas destinadas al plantado de árboles que permitan compensar la eliminación del arbolado existente en la mediana, intentándose en la medida de lo posible el trasplante de los ejemplares existentes.

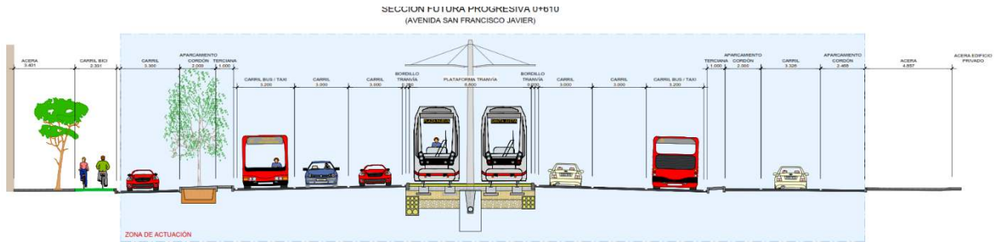


Figura 4. Sección Futura Avenida San Francisco Javier 0+610

En la Avenida Luis de Morales la nueva plataforma se propone igualmente en el eje central de la avenida, dando así continuidad al eje conformado en la avenida anterior. La intersección con la Avenida de Eduardo Dato se reconfigurará con respecto a la existente, dotando una mayor posibilidad de movimientos en la confluencia entre las dos avenidas.

En la avenida Luis de Morales se proyecta la parada de Luis de Morales, que servirá como parada provisional en el período de tiempo en que no esté terminada la siguiente fase hasta Santa Justa, momento en el cual entrará en funcionamiento la parada definitiva de Kansas City. La parada de Luis de Morales estará ubicada sobre la vía 2, por lo que el tramo entre el aparato de vía 2 y la parada de Luis de Morales funcionará como vía única.

Con objeto de dar cabida a la nueva plataforma reservada se eliminarán tanto la mediana existente como los carriles destinados actualmente a habilitar los giros a izquierda de acceso a las calles Luis Arenas Ladislao, Rico Cejudo y Luis Montoto. Dado que las dos primeras recogen actualmente una parte importante de los movimientos destinados a dar acceso a los Centros Comerciales de El Corte Inglés y Nervión Plaza se reconfigurarán tanto la citada intersección con Eduardo Dato como la intersección con Luis Montoto, permitiendo flexibilizar la movilidad actual de la zona y evitando giros a nivel sobre la plataforma reservada. De igual manera se establecerán medidas destinadas a mejorar la movilidad en las avenidas y calles colindantes con objeto de dotar de mayor fluidez a la avenida. En este sentido, en la acera opuesta al Centro Comercial Nervión Plaza, se eliminarán las zonas destinadas a estacionamiento, permitiendo así dar continuidad al carril bus, compensándose las zonas de carga y descarga en las vías perpendiculares.

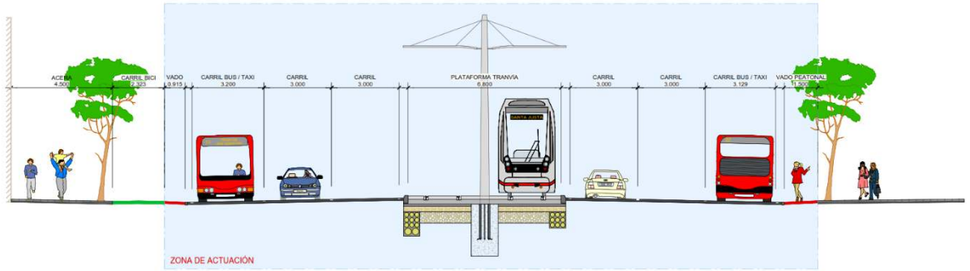


Figura 5. Sección Futura Avenida Luis de Morales 1+140

2.2. Criterio de Kilometraje

El tramo San Bernardo – Centro Nervión tiene una longitud de 1.407,00 metros cuya kilometración empieza en el P.K. 0+000, que se corresponde con el punto de conexión con el tramo existente.

2.3. Conexión con los tramos adyacentes

2.3.1. Inicio del tramo

EJE	SISTEMA	ALINEACIÓN	RASANTE	PARÁMETRO (kV)	P.K.	X(m)	Y(m)	RADIO (m)	COTA(m)	AZIMUT (g)	PEN(‰)	PERALTE (mm)
Eje de Plataforma	ETRS-89	Curva	Rampa	-	0+000.000	236356,858831	4140973,658180	5000,000	8,794438	132,608019	3,000000	0,00
Vía 1	ETRS-89	Curva	Rampa	-	0+000.000	236355,903134	4140971,958432	4998,050	8,794438	132,608019	3,000000	0,00
Vía 2	ETRS-89	Curva	Rampa	-	0+000.000	236357,814528	4140975,357928	5001,950	8,794438	132,608019	3,000000	0,00

Tabla 2. Conexión Inicio del tramo

2.3.2. Final del tramo

EJE	SISTEMA	ALINEACIÓN	RASANTE	PARÁMETRO (kV)	P.K.	X(m)	Y(m)	RADIO (m)	COTA(m)	AZIMUT (g)	PEN(‰)	PERALTE (mm)
Eje de Plataforma	ETRS-89	Curva	Rampa	-	1+407.000	236834,943821	4142025,122689	-150,000	10,40334	383,390562	6,500000	0,00
Vía 1	ETRS-89	Curva	Rampa	-	1+411.439	236837,869056	4142025,717215	-123,000	10,40334	387,188958	6,500000	0,00
Vía 2	ETRS-89	Curva	Rampa	-	1+402.303	236832,388752	4142024,307581	-125,000	10,40334	380,364231	6,500000	0,00

Tabla 3Conexión Final del tramo

2.4. Ejes que componen el Proyecto

Los ejes que componen el trazado del presente Proyecto se detallan a continuación.

EJE	PK inicial	PK final	LONGITUD	NOMBRE
Eje Plataforma				
1	0+000,000	1+407,000	1407,000	Eje Plataforma. M.L.S. San Bernardo - Nervión
Ejes Vías				
2	0+000,000	1+411,439	1411,439	Vía 1
3	0+000,000	1+402,303	1402,303	Vía 2
53	0+000,000	0+022,554	22,554	Trazado Escape 1
54	0+000,000	0+031,048	31,048	Trazado Escape 2
Calzadas Viario Principal				
4	0+000,000	0+232,279	232,279	Ramón y Cajal. (Cal. Der.)
5	0+000,000	0+230,036	230,036	Ramón y Cajal. (Cal. Izq.)
6	0+000,000	0+678,814	678,814	San Francisco Javier. (Cal. Der.)
7	0+000,000	0+671,591	671,591	San Francisco Javier. (Cal. Izq.)
8	0+000,000	0+508,599	508,599	Luis de Morales. (Cal. Izq.)
9	0+000,000	0+510,056	510,056	Luis de Morales. (Izquierda)
Ejes Viario Secundario				
12	0+000,000	0+060,000	60,000	Santa Joaquina de Vedruna
13	0+000,000	0+060,000	60,000	Camilo José Cela
14	0+000,000	0+060,000	60,000	Eduardo Dato. (Este)
15	0+000,000	0+060,000	60,000	Eduardo Dato. (Oeste)
16	0+000,000	0+407,000	407,000	Luis Montoto. (Este)
17	0+000,000	0+060,000	60,000	Luis Montoto. (Oeste)
55	0+000,000	0+028,126	28,126	Giro Izquierda. San Francisco Javier

Tabla 4. Resumen de ejes que componen el proyecto

3. Parámetros del trazado

3.1. Parámetros de diseño

En el presente apartado se presentan los parámetros de diseño considerados, teniendo en cuenta estos parámetros, así como los condicionantes existentes que definen el medio, se plantea el trazado propuesto para la ampliación.

Para lograr un adecuado diseño en planta y en alzado del trazado es necesario garantizar que no se sobrepasen ciertos valores admisibles, por encima de los cuáles se afectaría a las condiciones de confort y seguridad de los usuarios durante los recorridos entre paradas.

Las condiciones de confort para el trazado en planta están asociadas a la absorción de la fuerza centrífuga que se genera cuando los convoyes realizan trayectorias curvas a una determinada velocidad.

Esta fuerza centrífuga es absorbida o compensada de manera habitual en parte por el peralte de las vías, es decir, por la diferencia de cota entre los carriles de la misma, no obstante, al tratarse de una línea en superficie, por cuestiones de integración en el entorno, se considerará peralte nulo. Es por ello que se definen y acotan los valores umbrales para la misma de manera que las condiciones de confort y seguridad sean las idóneas.

El valor límite de la aceleración centrífuga no compensada en un trayecto curvo de manera excepcional es de 1,0 m/s², siendo el valor de normal de 0,65 m/s². Mediante una adecuada relación entre el radio de curvatura y la velocidad de diseño, se garantiza que la aceleración no sobrepase estos valores límites.

Los parámetros de diseño del trazado son los siguientes:

PARÁMETROS DE DISEÑO		
Ancho de vía	1.435 mm	
Distancie eje - andén	1.275 mm	
Altura de andén	300 mm	
Longitud de andén en estaciones	45 m (sin incluir rampas de acceso)	
Ancho de andén	Lateral	4,0 m
Tipología de andenes	Laterales, salvo problemas de inserción	
VELOCIDAD MÁXIMA	50 km/h en tramos segregados	
	20 km/h en tramos de plataforma compartida con peatón	
Radio mínimo	Deseable	50 m
	Excepcional	25 m
Radio mínimo en parada	Deseable	> 1.200 m
	Excepcional	400 m
Radio mínimo en acuerdos verticales	Deseable	2.500 m
	Excepcional	1.000 m
Rampa en parada	0,00%	
Pendiente	Máxima	6,00 %
	Excepcional	8,00 %
Rampa de peralte máxima	Deseable	2 mm/m
	Excepcional	3 mm/m
Peralte máximo	En superficie	0 mm
	En subterráneo	150 mm
Insuficiencia de peralte	100 mm en subterráneo	
Longitud mínima de alineación recta		12 m
Longitud mínima de alineaciones verticales	Rasante uniforme	V/2
	Acuerdo vertical	V/2
PARÁMETROS FUNCIONALES		
Aceleración sin compensar	Deseable	0,65 m/s²
	Excepcional	1,00 m/s²
Variación de la aceleración sin compensar	0,40 m/s³	
Aceleración vertical máxima	0,20 m/s²	

Tabla 5. Parámetros de diseño

3.2. Geometría de la plataforma. Estudio de Gálibos

El dimensionamiento del ancho plataforma viene condicionado por los valores de gálibos requeridos por el material móvil, por el tipo de sujeción de la catenaria y por el tipo de plataforma seleccionada.

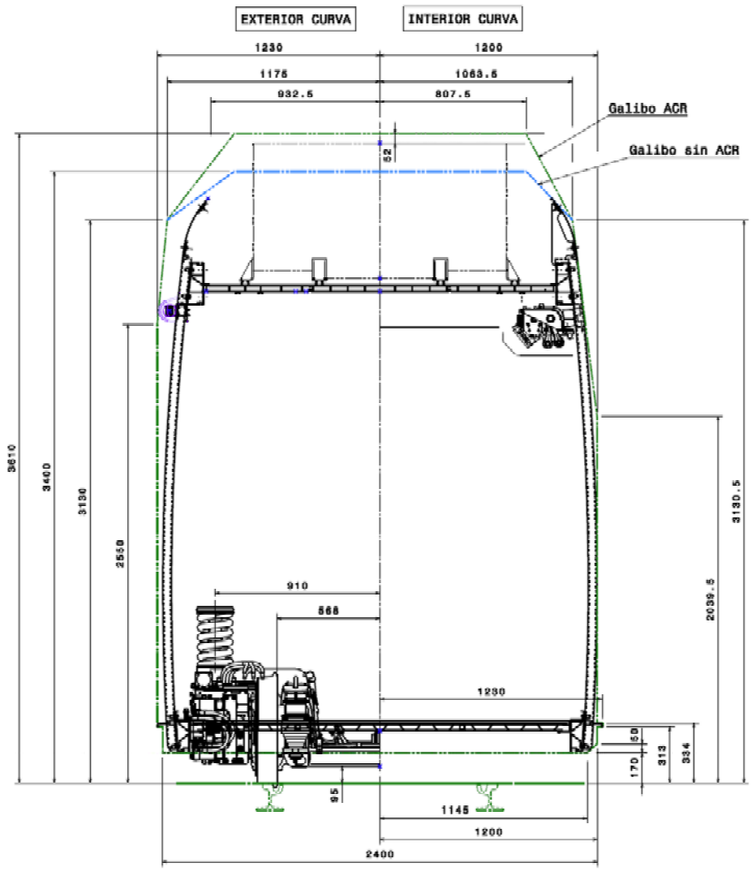
El material móvil considerado corresponde al modelo URBOS 3 de CAF de 2.400 mm de ancho contando con una longitud de 32.366 mm, en el caso de composiciones de 5 módulos, y de 43.611 mm en el caso de composiciones de 7 módulos, siendo el modelo de 5 módulos el existente actualmente en la línea en servicio. De esta manera, los anchos de plataforma se establecen respecto a los gálibos dinámicos de éste en concordancia con los valores incluidos en los documentos Q.23.93.120 y Q.23.93.105, entendiéndose que en los gálibos incluidos en dichos documentos se consideran todos aquellos desplazamientos horizontales y verticales y tolerancias (ejecución de montaje, mantenimiento, estado de la vía, …) que puedan afectar a la determinación del ancho de plataforma.

Espacio requerido para circulación del material móvil

Definimos como espacio requerido para circulación del material móvil al área contenida en un plano ortogonal al eje de la vía, que debe estar libre de obstáculo en todo momento para que la circulación se produzca en condiciones de seguridad, tanto en alineaciones rectas como curvas, en superficie o en subterráneo.

Los valores que definen esta área son el gálibo estático, el gálibo dinámico y el gálibo libre de obstáculo.

- **Gálibo estático:** Es el perímetro o línea inscrita en un plano ortogonal al eje de la vía que contiene al material móvil, cuando este se encuentra parado en una alineación recta de la vía. Sus valores están dados por las características geométricas del material móvil.
- **Gálibo dinámico:** Se define como tal a los máximos desplazamientos horizontal y vertical producidos por la oscilación del material móvil cuando se encuentra en movimiento. Su valor depende de factores como la suspensión, estado de los carriles, estados de las ruedas, deformación de la vía, exceso o deficiencia de peralte en curvas.
- **Gálibo libre de obstáculos (GLO):** Es el ancho suplementario para generar un espacio adicional de seguridad, añadido a las áreas generadas por los gálibos estáticos y dinámicos, a partir del cual se incluye los elementos como señalizaciones, postes de catenarias, y espacios adicionales de seguridad. Se suma al gálibo dinámico incrementado por una lámina de aire de al menos 100 mm.



A continuación, se adjunta un resumen con los anchos de plataforma y el entreeje considerados en función del radio de curvatura considerado en cada punto.

- R ≥ 150 m: Ancho de plataforma de 7,20m y entreeje de 3,75m
- 150 m > R ≥ 50 m: Ancho de plataforma de 7,50m y entreeje de 3,90 m
- R < 50 m: Ancho de plataforma de 8,00m y entreeje de 4,10m.

A continuación, se incluye el esquema funcional del tramo.

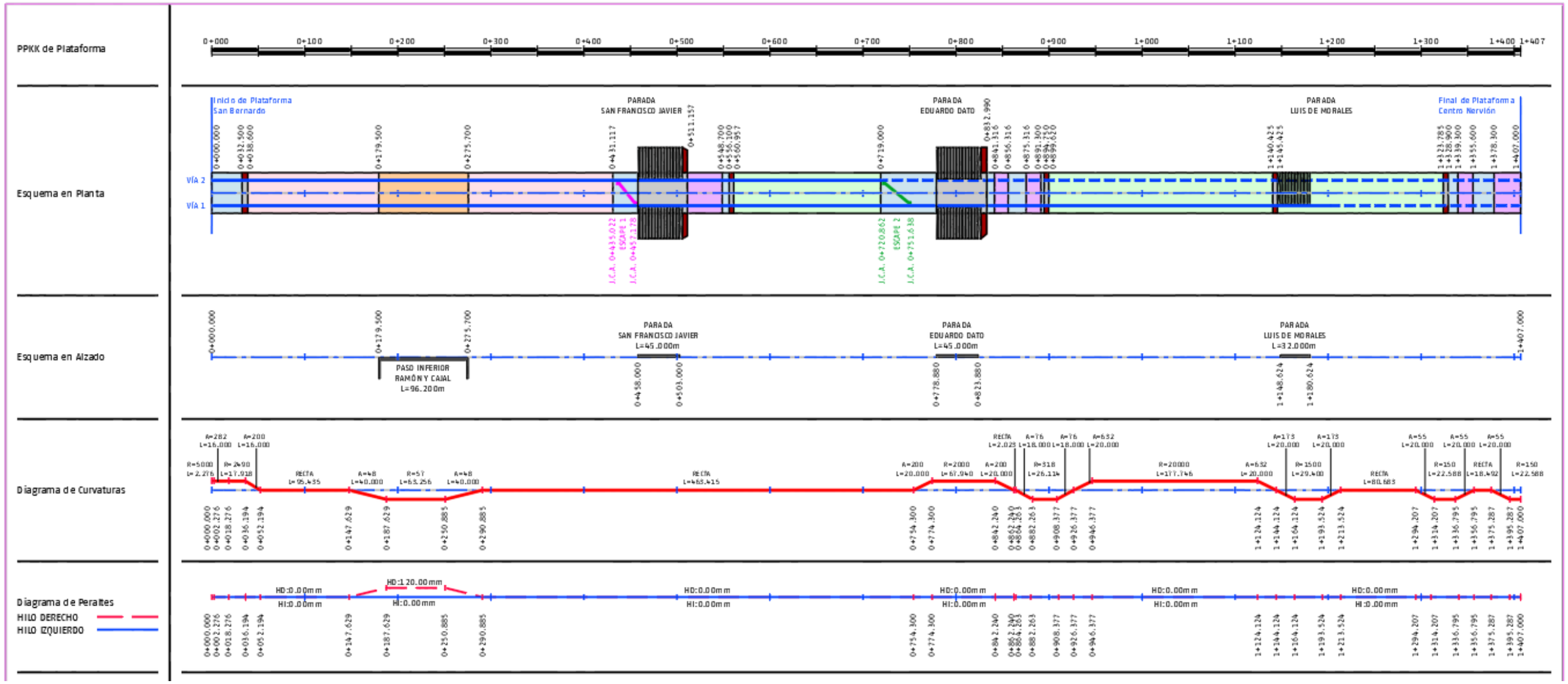


Figura 6. Esquema Funcional del Tramo San Bernardo - Centro Nervión

4. Secciones tipo

Las características geométricas de las secciones tipo a adoptar se pueden consultar en la colección de planos **2.9 Superestructura de vía**, del presente proyecto.

Podemos hacer tres clasificaciones de las secciones tipo, dependiendo del tipo de estructura de vía, donde encontramos césped, hormigón, Mezcla Bituminosa en Caliente y en estructura.

4.1. Sección tipo con terminación en Césped

- Ancho de Vía: 1,435 m.
- Distancia entre ejes de vía: 3,750 m.
- Ancho de plataforma: 6,800 m.
- Pendiente en capas de asiento: 2%
- Espesor tierra vegetal: 0,13 m.
- Espesor capa de grava: 0,25 m.
- Espesor capa de zahorra artificial: 0,50 m.
- Espesor capa de suelo seleccionado QS-3: 0,50 m.

4.2. Sección tipo con terminación en Hormigón

- Ancho de Vía: 1,435 m.
- Distancia entre ejes de vía: Variable entre 3,900 m y 3,750 m.
- Ancho de plataforma: Variable entre 8,000 m y 6,800 m.
- Pendiente en capas de asiento: 0%
- Capa de terminación: HA-25 y espesor 0,15 m.
- Losa de soporte de vía: HA-25 y espesor 0,20 m.
- Capa de nivelación: HM-15 y espesor 0,10 m.
- Espesor capa de zahorra artificial: 0,50 m.
- Espesor capa de suelo seleccionado QS-3: 0,50 m.

4.3. Sección tipo con terminación en M.B.C.

- Ancho de Vía: 1,435 m.
- Distancia entre ejes de vía: 3,750 m.
- Ancho de plataforma: 6,800 m.
- Pendiente en capas de asiento: 0%
- Capa de terminación: AC22 surf D y espesor 0,06 m.
- Losa de soporte de vía: HA-25 y espesor 0,29 m.
- Capa de nivelación: HM-15 y espesor 0,10 m.
- Espesor capa de zahorra artificial: 0,50 m.
- Espesor capa de suelo seleccionado QS-3: 0,50 m.

4.4. Sección tipo en estructura

- Ancho de Vía: 1,435 m.
- Distancia entre ejes de vía: Variable entre 3,900 m y 3,750 m.
- Ancho de plataforma: Variable entre 7,800 m y 7,200 m.
- Pendiente en capas de asiento: 0%
- Capa de terminación: HA-25 y espesor 0,10 m.
- Losa de soporte de vía: HA-25 y espesor 0,20 m.

4.5. Sección tipo en andenes

- Ancho de Vía: 1,435 m.
- Distancia entre ejes de vía: 3,750 m.
- Ancho de plataforma: 6,300 m.
- Pendiente en capas de asiento: 0%
- Capa de terminación: losa de granito de 60x40 cm sobre mortero y arena de regularización 0,15 m.
- Capa de terminación: Arena de regularización 0,06 cm.
- Losa de soporte de vía: HA-25 y espesor 0,20 m.
- Capa de nivelación: HM-15 y espesor 0,10 m.
- Espesor capa de zahorra artificial: 0,50 m.
- Espesor capa de suelo seleccionado QS-3: 0,50 m.

5. Definición analítica del trazado

Para la definición del trazado de las vías se ha empleado el programa ISPOL.

En el apéndice I se incluyen los listados de definición geométrica de cada uno de los ejes.

A continuación, se describen los distintos componentes de los listados, para la perfecta comprensión de los mismos:

5.1. Listado de alineaciones en planta.

Se describen las alineaciones en planta que conformas los ejes del proyecto, según las tres tipologías (recta, curva y curva de transición), incluyendo los puntos inicial y final de cada una de las alineaciones:

- Alineaciones rectas de las cuales se da el número de las cuales se da el número de elemento a la que pertenece, su acimut, longitud y PP.KK., coordenadas (X,Y) de los puntos inicial y final de la alineación.
- Alineaciones curvas, descritas por su número de alineación, radio (R), (+ derecha, - izquierda) en el sentido de avance de los PP.KK., coordenadas del centro (Xc, Yc), longitud de la alineación y PP.KK., coordenadas (X,Y) de los puntos inicial y final de la alineación.
- Curvas de transición, de las cuales se da el número de alineación al que pertenece, el valor de su parámetro (A), longitud y PP.KK., coordenadas (X,Y) de los puntos inicial y final de la alineación.

5.2. Listado de puntos principales

Con él se describen los tres tipos de alineaciones en planta únicamente en los puntos principales cada 20 m:

- Alineaciones rectas de las cuales se da el número de elemento a la que pertenece, su acimut, longitud, PP.KK., coordenada X y coordenada Y de los puntos principales cada 20 m.
- Alineaciones curvas, descritas por su número de alineación, radio ®, (+ derecha, - izquierda) en el sentido de avance de los PP.KK., coordenadas del centro (Xc, Yc), longitud de la alineación y PP.KK., coordenada X y coordenada Y de los puntos principales cada 20 m.
- Curvas de transición. De las que se dan el número de alineación a la que pertenece, el valor de su parámetro (A), longitud y PP.KK., coordenada X y coordenada Y de los puntos principales cada 20 m.

5.3. Listado de alineaciones de alzado

Los dos tipos de alineaciones en alzado se describen de la siguiente forma:

- Rasantes uniformes.
- Caracterizada por su pendiente (- en pendiente, + en rampa según el sentido de avance de los PP.KK.), longitudes de la alineación.
- Acuerdos verticales.
- Descritas por su parámetro (Kv, convexos y cóncavos), longitud de la alineación y PP.KK. y cota de los puntos inicial y final de la alineación, así como PP.KK. y cota de los vértices.

5.4. Listados de puntos principales en alzado.

Se listan aquí todos los puntos singulares en alzado (rasantes uniformes y acuerdos verticales) de los que se da la siguiente información:

- PP.KK., tipo de alineación, (- en pendiente, + en rampa, - kv convexo, + kv cóncavo) según el sentido de avance de los PP.KK., cota y valor de la pendiente.
- En aquellas curvas verticales en las cuales se alcance el máximo o mínimo dentro de su desarrollo también se da el P.K. y cota de éste.

5.5. Listado de puntos principales en planta y alzado.

En el listado se describen los tipos de alineaciones en planta y alzado de los puntos singulares (inicio de acuerdo y final de acuerdo), proporcionando la siguiente información:

- Tipo de alineación en planta, alzado y parámetro Kv.
- P.K.
- Coordenada X, coordenada Y
- Radio
- Cota
- Azimut
- Pendiente en ‰ (- en pendiente, + rampa)
- Peralte
- Cota de la rasante
- Cota del terreno.

Apéndice I. Listados

Alineaciones en Planta

Plataforma

Eje de Plataforma

DATO	TIPO	LONGITUD	P.K.	X TANGENCIA	Y TANGENCIA	RADIO	PARAMETRO	AZIMUT	Cos/Xc/Xinf	Sen/Yc/Yinf
1	CIRC.	2.276	0.000	236356.859	4140973.658	5000.000		132.6080	233906.354	4136615.330
	CLOT.	16.000	2.276	236358.842	4140972.542		281.714	132.6370	236345.002	4140980.313
2	CIRC.	17.918	18.276	236372.769	4140964.665	2490.000		132.9434	235141.000	4138800.676
	CLOT.	16.000	36.194	236388.309	4140955.745		199.600	133.4015	236402.139	4140947.700
3	RECTA	95.435	52.194	236402.139	4140947.700			133.6060	0.8638756	-0.5037052
	CLOT.	40.000	147.629	236484.583	4140899.629		47.728	133.6060	236484.583	4140899.629
4	CIRC.	63.256	187.629	236521.053	4140883.738	-56.950		111.2489	236531.063	4140939.801
	CLOT.	40.000	250.885	236576.852	4140905.939		47.728	40.5374	236592.436	4140942.541
5	RECTA	463.415	290.885	236592.436	4140942.541			18.1803	0.2817090	0.9594999
	CLOT.	20.000	754.300	236722.984	4141387.187		200.000	18.1803	236722.984	4141387.187
6	CIRC.	67.940	774.300	236728.650	4141406.368	2000.000		18.4986	238644.809	4140833.362
	CLOT.	20.000	842.240	236749.217	4141471.116		200.000	20.6612	236755.658	4141490.051
7	RECTA	2.023	862.240	236755.658	4141490.051			20.9795	0.3236123	0.9461898
	CLOT.	18.000	864.263	236756.312	4141491.965		75.657	20.9795	236756.312	4141491.965
8	CIRC.	26.114	882.263	236761.976	4141509.050	-318.000		19.1777	236458.296	4141603.403
	CLOT.	18.000	908.377	236768.692	4141534.278		75.657	13.9497	236772.273	4141551.918
	CLOT.	20.000	926.377	236772.273	4141551.918		632.456	12.1480	236772.273	4141551.918
9	CIRC.	177.746	946.377	236776.069	4141571.554	20000.000		12.1798	256411.150	4137768.450
	CLOT.	20.000	1124.124	236810.644	4141745.905		632.456	12.7456	236814.628	4141765.504
	CLOT.	20.000	1144.124	236814.628	4141765.504		173.205	12.7774	236814.628	4141765.504
10	CIRC.	29.400	1164.124	236818.571	4141785.112	-1500.000		12.3530	235346.722	4142074.350
	CLOT.	20.000	1193.524	236823.958	4141814.014		173.205	11.1052	236827.341	4141833.726
11	RECTA	80.683	1213.524	236827.341	4141833.726			10.6808	0.1669879	0.9859589
	CLOT.	20.000	1294.207	236840.814	4141913.275		54.772	10.6808	236840.814	4141913.275
12	CIRC.	22.588	1314.207	236843.714	4141933.060	-150.000		6.4367	236694.480	4141948.200
	CLOT.	20.000	1336.795	236844.297	4141955.619		54.772	396.8501	236842.421	4141975.527
13	RECTA	18.492	1356.795	236842.421	4141975.527			392.6060	-0.1158845	0.9932627
	CLOT.	20.000	1375.287	236840.279	4141993.894		54.772	392.6060	236840.279	4141993.894
14	CIRC.	29.612	1395.287	236837.521	4142013.699	-150.000		388.3618	236690.020	4141986.430
			1407.000	236834.944	4142025.123			383.3906		

Alineaciones en Planta

Ejes de Vía

DATO	TIPO	LONGITUD	P.K.	X TANGENCIA	Y TANGENCIA	RADIO	PARAMETRO	AZIMUT	Cos/Xc/Xinf	Sen/Yc/Yinf
Vía 1										
1	CIRC.	2.272	0.000	236355.903	4140971.958	4998.050		132.6080	233906.354	4136615.330
	CLOT.	16.000	2.272	236357.883	4140970.845		281.548	132.6370	236344.054	4140978.609
2	CIRC.	17.892	18.272	236371.809	4140962.967	2488.050		132.9436	235141.000	4138800.676
	CLOT.	16.000	36.163	236387.326	4140954.060		199.521	133.4013	236401.157	4140946.016
3	RECTA	95.401	52.163	236401.157	4140946.016			133.6060	0.8638756	-0.5037052
	CLOT.	40.000	147.565	236483.572	4140897.962		48.539	133.6060	236483.572	4140897.962
4	CIRC.	66.792	187.565	236519.993	4140881.924	-58.900		111.9891	236531.019	4140939.782
	CLOT.	40.000	254.357	236578.780	4140905.314		48.539	39.7972	236594.228	4140941.988
5	RECTA	463.440	294.357	236594.228	4140941.988			18.1803	0.2817090	0.9594999
	CLOT.	20.000	757.797	236724.783	4141386.659		199.906	18.1803	236724.783	4141386.659
6	CIRC.	67.867	777.797	236730.449	4141405.840	1998.125		18.4989	238644.809	4140833.362
	CLOT.	20.000	845.663	236750.994	4141470.518		199.906	20.6612	236757.435	4141489.453
7	RECTA	2.011	865.663	236757.435	4141489.453			20.9798	0.3236166	0.9461883
	CLOT.	18.000	867.675	236758.086	4141491.356		75.880	20.9798	236758.086	4141491.356
8	CIRC.	26.376	885.675	236763.751	4141508.441	-319.875		19.1886	236458.296	4141603.402
	CLOT.	18.000	912.051	236770.534	4141533.922		75.880	13.9392	236774.114	4141551.562
	CLOT.	20.000	930.051	236774.114	4141551.562		632.426	12.1480	236774.114	4141551.562
9	CIRC.	177.729	950.051	236777.910	4141571.198	19998.125		12.1798	256411.150	4137768.450
	CLOT.	20.000	1127.779	236812.481	4141745.531		632.426	12.7456	236816.465	4141765.130
	CLOT.	20.000	1147.779	236816.465	4141765.130		173.313	12.7774	236816.465	4141765.130
10	CIRC.	29.462	1167.779	236820.409	4141784.738	-1501.875		12.3536	235346.722	4142074.350
	CLOT.	20.000	1197.241	236825.806	4141813.701		173.313	11.1047	236829.190	4141833.413
11	RECTA	80.683	1217.241	236829.190	4141833.413			10.6808	0.1669879	0.9859589
	CLOT.	20.000	1297.924	236842.663	4141912.962		55.114	10.6808	236842.663	4141912.962
12	CIRC.	23.120	1317.924	236845.568	4141932.746	-151.875		6.4891	236694.482	4141948.200
	CLOT.	20.000	1341.044	236846.165	4141955.837		55.114	396.7977	236844.284	4141975.744
13	RECTA	29.929	1361.044	236844.284	4141975.744			392.6060	-0.1158845	0.9932627
	CLOT.	20.000	1390.973	236840.816	4142005.471		49.598	392.6060	236840.816	4142005.471
14	CIRC.	20.682	1410.973	236837.961	4142025.260	-123.000		387.4302	236717.351	4142001.132
			1411.439	236837.869	4142025.717			387.1889		

Alineaciones en Planta

Ejes de Vía

DATO	TIPO	LONGITUD	P.K.	X TANGENCIA	Y TANGENCIA	RADIO	PARAMETRO	AZIMUT	Cos/Xc/Xinf	Sen/Yc/Yinf
Vía 2										
1	CIRC.	2.280	0.000	236357.815	4140975.358	5001.950		132.6080	233906.354	4136615.330
	CLOT.	16.000	2.280	236359.802	4140974.240		281.879	132.6370	236345.951	4140982.017
2	CIRC.	17.945	18.280	236373.728	4140966.362	2491.950		132.9432	235141.000	4138800.676
	CLOT.	16.000	36.225	236389.291	4140957.429		199.678	133.4017	236403.122	4140949.385
3	RECTA	95.466	52.225	236403.122	4140949.385			133.6060	0.8638756	-0.5037052
	CLOT.	40.000	147.690	236485.592	4140901.298		46.904	133.6060	236485.592	4140901.298
4	CIRC.	59.721	187.690	236522.112	4140885.564	-55.000		110.4562	236531.105	4140939.824
	CLOT.	40.000	247.411	236574.916	4140906.573		46.904	41.3301	236590.645	4140943.096
5	RECTA	463.387	287.411	236590.645	4140943.096			18.1803	0.2817090	0.9594999
	CLOT.	20.000	750.798	236721.185	4141387.715		200.094	18.1803	236721.185	4141387.715
6	CIRC.	68.013	770.798	236726.851	4141406.896	2001.875		18.4983	238644.809	4140833.362
	CLOT.	20.000	838.811	236747.440	4141471.714		200.094	20.6612	236753.881	4141490.649
7	RECTA	1.955	858.811	236753.881	4141490.649			20.9792	0.3236080	0.9461913
	CLOT.	18.000	860.766	236754.513	4141492.499		75.434	20.9792	236754.513	4141492.499
8	CIRC.	24.838	878.766	236760.176	4141509.584	-316.125		19.1667	236458.271	4141603.329
	CLOT.	20.000	903.605	236766.603	4141533.570		79.514	14.1647	236770.604	4141553.165
	CLOT.	20.000	923.605	236770.604	4141553.165		632.485	12.1509	236770.604	4141553.165
9	CIRC.	176.857	943.605	236774.401	4141572.801	20001.875		12.1827	256411.150	4137768.450
	CLOT.	20.000	1120.462	236808.806	4141746.279		632.485	12.7456	236812.790	4141765.878
	CLOT.	20.000	1140.462	236812.790	4141765.878		173.097	12.7774	236812.790	4141765.878
10	CIRC.	29.339	1160.462	236816.734	4141785.485	-1498.125		12.3525	235346.722	4142074.350
	CLOT.	20.000	1189.801	236822.109	4141814.327		173.097	11.1058	236825.492	4141834.039
11	RECTA	80.682	1209.801	236825.492	4141834.039			10.6808	0.1669879	0.9859589
	CLOT.	20.000	1290.483	236838.965	4141913.588		54.429	10.6808	236838.965	4141913.588
12	CIRC.	22.056	1310.483	236841.860	4141933.374	-148.125		6.3830	236694.479	4141948.200
	CLOT.	20.000	1332.539	236842.429	4141955.401		54.429	396.9038	236840.559	4141975.310
13	RECTA	15.728	1352.539	236840.559	4141975.310			392.6060	-0.1158845	0.9932627
	CLOT.	20.000	1368.266	236838.736	4141990.932		50.000	392.6060	236838.736	4141990.932
14	CIRC.	21.343	1388.266	236835.891	4142010.723	-125.000		387.5130	236713.288	4141986.361
			1402.303	236832.389	4142024.307			380.3642		

Alineaciones en Planta

Escapes

DATO	TIPO	LONGITUD	P.K.	X TANGENCIA	Y TANGENCIA	RADIO	PARAMETRO	AZIMUT	Cos/Xc/Xinf	Sen/Yc/Yinf
Escape 1. (EGv- 60R2-25-1:4-r-Fz(Sp)-1435-3750)										
1	RECTA	0.500	0.000	236631.242	4141081.368			18.1803	0.2817090	0.9594999
2	CIRC.	6.124	0.500	236631.382	4141081.848	25.000		18.1803	236655.370	4141074.805
3	RECTA	9.306	6.624	236633.807	4141087.455			33.7749	0.5059947	0.8625366
4	CIRC.	6.124	15.930	236638.515	4141095.482	-25.000		33.7749	236616.952	4141108.132
5	RECTA	0.500	22.054	236640.939	4141101.089			18.1803	0.2817090	0.9594999
			22.554	236641.080	4141101.569			18.1803		
Escape 2. (ETI-RI60-50-1/6-CR-D-3750)										
1	CIRC.	8.257	0.000	236711.765	4141355.631	50.000		18.1803	236759.740	4141341.546
2	RECTA	14.534	8.257	236714.733	4141363.326			28.6934	0.4356091	0.9001359
3	CIRC.	8.257	22.791	236721.065	4141376.409	-50.000		28.6934	236676.058	4141398.190
			31.048	236724.033	4141384.104			18.1803		

Alineaciones en Alzado

Plataforma

PENDIENTE (‰)	LONGITUD (m)	PARAMETRO (kv)	V E R T I C E p.k.	V E R T I C E cota	ENTRADA AL ACUERDO p.k.	ENTRADA AL ACUERDO cota	SALIDA DEL ACUERDO p.k.	SALIDA DEL ACUERDO cota	BISECT. (m)	DIF.PEN (%)
Eje de Plataforma										
					0.000000	8.794438				
3.00000000	63.000000	1000.000000	49.294635	8.942322	17.794635	8.847822	80.794635	7.052322	0.496125	-6.300000
-60.00000000	180.000000	1500.000000	230.000000	-1.900000	140.000000	3.500000	320.000000	3.500000	2.700000	12.000000
60.00000000	59.477000	1000.000000	401.378770	8.382726	371.640270	6.598416	431.117270	8.398279	0.442189	-5.947700
0.52300000	15.000000	6055.712556	521.418742	8.445507	513.918742	8.441585	528.918742	8.468007	0.004644	0.247700
3.00000000	15.000000	6000.000000	564.610369	8.575082	557.110369	8.552582	572.110369	8.578832	0.004687	-0.250000
0.50000000	20.000000	9628.429285	626.778303	8.606166	616.778303	8.601166	636.778303	8.631938	0.005193	0.207718
2.57718200	50.000000	3615.436831	693.501915	8.778125	668.501915	8.713695	718.501915	9.188294	0.086435	1.382959
16.40676950	20.000000	1705.028949	781.784685	10.226560	771.784685	10.062492	791.784685	10.273328	0.029325	-1.173001
4.67676338	40.000000	2551.547091	864.313864	10.612529	844.313864	10.518994	884.313864	10.392529	0.078384	-1.567676
-11.00000000	20.000000	3225.806452	921.112746	9.987742	911.112746	10.097742	931.112746	9.939742	0.015500	0.620000
-4.80000000	30.000000	4838.709677	1006.267048	9.579001	991.267048	9.651001	1021.267048	9.600001	0.023250	0.620000
1.40000000	20.000000	17449.021849	1055.480549	9.647900	1045.480549	9.633900	1065.480549	9.650438	0.002865	-0.114620
0.25380395	20.000000	7386.956060	1131.717511	9.667249	1121.717511	9.664711	1141.717511	9.696862	0.006769	0.270748
2.96127910	20.000000	5778.210720	1190.319059	9.840785	1180.319059	9.811172	1200.319059	9.835785	0.008653	-0.346128
-0.50000000	20.000000	2857.142857	1224.389203	9.823750	1214.389203	9.828750	1234.389203	9.888750	0.017500	0.700000
6.50000000	20.000000	5000.000000	1262.832544	10.073631	1252.832544	10.008631	1272.832544	10.098631	0.010000	-0.400000
2.50000000	15.000000	10000.000000	1303.480014	10.175250	1295.980014	10.156500	1310.980014	10.182750	0.002812	-0.150000
1.00000000	15.000000	2727.272727	1384.340841	10.256111	1376.840841	10.248611	1391.840841	10.304861	0.010313	0.550000
6.50000000							1407.000000	10.403395		

Alineaciones en Alzado

Ejes de Vía

PENDIENTE (‰)	LONGITUD (m)	PARAMETRO (kv)	V E R T I C E p.k.	V E R T I C E cota	ENTRADA AL ACUERDO p.k.	ENTRADA AL ACUERDO cota	SALIDA DEL ACUERDO p.k.	SALIDA DEL ACUERDO cota	BISECT. (m)	DIF.PEN (%)
Vía 1										
					0.000000	8.794438				
3.00000000	63.000000	1000.000000	49.265524	8.942235	17.765524	8.847735	80.765524	7.052235	0.496125	-6.300000
-60.00000000	186.960000	1558.000000	231.732858	-2.005805	138.252858	3.602995	325.212858	3.602995	2.804400	12.000000
60.00000000	59.477000	1000.000000	404.875052	8.382726	375.136552	6.598416	434.613552	8.398279	0.442189	-5.947700
0.52300000	15.000000	6055.712556	524.914992	8.445507	517.414992	8.441584	532.414992	8.468007	0.004644	0.247700
3.00000000	15.000000	6000.000000	568.106662	8.575082	560.606662	8.552582	575.606662	8.578832	0.004687	-0.250000
0.50000000	20.000000	9628.429285	630.274596	8.606166	620.274596	8.601166	640.274596	8.631938	0.005193	0.207718
2.57718200	50.000000	3615.436831	696.998208	8.778125	671.998208	8.713695	721.998208	9.188294	0.086435	1.382959
16.40676950	20.000000	1705.028949	785.280978	10.226560	775.280978	10.062492	795.280978	10.273328	0.029325	-1.173001
4.67676338	40.000000	2551.547091	867.810157	10.612529	847.810157	10.518994	887.810157	10.392529	0.078384	-1.567676
-11.00000000	20.000000	3225.806452	924.609039	9.987742	914.609039	10.097742	934.609039	9.939742	0.015500	0.620000
-4.80000000	30.000000	4838.709677	1009.763341	9.579001	994.763341	9.651001	1024.763341	9.600001	0.023250	0.620000
1.40000000	20.000000	17449.021849	1058.976842	9.647900	1048.976842	9.633900	1068.976842	9.650438	0.002865	-0.114620
0.25380395	20.000000	7386.956060	1135.213804	9.667249	1125.213804	9.664711	1145.213804	9.696862	0.006769	0.270748
2.96127910	20.000000	5778.210720	1193.815352	9.840785	1183.815352	9.811172	1203.815352	9.835785	0.008653	-0.346128
-0.50000000	20.000000	2857.142857	1227.885496	9.823750	1217.885496	9.828750	1237.885496	9.888750	0.017500	0.700000
6.50000000	20.000000	5000.000000	1266.328837	10.073631	1256.328837	10.008631	1276.328837	10.098631	0.010000	-0.400000
2.50000000	15.000000	10000.000000	1306.976307	10.175250	1299.476307	10.156500	1314.476307	10.182750	0.002812	-0.150000
1.00000000	15.000000	2727.272727	1388.951308	10.257225	1381.451308	10.249725	1396.451308	10.305975	0.010313	0.550000
6.50000000							1411.439000	10.403395		
Vía 2										
					0.000000	8.794438				
3.00000000	63.000000	1000.000000	49.323746	8.942409	17.823746	8.847909	80.823746	7.052409	0.496125	-6.300000
-60.00000000	172.920000	1441.000000	228.264292	-1.794024	141.804292	3.393576	314.724292	3.393576	2.593800	12.000000
60.00000000	59.477000	1000.000000	397.876785	8.382726	368.138285	6.598416	427.615285	8.398279	0.442189	-5.947700
0.52300000	15.000000	6055.712556	517.916717	8.445507	510.416717	8.441584	525.416717	8.468007	0.004644	0.247700
3.00000000	15.000000	6000.000000	561.108387	8.575082	553.608387	8.552582	568.608387	8.578832	0.004687	-0.250000
0.50000000	20.000000	9628.429285	623.276321	8.606166	613.276321	8.601166	633.276321	8.631938	0.005193	0.207718
2.57718200	50.000000	3615.436831	689.999933	8.778125	664.999933	8.713695	714.999933	9.188294	0.086435	1.382959
16.40676950	20.000000	1705.028949	778.282703	10.226560	768.282703	10.062492	788.282703	10.273328	0.029325	-1.173001
4.67676338	40.000000	2551.547091	860.811882	10.612529	840.811882	10.518994	880.811882	10.392529	0.078384	-1.567676
-11.00000000	20.000000	3225.806452	917.610764	9.987742	907.610764	10.097742	927.610764	9.939742	0.015500	0.620000
-4.80000000	30.000000	4838.709677	1002.765066	9.579001	987.765066	9.651001	1017.765066	9.600001	0.023250	0.620000
1.40000000	20.000000	17449.021849	1051.978567	9.647900	1041.978567	9.633900	1061.978567	9.650438	0.002865	-0.114620
0.25380395	20.000000	7386.956060	1128.215529	9.667249	1118.215529	9.664711	1138.215529	9.696862	0.006769	0.270748
2.96127910	20.000000	5778.210720	1186.817077	9.840785	1176.817077	9.811172	1196.817077	9.835785	0.008653	-0.346128
-0.50000000	20.000000	2857.142857	1220.887221	9.823750	1210.887221	9.828750	1230.887221	9.888750	0.017500	0.700000
6.50000000	20.000000	5000.000000	1259.330562	10.073631	1249.330562	10.008631	1269.330562	10.098631	0.010000	-0.400000
2.50000000	15.000000	10000.000000	1299.978032	10.175250	1292.478032	10.156500	1307.478032	10.182750	0.002812	-0.150000
1.00000000	15.000000	2727.272727	1379.426631	10.254699	1371.926631	10.247199	1386.926631	10.303449	0.010313	0.550000
6.50000000							1402.303000	10.380837		

Alineaciones en Alzado

Escapes

PENDIENTE (‰)	LONGITUD (m)	PARAMETRO (kv)	V E R T I C E p.k.	V E R T I C E cota	ENTRADA AL ACUERDO p.k.	ENTRADA AL ACUERDO cota	SALIDA DEL ACUERDO p.k.	SALIDA DEL ACUERDO cota	BISECT. (m)	DIF.PEN (%)
Escape 1. (EGv- 60R2-25-1:4-r-Fz(Sp)-1435-3750)										
					0.000000	8.400322				
0.51392715							22.545997	8.411909		
Escape 2. (ETI-RI60-50-1/6-CR-D-3750)										
					0.000000	9.227015				
16.26267321							31.048770	9.731951		

Puntos Principales en Planta y Alzado

Plataforma

Eje de Plataforma

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CIRC. Rampa	0.000	236356.859	4140973.658	5000.000	8.794	132.608019	0.000	3.000	0.00	0.00	8.794	8.799	8.799
CLOT. Rampa	2.276	236358.842	4140972.542	5000.000	8.801	132.636996	0.000	3.000	0.00	0.00	8.801	8.807	8.807
CLOT. Rampa	8.000	236363.829	4140969.731	3674.762	8.818	132.723020	0.000	3.000	0.00	0.00	8.818	8.829	8.829
CLOT. Rampa	10.000	236365.570	4140968.748	3363.297	8.824	132.759273	0.000	3.000	0.00	0.00	8.824	8.837	8.837
CLOT. Rampa	12.000	236367.311	4140967.763	3100.505	8.830	132.798734	0.000	3.000	0.00	0.00	8.830	8.835	8.835
CLOT. Tg. Entrada	17.795	236372.350	4140964.903	2528.171	8.848	132.931182	0.000	3.000	0.00	0.00	8.848	8.844	8.844
CIRC. KV -1000	18.276	236372.769	4140964.665	2490.000	8.849	132.943392	0.000	2.519	0.00	0.00	8.849	8.846	8.846
CIRC. KV -1000	20.000	236374.267	4140963.811	2490.000	8.852	132.987473	0.000	0.795	0.00	0.00	8.852	8.853	8.853
CIRC. Punto alto	20.795	236374.957	4140963.417	2490.000	8.852	133.007790	0.000	0.000	0.00	0.00	8.852	8.855	8.855
CIRC. KV -1000	26.000	236379.476	4140960.833	2490.000	8.839	133.140876	0.000	-5.205	0.00	0.00	8.839	8.860	8.860
CIRC. KV -1000	30.000	236382.944	4140958.841	2490.000	8.810	133.243144	0.000	-9.205	0.00	0.00	8.810	8.836	8.836
CIRC. KV -1000	36.000	236388.141	4140955.842	2490.000	8.737	133.396546	0.000	-15.205	0.00	0.00	8.737	8.803	8.803
CLOT. KV -1000	36.194	236388.309	4140955.745	2490.000	8.734	133.401503	0.000	-15.399	0.00	0.00	8.734	8.805	8.805
CLOT. KV -1000	40.000	236391.601	4140953.836	3267.214	8.668	133.487240	0.000	-19.205	0.00	0.00	8.668	8.841	8.841
CLOT. KV -1000	40.000	236391.601	4140953.836	3267.214	8.668	133.487240	0.000	-19.205	0.00	0.00	8.668	8.841	8.841
CLOT. KV -1000	50.000	236400.244	4140948.805	18159.646	8.426	133.602194	0.000	-29.205	0.00	0.00	8.426	8.729	8.729
RECTA KV -1000	52.194	236402.139	4140947.700	0.000	8.359	133.606040	0.000	-31.399	0.00	0.00	8.359	8.720	8.720
RECTA KV -1000	58.000	236407.155	4140944.776	0.000	8.160	133.606040	0.000	-37.205	0.00	0.00	8.160	8.708	8.708
RECTA KV -1000	60.000	236408.883	4140943.768	0.000	8.084	133.606040	0.000	-39.205	0.00	0.00	8.084	8.708	8.708
RECTA KV -1000	62.000	236410.611	4140942.761	0.000	8.003	133.606040	0.000	-41.205	0.00	0.00	8.003	8.709	8.709
RECTA KV -1000	66.000	236414.066	4140940.746	0.000	7.831	133.606040	0.000	-45.205	0.00	0.00	7.831	8.715	8.715
RECTA KV -1000	70.000	236417.522	4140938.731	0.000	7.642	133.606040	0.000	-49.205	0.00	0.00	7.642	8.732	8.732
RECTA KV -1000	80.000	236426.160	4140933.694	0.000	7.100	133.606040	0.000	-59.205	0.00	0.00	7.100	8.829	8.829
RECTA KV -1000	80.000	236426.160	4140933.694	0.000	7.100	133.606040	0.000	-59.205	0.00	0.00	7.100	8.829	8.829
RECTA Tg. Salida	80.795	236426.847	4140933.294	0.000	7.052	133.606040	0.000	-60.000	0.00	0.00	7.052	8.829	8.829
RECTA Pendiente	84.000	236429.616	4140931.679	0.000	6.860	133.606040	0.000	-60.000	0.00	0.00	6.860	8.830	8.830
RECTA Pendiente	90.000	236434.799	4140928.657	0.000	6.500	133.606040	0.000	-60.000	0.00	0.00	6.500	8.848	8.848
RECTA Pendiente	90.000	236434.799	4140928.657	0.000	6.500	133.606040	0.000	-60.000	0.00	0.00	6.500	8.848	8.848
RECTA Pendiente	98.000	236441.710	4140924.628	0.000	6.020	133.606040	0.000	-60.000	0.00	0.00	6.020	8.780	8.780
RECTA Pendiente	100.000	236443.438	4140923.620	0.000	5.900	133.606040	0.000	-60.000	0.00	0.00	5.900	8.767	8.767
RECTA Pendiente	110.000	236452.077	4140918.583	0.000	5.300	133.606040	0.000	-60.000	0.00	0.00	5.300	8.878	8.878
RECTA Pendiente	120.000	236460.715	4140913.546	0.000	4.700	133.606040	0.000	-60.000	0.00	0.00	4.700	8.909	8.909
RECTA Pendiente	122.000	236462.443	4140912.539	0.000	4.580	133.606040	0.000	-60.000	0.00	0.00	4.580	8.901	8.901
RECTA Pendiente	128.000	236467.626	4140909.516	0.000	4.220	133.606040	0.000	-60.000	0.00	0.00	4.220	8.873	8.873
RECTA Pendiente	130.000	236469.354	4140908.509	0.000	4.100	133.606040	0.000	-60.000	0.00	0.00	4.100	8.862	8.862
RECTA Tg. Entrada	140.000	236477.993	4140903.472	0.000	3.500	133.606040	0.000	-60.000	0.00	0.00	3.500	8.909	8.909
RECTA Tg. Entrada	140.000	236477.993	4140903.472	0.000	3.500	133.606040	0.000	-60.000	0.00	0.00	3.500	8.909	8.909
RECTA KV 1500	142.000	236479.721	4140902.465	0.000	3.381	133.606040	0.000	-58.667	0.00	0.00	3.381	8.906	8.906
CLOT. KV 1500	147.629	236484.583	4140899.629	-1000000.000	3.062	133.606040	0.000	-54.914	-0.00	-0.00	3.062	8.881	8.881
CLOT. KV 1500	148.000	236484.904	4140899.442	-6140.021	3.041	133.604116	0.000	-54.667	-1.11	-1.11	3.041	8.878	8.878
CLOT. KV 1500	150.000	236486.632	4140898.436	-960.773	2.933	133.527487	0.000	-53.333	-7.11	-7.11	2.933	8.905	8.905
CLOT. KV 1500	156.000	236491.836	4140895.450	-272.130	2.625	132.626883	0.000	-49.333	-25.11	-25.11	2.625	8.950	8.950
CLOT. KV 1500	157.000	236492.709	4140894.961	-243.090	2.576	132.378970	0.000	-48.667	-28.11	-28.11	2.576	8.942	8.942
CLOT. KV 1500	160.000	236495.339	4140893.518	-184.140	2.433	131.467553	0.000	-46.667	-37.11	-37.11	2.433	8.939	8.939
CLOT. KV 1500	170.000	236504.298	4140889.081	-101.828	2.000	126.612975	0.000	-40.000	-67.11	-67.11	2.000	8.966	8.966
CLOT. KV 1500	180.000	236513.646	4140885.546	-70.372	1.633	118.963754	0.000	-33.333	-97.11	-97.11	1.633	8.999	8.999
CIRC. KV 1500	187.629	236521.053	4140883.738	-56.950	1.398	111.248892	0.000	-28.247	-120.00	-120.00	1.398	9.019	9.019
CIRC. KV 1500	190.000	236523.395	4140883.370	-56.950	1.333	108.598443	0.000	-26.667	-120.00	-120.00	1.333	9.021	9.021
CIRC. KV 1500	200.000	236533.371	4140882.898	-56.950	1.100	97.419869	0.000	-20.000	-120.00	-120.00	1.100	9.035	9.035
CIRC. KV 1500	205.000	236538.351	4140883.319	-56.950	1.008	91.830582	0.000	-16.667	-120.00	-120.00	1.008	9.037	9.037
CIRC. KV 1500	208.000	236541.315	4140883.781	-56.950	0.961	88.477010	0.000	-14.667	-120.00	-120.00	0.961	9.009	9.009
CIRC. KV 1500	209.000	236542.297	4140883.970	-56.950	0.947	87.359153	0.000	-14.000	-120.00	-120.00	0.947	8.999	8.999
CIRC. KV 1500	210.000	236543.276	4140884.176	-56.950	0.933	86.241295	0.000	-13.333	-120.00	-120.00	0.933	8.989	8.989
CIRC. KV 1500	213.000	236546.188	4140884.896	-56.950	0.896	82.887723	0.000	-11.333	-120.00	-120.00	0.896	8.953	8.953
CIRC. KV 1500	220.000	236552.805	4140887.165	-56.950	0.833	75.062722	0.000	-6.667	-120.00	-120.00	0.833	9.010	9.010
CIRC. KV 1500	224.000	236556.445	4140888.820	-56.950	0.812	70.591292	0.000	-4.000	-120.00	-120.00	0.812	9.050	9.050
CIRC. KV 1500	225.000	236557.337	4140889.274	-56.950	0.808	69.473435	0.000	-3.333	-120.00	-120.00	0.808	9.035	9.035
CIRC. KV 1500	229.000	236560.818	4140891.242	-56.950	0.800	65.002005	0.000	-0.667	-120.00	-120.00	0.800	9.137	9.137
CIRC. Punto bajo	230.000	236561.666	4140891.772	-56.950	0.800	63.884148	0.000	0.000	-120.00	-120.00	0.800	9.127	9.127
CIRC. Punto bajo	230.000	236561.666	4140891.772	-56.950	0.800	63.884148	0.000	0.000	-120.00	-120.00	0.800	9.127	9.127
CIRC. KV 1500	233.000	236564.152	4140893.450	-56.950	0.803	60.530576	0.000	2.000	-120.00	-120.00	0.803	9.065	9.065
CIRC. KV 1500	238.000	236568.089	4140896.530	-56.950	0.821	54.941289	0.000	5.333	-120.00	-120.00	0.821	9.059	9.059
CIRC. KV 1500	240.000	236569.586	4140897.857	-56.950	0.833	52.705574	0.000	6.667	-120.00	-120.00	0.833	9.059	9.059
CIRC. KV 1500	240.000	236569.586	4140897.857	-56.950	0.833	52.705574	0.000	6.667	-120.00	-120.00	0.833	9.059	9.059

Puntos Principales en Planta y Alzado

Plataforma

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CIRC. KV 1500	241.000	236570.316	4140898.539	-56.950	0.840	51.587717	0.000	7.333	-120.00	-120.00	0.840	9.121	9.121
CIRC. KV 1500	250.000	236576.321	4140905.231	-56.950	0.933	41.527001	0.000	13.333	-120.00	-120.00	0.933	9.146	9.146
CLOT. KV 1500	250.885	236576.852	4140905.939	-56.950	0.945	40.537406	0.000	13.924	-120.00	-120.00	0.945	9.141	9.141
CLOT. KV 1500	260.000	236581.712	4140913.641	-73.757	1.100	31.509301	0.000	20.000	-92.66	-92.66	1.100	9.078	9.078
CLOT. KV 1500	270.000	236585.919	4140922.707	-109.072	1.333	24.275293	0.000	26.667	-62.66	-62.66	1.333	9.019	9.019
CLOT. KV 1500	275.000	236587.681	4140927.386	-143.403	1.475	21.706281	0.000	30.000	-47.66	-47.66	1.475	8.996	8.996
CLOT. KV 1500	280.000	236589.279	4140932.124	-209.274	1.633	19.835929	0.000	33.333	-32.66	-32.66	1.633	9.008	9.008
CLOT. KV 1500	282.000	236589.884	4140934.030	-256.380	1.701	19.283414	0.000	34.667	-26.66	-26.66	1.701	9.012	9.012
CLOT. KV 1500	290.000	236592.187	4140941.691	-2573.254	2.000	18.191209	0.000	40.000	-2.66	-2.66	2.000	8.876	8.876
RECTA KV 1500	290.885	236592.436	4140942.541	0.000	2.036	18.180258	0.000	40.590	0.00	0.00	2.036	8.881	8.881
RECTA KV 1500	292.000	236592.750	4140943.610	0.000	2.081	18.180258	0.000	41.333	0.00	0.00	2.081	8.905	8.905
RECTA KV 1500	294.000	236593.313	4140945.529	0.000	2.165	18.180258	0.000	42.667	0.00	0.00	2.165	8.964	8.964
RECTA KV 1500	300.000	236595.004	4140951.286	0.000	2.433	18.180258	0.000	46.667	0.00	0.00	2.433	8.950	8.950
RECTA KV 1500	310.000	236597.821	4140960.881	0.000	2.933	18.180258	0.000	53.333	0.00	0.00	2.933	8.900	8.900
RECTA Tg. Salida	320.000	236600.638	4140970.476	0.000	3.500	18.180258	0.000	60.000	0.00	0.00	3.500	8.848	8.848
RECTA Tg. Salida	320.000	236600.638	4140970.476	0.000	3.500	18.180258	0.000	60.000	0.00	0.00	3.500	8.848	8.848
RECTA Rampa	330.000	236603.455	4140980.071	0.000	4.100	18.180258	0.000	60.000	0.00	0.00	4.100	8.804	8.804
RECTA Rampa	340.000	236606.272	4140989.666	0.000	4.700	18.180258	0.000	60.000	0.00	0.00	4.700	8.773	8.773
RECTA Rampa	350.000	236609.089	4140999.261	0.000	5.300	18.180258	0.000	60.000	0.00	0.00	5.300	8.740	8.740
RECTA Rampa	360.000	236611.906	4141008.856	0.000	5.900	18.180258	0.000	60.000	0.00	0.00	5.900	8.693	8.693
RECTA Rampa	370.000	236614.723	4141018.451	0.000	6.500	18.180258	0.000	60.000	0.00	0.00	6.500	8.658	8.658
RECTA Tg. Entrada	371.640	236615.185	4141020.025	0.000	6.598	18.180258	0.000	60.000	0.00	0.00	6.598	8.658	8.658
RECTA KV -1000	372.000	236615.287	4141020.370	0.000	6.620	18.180258	0.000	59.640	0.00	0.00	6.620	8.659	8.659
RECTA KV -1000	376.000	236616.414	4141024.208	0.000	6.850	18.180258	0.000	55.640	0.00	0.00	6.850	8.656	8.656
RECTA KV -1000	380.000	236617.540	4141028.046	0.000	7.065	18.180258	0.000	51.640	0.00	0.00	7.065	8.645	8.645
RECTA KV -1000	390.000	236620.358	4141037.641	0.000	7.531	18.180258	0.000	41.640	0.00	0.00	7.531	8.605	8.605
RECTA KV -1000	400.000	236623.175	4141047.236	0.000	7.898	18.180258	0.000	31.640	0.00	0.00	7.898	8.567	8.567
RECTA KV -1000	410.000	236625.992	4141056.831	0.000	8.164	18.180258	0.000	21.640	0.00	0.00	8.164	8.560	8.560
RECTA KV -1000	420.000	236628.809	4141066.426	0.000	8.331	18.180258	0.000	11.640	0.00	0.00	8.331	8.550	8.550
RECTA KV -1000	420.000	236628.809	4141066.426	0.000	8.331	18.180258	0.000	11.640	0.00	0.00	8.331	8.550	8.550
RECTA KV -1000	430.000	236631.626	4141076.021	0.000	8.397	18.180258	0.000	1.640	0.00	0.00	8.397	8.555	8.555
RECTA Tg. Salida	431.117	236631.941	4141077.093	0.000	8.398	18.180258	0.000	0.523	0.00	0.00	8.398	8.556	8.556
RECTA Rampa	440.000	236634.443	4141085.616	0.000	8.403	18.180258	0.000	0.523	0.00	0.00	8.403	8.560	8.560
RECTA Rampa	450.000	236637.260	4141095.211	0.000	8.408	18.180258	0.000	0.523	0.00	0.00	8.408	8.566	8.566
RECTA Rampa	460.000	236640.077	4141104.806	0.000	8.413	18.180258	0.000	0.523	0.00	0.00	8.413	8.578	8.578
RECTA Rampa	462.000	236640.641	4141106.725	0.000	8.414	18.180258	0.000	0.523	0.00	0.00	8.414	8.575	8.575
RECTA Rampa	470.000	236642.894	4141114.401	0.000	8.419	18.180258	0.000	0.523	0.00	0.00	8.419	8.557	8.557
RECTA Rampa	476.000	236644.585	4141120.158	0.000	8.422	18.180258	0.000	0.523	0.00	0.00	8.422	8.552	8.552
RECTA Rampa	480.000	236645.711	4141123.996	0.000	8.424	18.180258	0.000	0.523	0.00	0.00	8.424	8.559	8.559
RECTA Rampa	480.000	236645.711	4141123.996	0.000	8.424	18.180258	0.000	0.523	0.00	0.00	8.424	8.559	8.559
RECTA Rampa	482.000	236646.275	4141125.915	0.000	8.425	18.180258	0.000	0.523	0.00	0.00	8.425	8.513	8.513
RECTA Rampa	490.000	236648.528	4141133.591	0.000	8.429	18.180258	0.000	0.523	0.00	0.00	8.429	8.454	8.454
RECTA Rampa	494.000	236649.655	4141137.429	0.000	8.431	18.180258	0.000	0.523	0.00	0.00	8.431	8.456	8.456
RECTA Rampa	496.000	236650.219	4141139.348	0.000	8.432	18.180258	0.000	0.523	0.00	0.00	8.432	8.462	8.462
RECTA Rampa	500.000	236651.346	4141143.186	0.000	8.434	18.180258	0.000	0.523	0.00	0.00	8.434	8.487	8.487
RECTA Rampa	508.000	236653.599	4141150.862	0.000	8.438	18.180258	0.000	0.523	0.00	0.00	8.438	8.495	8.495
RECTA Rampa	510.000	236654.163	4141152.781	0.000	8.440	18.180258	0.000	0.523	0.00	0.00	8.440	8.459	8.459
RECTA Rampa	510.000	236654.163	4141152.781	0.000	8.440	18.180258	0.000	0.523	0.00	0.00	8.440	8.459	8.459
RECTA Rampa	512.000	236654.726	4141154.700	0.000	8.441	18.180258	0.000	0.523	0.00	0.00	8.441	8.459	8.459
RECTA Tg. Entrada	513.919	236655.267	4141156.541	0.000	8.442	18.180258	0.000	0.523	0.00	0.00	8.442	8.460	8.460
RECTA KV 6056	514.000	236655.289	4141156.619	0.000	8.442	18.180258	0.000	0.536	0.00	0.00	8.442	8.460	8.460
RECTA KV 6056	520.000	236656.980	4141162.376	0.000	8.448	18.180258	0.000	1.527	0.00	0.00	8.448	8.493	8.493
RECTA Tg. Salida	528.919	236659.492	4141170.934	0.000	8.468	18.180258	0.000	3.000	0.00	0.00	8.468	8.547	8.547
RECTA Rampa	530.000	236659.797	4141171.971	0.000	8.471	18.180258	0.000	3.000	0.00	0.00	8.471	8.552	8.552
RECTA Rampa	540.000	236662.614	4141181.566	0.000	8.501	18.180258	0.000	3.000	0.00	0.00	8.501	8.587	8.587
RECTA Rampa	542.000	236663.177	4141183.485	0.000	8.507	18.180258	0.000	3.000	0.00	0.00	8.507	8.587	8.587
RECTA Rampa	544.000	236663.741	4141185.404	0.000	8.513	18.180258	0.000	3.000	0.00	0.00	8.513	8.588	8.588
RECTA Rampa	550.000	236665.431	4141191.161	0.000	8.531	18.180258	0.000	3.000	0.00	0.00	8.531	8.590	8.590
RECTA Rampa	550.000	236665.431	4141191.161	0.000	8.531	18.180258	0.000	3.000	0.00	0.00	8.531	8.590	8.590
RECTA Tg. Entrada	557.110	236667.434	4141197.984	0.000	8.553	18.180258	0.000	3.000	0.00	0.00	8.553	8.591	8.591
RECTA KV -6000	560.000	236668.248	4141200.756	0.000	8.561	18.180258	0.000	2.518	0.00	0.00	8.561	8.591	8.591
RECTA KV -6000	566.000	236669.938	4141206.513	0.000	8.573	18.180258	0.000	1.518	0.00	0.00	8.573	8.590	8.590
RECTA KV -6000	570.000	236671.065	4141210.351	0.000	8.577	18.180258	0.000	0.852	0.00	0.00	8.577	8.587	8.587
RECTA Tg. Salida	572.110	236671.660	4141212.376	0.000	8.579	18.180258	0.000	0.500	0.00	0.00	8.579	8.584	8.584
RECTA Rampa	580.000	236673.882	4141219.946	0.000	8.583	18.180258	0.000	0.500	0.00	0.00	8.583	8.574	8.574
RECTA Rampa	584.000	236675.009	4141223.784	0.000	8.585	18.180258	0.000	0.500	0.00	0.00	8.585	8.573	8.573
RECTA Rampa	588.000	236676.136	4141227.622	0.000	8.587	18.180258	0.000	0.500	0.00	0.00	8.587	8.638	8.638

Puntos Principales en Planta y Alzado

Plataforma

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
RECTA Rampa	590.000	236676.699	4141229.541	0.000	8.588	18.180258	0.000	0.500	0.00	0.00	8.588	8.682	8.682
RECTA Rampa	600.000	236679.516	4141239.136	0.000	8.593	18.180258	0.000	0.500	0.00	0.00	8.593	8.666	8.666
RECTA Rampa	606.000	236681.207	4141244.893	0.000	8.596	18.180258	0.000	0.500	0.00	0.00	8.596	8.662	8.662
RECTA Rampa	610.000	236682.334	4141248.731	0.000	8.598	18.180258	0.000	0.500	0.00	0.00	8.598	8.668	8.668
RECTA Tg. Entrada	616.778	236684.243	4141255.235	0.000	8.601	18.180258	0.000	0.500	0.00	0.00	8.601	8.675	8.675
RECTA KV 9628	620.000	236685.151	4141258.326	0.000	8.603	18.180258	0.000	0.835	0.00	0.00	8.603	8.675	8.675
RECTA KV 9628	630.000	236687.968	4141267.921	0.000	8.617	18.180258	0.000	1.873	0.00	0.00	8.617	8.684	8.684
RECTA Tg. Salida	636.778	236689.877	4141274.425	0.000	8.632	18.180258	0.000	2.577	0.00	0.00	8.632	8.704	8.704
RECTA Rampa	640.000	236690.785	4141277.516	0.000	8.640	18.180258	0.000	2.577	0.00	0.00	8.640	8.715	8.715
RECTA Rampa	650.000	236693.602	4141287.111	0.000	8.666	18.180258	0.000	2.577	0.00	0.00	8.666	8.724	8.724
RECTA Rampa	660.000	236696.419	4141296.706	0.000	8.692	18.180258	0.000	2.577	0.00	0.00	8.692	8.749	8.749
RECTA Tg. Entrada	668.502	236698.814	4141304.864	0.000	8.714	18.180258	0.000	2.577	0.00	0.00	8.714	8.779	8.779
RECTA KV 3615	670.000	236699.236	4141306.301	0.000	8.718	18.180258	0.000	2.992	0.00	0.00	8.718	8.785	8.785
RECTA KV 3615	680.000	236702.053	4141315.896	0.000	8.762	18.180258	0.000	5.757	0.00	0.00	8.762	8.835	8.835
RECTA KV 3615	690.000	236704.870	4141325.491	0.000	8.833	18.180258	0.000	8.523	0.00	0.00	8.833	8.915	8.915
RECTA KV 3615	700.000	236707.687	4141335.086	0.000	8.932	18.180258	0.000	11.289	0.00	0.00	8.932	9.019	9.019
RECTA KV 3615	710.000	236710.504	4141344.681	0.000	9.059	18.180258	0.000	14.055	0.00	0.00	9.059	9.127	9.127
RECTA Tg. Salida	718.502	236712.899	4141352.839	0.000	9.188	18.180258	0.000	16.407	0.00	0.00	9.188	9.241	9.241
RECTA Rampa	720.000	236713.322	4141354.276	0.000	9.213	18.180258	0.000	16.407	0.00	0.00	9.213	9.261	9.261
RECTA Rampa	730.000	236716.139	4141363.871	0.000	9.377	18.180258	0.000	16.407	0.00	0.00	9.377	9.407	9.407
RECTA Rampa	740.000	236718.956	4141373.466	0.000	9.541	18.180258	0.000	16.407	0.00	0.00	9.541	9.588	9.588
RECTA Rampa	750.000	236721.773	4141383.061	0.000	9.705	18.180258	0.000	16.407	0.00	0.00	9.705	9.770	9.770
CLOT. Rampa	754.300	236722.984	4141387.187	1000000.000	9.776	18.180258	0.000	16.407	0.00	0.00	9.776	9.844	9.844
CLOT. Rampa	760.000	236724.591	4141392.656	7017.693	9.869	18.206112	0.000	16.407	0.00	0.00	9.869	9.941	9.941
CLOT. Rampa	770.000	236727.422	4141402.247	2547.790	10.033	18.376406	0.000	16.407	0.00	0.00	10.033	10.108	10.108
CLOT. Tg. Entrada	771.785	236727.931	4141403.957	2287.732	10.062	18.423535	0.000	16.407	0.00	0.00	10.062	10.127	10.127
CIRC. KV -1705	774.300	236728.650	4141406.368	2000.000	10.102	18.498568	0.000	14.931	0.00	0.00	10.102	10.154	10.154
CIRC. KV -1705	780.000	236730.291	4141411.826	2000.000	10.177	18.680001	0.000	11.588	0.00	0.00	10.177	10.199	10.199
CIRC. KV -1705	790.000	236733.207	4141421.392	2000.000	10.264	18.998311	0.000	5.723	0.00	0.00	10.264	10.283	10.283
CIRC. Tg. Salida	791.785	236733.733	4141423.097	2000.000	10.273	19.055119	0.000	4.677	0.00	0.00	10.273	10.295	10.295
CIRC. Rampa	800.000	236736.171	4141430.942	2000.000	10.312	19.316621	0.000	4.677	0.00	0.00	10.312	10.347	10.347
CIRC. Rampa	804.000	236737.370	4141434.758	2000.000	10.330	19.443945	0.000	4.677	0.00	0.00	10.330	10.388	10.388
CIRC. Rampa	806.000	236737.973	4141436.665	2000.000	10.340	19.507607	0.000	4.677	0.00	0.00	10.340	10.390	10.390
CIRC. Rampa	810.000	236739.183	4141440.478	2000.000	10.359	19.634931	0.000	4.677	0.00	0.00	10.359	10.354	10.354
CIRC. Rampa	820.000	236742.243	4141449.998	2000.000	10.405	19.953241	0.000	4.677	0.00	0.00	10.405	10.388	10.388
CIRC. Rampa	830.000	236745.350	4141459.504	2000.000	10.452	20.271550	0.000	4.677	0.00	0.00	10.452	10.423	10.423
CIRC. Rampa	840.000	236748.504	4141468.993	2000.000	10.499	20.589860	0.000	4.677	0.00	0.00	10.499	10.514	10.514
CLOT. Rampa	842.240	236749.217	4141471.116	2000.000	10.509	20.661159	0.000	4.677	0.00	0.00	10.509	10.534	10.534
CLOT. Tg. Entrada	844.314	236749.879	4141473.082	2231.388	10.519	20.723752	0.000	4.677	0.00	0.00	10.519	10.553	10.553
CLOT. KV -2552	848.000	236751.061	4141476.573	2809.003	10.534	20.818106	0.000	3.232	0.00	0.00	10.534	10.565	10.565
CLOT. KV -2552	850.000	236751.704	4141478.467	3267.994	10.539	20.860250	0.000	2.448	0.00	0.00	10.539	10.569	10.569
CLOT. KV -2552	850.000	236751.704	4141478.467	3267.994	10.539	20.860250	0.000	2.448	0.00	0.00	10.539	10.569	10.569
CLOT. KV -2552	852.000	236752.348	4141480.361	3906.278	10.543	20.896028	0.000	1.664	0.00	0.00	10.543	10.570	10.570
CLOT. Punto alto	856.247	236753.719	4141484.380	6674.364	10.547	20.950887	0.000	-0.000	0.00	0.00	10.547	10.567	10.567
CLOT. KV -2552	860.000	236754.933	4141487.931	17857.733	10.544	20.975477	0.000	-1.471	0.00	0.00	10.544	10.554	10.554
RECTA KV -2552	862.240	236755.658	4141490.051	0.000	10.540	20.979469	0.000	-2.349	0.00	0.00	10.540	10.547	10.547
CLOT. KV -2552	864.263	236756.312	4141491.965	-1000000.000	10.534	20.979469	0.000	-3.142	0.00	0.00	10.534	10.540	10.540
CLOT. KV -2552	870.000	236758.164	4141497.395	-997.699	10.510	20.796428	0.000	-5.390	0.00	0.00	10.510	10.521	10.521
CLOT. KV -2552	880.000	236761.297	4141506.891	-363.724	10.436	19.602243	0.000	-9.309	0.00	0.00	10.436	10.487	10.487
CIRC. KV -2552	882.263	236761.976	4141509.050	-318.000	10.414	19.177715	0.000	-10.196	0.00	0.00	10.414	10.478	10.478
CIRC. KV -2552	884.000	236762.487	4141510.710	-318.000	10.396	18.829937	0.000	-10.877	0.00	0.00	10.396	10.471	10.471
CIRC. Tg. Salida	884.314	236762.578	4141511.011	-318.000	10.393	18.767103	0.000	-11.000	0.00	0.00	10.393	10.470	10.470
CIRC. Pendiente	886.000	236763.064	4141512.625	-318.000	10.374	18.429547	0.000	-11.000	0.00	0.00	10.374	10.442	10.442
CIRC. Pendiente	890.000	236764.182	4141516.466	-318.000	10.330	17.628768	0.000	-11.000	0.00	0.00	10.330	10.341	10.341
CIRC. Pendiente	892.000	236764.723	4141518.391	-318.000	10.308	17.228378	0.000	-11.000	0.00	0.00	10.308	10.330	10.330
CIRC. Pendiente	894.000	236765.251	4141520.320	-318.000	10.286	16.827988	0.000	-11.000	0.00	0.00	10.286	10.371	10.371
CIRC. Pendiente	900.000	236766.764	4141526.126	-318.000	10.220	15.626819	0.000	-11.000	0.00	0.00	10.220	10.348	10.348
CLOT. Pendiente	908.377	236768.692	4141534.278	-318.000	10.128	13.949747	0.000	-11.000	0.00	0.00	10.128	10.206	10.206
CLOT. Pendiente	910.000	236769.041	4141535.863	-349.510	10.110	13.639514	0.000	-11.000	0.00	0.00	10.110	10.178	10.178
CLOT. Tg. Entrada	911.113	236769.276	4141536.951	-374.989	10.098	13.443718	0.000	-11.000	0.00	0.00	10.098	10.160	10.160
CLOT. KV 3226	920.000	236771.056	4141545.658	-897.573	10.012	12.374150	0.000	-8.245	0.00	0.00	10.012	10.039	10.039
CLOT. KV 3226	926.377	236772.273	4141551.918	1000000.000	9.966	12.147993	0.000	-6.268	0.00	0.00	9.966	9.963	9.963
CLOT. KV 3226	928.000	236772.581	4141553.511	246486.700	9.956	12.148203	0.000	-5.765	0.00	0.00	9.956	9.957	9.957
CLOT. KV 3226	930.000	236772.960	4141555.475	110411.665	9.945	12.149037	0.000	-5.145	0.00	0.00	9.945	9.949	9.949
CLOT. KV 3226	930.000	236772.960	4141555.475	110411.665	9.945	12.149037	0.000	-5.145	0.00	0.00	9.945	9.949	9.949
CLOT. Tg. Salida	931.113	236773.171	4141556.568	84467.461	9.940	12.149778	0.000	-4.800	0.00	0.00	9.940	9.946	9.946
CLOT. Pendiente	940.000	236774.858	4141565.293	29362.527	9.897	12.162761	0.000	-4.800	0.00	0.00	9.897	9.917	9.917

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Plataforma

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CIRC. Pendiente	946.377	236776.069	4141571.554	20000.000	9.866	12.179824	0.000	-4.800	0.00	0.00	9.866	9.894	9.894
CIRC. Pendiente	950.000	236776.759	4141575.111	20000.000	9.849	12.191356	0.000	-4.800	0.00	0.00	9.849	9.882	9.882
CIRC. Pendiente	960.000	236778.664	4141584.928	20000.000	9.801	12.223187	0.000	-4.800	0.00	0.00	9.801	9.834	9.834
CIRC. Pendiente	970.000	236780.575	4141594.743	20000.000	9.753	12.255018	0.000	-4.800	0.00	0.00	9.753	9.792	9.792
CIRC. Pendiente	980.000	236782.491	4141604.558	20000.000	9.705	12.286849	0.000	-4.800	0.00	0.00	9.705	9.746	9.746
CIRC. Pendiente	990.000	236784.411	4141614.372	20000.000	9.657	12.318680	0.000	-4.800	0.00	0.00	9.657	9.693	9.693
CIRC. Tg. Entrada	991.267	236784.655	4141615.615	20000.000	9.651	12.322713	0.000	-4.800	0.00	0.00	9.651	9.686	9.686
CIRC. KV 4839	1000.000	236786.337	4141624.185	20000.000	9.617	12.350511	0.000	-2.995	0.00	0.00	9.617	9.633	9.633
CIRC. KV 4839	1002.000	236786.722	4141626.147	20000.000	9.611	12.356877	0.000	-2.582	0.00	0.00	9.611	9.632	9.632
CIRC. KV 4839	1010.000	236788.267	4141633.997	20000.000	9.597	12.382342	0.000	-0.929	0.00	0.00	9.597	9.640	9.640
CIRC. Punto bajo	1014.493	236789.136	4141638.405	20000.000	9.595	12.396643	0.000	0.000	0.00	0.00	9.595	9.646	9.646
CIRC. KV 4839	1020.000	236790.202	4141643.808	20000.000	9.598	12.414173	0.000	1.138	0.00	0.00	9.598	9.653	9.653
CIRC. Tg. Salida	1021.267	236790.448	4141645.051	20000.000	9.600	12.418206	0.000	1.400	0.00	0.00	9.600	9.655	9.655
CIRC. Rampa	1028.000	236791.754	4141651.656	20000.000	9.609	12.439637	0.000	1.400	0.00	0.00	9.609	9.662	9.662
CIRC. Rampa	1030.000	236792.142	4141653.618	20000.000	9.612	12.446004	0.000	1.400	0.00	0.00	9.612	9.663	9.663
CIRC. Rampa	1032.000	236792.531	4141655.580	20000.000	9.615	12.452370	0.000	1.400	0.00	0.00	9.615	9.663	9.663
CIRC. Rampa	1040.000	236794.087	4141663.427	20000.000	9.626	12.477835	0.000	1.400	0.00	0.00	9.626	9.669	9.669
CIRC. Tg. Entrada	1045.481	236795.155	4141668.802	20000.000	9.634	12.495280	0.000	1.400	0.00	0.00	9.634	9.674	9.674
CIRC. KV -17449	1050.000	236796.037	4141673.235	20000.000	9.640	12.509666	0.000	1.141	0.00	0.00	9.640	9.679	9.679
CIRC. KV -17449	1054.000	236796.819	4141677.158	20000.000	9.644	12.522398	0.000	0.912	0.00	0.00	9.644	9.681	9.681
CIRC. KV -17449	1058.000	236797.601	4141681.081	20000.000	9.647	12.535130	0.000	0.683	0.00	0.00	9.647	9.682	9.682
CIRC. KV -17449	1060.000	236797.992	4141683.042	20000.000	9.648	12.541497	0.000	0.568	0.00	0.00	9.648	9.683	9.683
CIRC. Tg. Salida	1065.481	236799.066	4141688.416	20000.000	9.650	12.558942	0.000	0.254	0.00	0.00	9.650	9.688	9.688
CIRC. Rampa	1070.000	236799.952	4141692.848	20000.000	9.652	12.573328	0.000	0.254	0.00	0.00	9.652	9.692	9.692
CIRC. Rampa	1080.000	236801.917	4141702.653	20000.000	9.654	12.605159	0.000	0.254	0.00	0.00	9.654	9.701	9.701
CIRC. Rampa	1086.000	236803.098	4141708.536	20000.000	9.656	12.624257	0.000	0.254	0.00	0.00	9.656	9.706	9.706
CIRC. Rampa	1090.000	236803.886	4141712.457	20000.000	9.657	12.636990	0.000	0.254	0.00	0.00	9.657	9.704	9.704
CIRC. Rampa	1098.000	236805.465	4141720.300	20000.000	9.659	12.662454	0.000	0.254	0.00	0.00	9.659	9.697	9.697
CIRC. Rampa	1100.000	236805.861	4141722.260	20000.000	9.659	12.668821	0.000	0.254	0.00	0.00	9.659	9.697	9.697
CIRC. Rampa	1110.000	236807.840	4141732.063	20000.000	9.662	12.700652	0.000	0.254	0.00	0.00	9.662	9.711	9.711
CIRC. Rampa	1120.000	236809.824	4141741.864	20000.000	9.664	12.732483	0.000	0.254	0.00	0.00	9.664	9.717	9.717
CIRC. Tg. Entrada	1121.718	236810.165	4141743.547	20000.000	9.665	12.737950	0.000	0.254	0.00	0.00	9.665	9.719	9.719
CLOT. KV 7387	1124.124	236810.644	4141745.905	20000.000	9.666	12.745609	0.000	0.580	0.00	0.00	9.666	9.723	9.723
CLOT. KV 7387	1130.000	236811.813	4141751.664	28321.256	9.671	12.761566	0.000	1.375	0.00	0.00	9.671	9.737	9.737
CLOT. KV 7387	1132.000	236812.212	4141753.624	32993.317	9.674	12.765743	0.000	1.646	0.00	0.00	9.674	9.725	9.725
CLOT. KV 7387	1134.000	236812.610	4141755.584	39511.373	9.678	12.769284	0.000	1.917	0.00	0.00	9.678	9.713	9.713
CLOT. KV 7387	1140.000	236813.806	4141761.463	97001.035	9.692	12.776086	0.000	2.729	0.00	0.00	9.692	9.759	9.759
CLOT. Tg. Salida	1141.718	236814.148	4141763.146	166240.225	9.697	12.776979	0.000	2.961	0.00	0.00	9.697	9.773	9.773
CLOT. Rampa	1142.000	236814.204	4141763.423	188353.416	9.698	12.777081	0.000	2.961	0.00	0.00	9.698	9.776	9.776
CLOT. Rampa	1144.000	236814.603	4141765.383	1000000.000	9.704	12.777438	0.000	2.961	0.00	0.00	9.704	9.798	9.798
CLOT. Rampa	1144.124	236814.628	4141765.504	-1000000.000	9.704	12.777440	0.000	2.961	0.00	0.00	9.704	9.799	9.799
CLOT. Rampa	1146.000	236815.002	4141767.343	-15988.636	9.710	12.773704	0.000	2.961	0.00	0.00	9.710	9.832	9.832
CLOT. Rampa	1150.000	236815.798	4141771.263	-5105.225	9.721	12.740801	0.000	2.961	0.00	0.00	9.721	9.691	9.691
CLOT. Rampa	1150.000	236815.798	4141771.263	-5105.225	9.721	12.740801	0.000	2.961	0.00	0.00	9.721	9.691	9.691
CLOT. Rampa	1156.000	236816.986	4141777.144	-2526.032	9.739	12.627784	0.000	2.961	0.00	0.00	9.739	9.725	9.725
CLOT. Rampa	1160.000	236817.771	4141781.066	-1889.605	9.751	12.509998	0.000	2.961	0.00	0.00	9.751	9.730	9.730
CLOT. Rampa	1162.000	236818.161	4141783.028	-1678.197	9.757	12.438372	0.000	2.961	0.00	0.00	9.757	9.730	9.730
CIRC. Rampa	1164.124	236818.571	4141785.112	-1500.000	9.763	12.353026	0.000	2.961	0.00	0.00	9.763	9.731	9.731
CIRC. Rampa	1170.000	236819.693	4141790.880	-1500.000	9.781	12.103627	0.000	2.961	0.00	0.00	9.781	9.731	9.731
CIRC. Rampa	1176.000	236820.815	4141796.774	-1500.000	9.798	11.848979	0.000	2.961	0.00	0.00	9.798	9.732	9.732
CIRC. Rampa	1180.000	236821.550	4141800.706	-1500.000	9.810	11.679214	0.000	2.961	0.00	0.00	9.810	9.732	9.732
CIRC. Rampa	1180.000	236821.550	4141800.706	-1500.000	9.810	11.679214	0.000	2.961	0.00	0.00	9.810	9.732	9.732
CIRC. Tg. Entrada	1180.319	236821.609	4141801.020	-1500.000	9.811	11.665673	0.000	2.961	0.00	0.00	9.811	9.732	9.732
CIRC. KV -5778	1184.000	236822.275	4141804.640	-1500.000	9.821	11.509449	0.000	2.324	0.00	0.00	9.821	9.740	9.740
CIRC. KV -5778	1190.000	236823.342	4141810.544	-1500.000	9.832	11.254801	0.000	1.286	0.00	0.00	9.832	9.741	9.741
CLOT. KV -5778	1193.524	236823.958	4141814.014	-1500.000	9.835	11.105232	0.000	0.676	0.00	0.00	9.835	9.740	9.740
CLOT. Punto alto	1197.430	236824.631	4141817.861	-1864.029	9.837	10.955650	0.000	0.000	0.00	0.00	9.837	9.743	9.743
CLOT. KV -5778	1198.000	236824.728	4141818.423	-1932.476	9.836	10.936526	0.000	-0.099	0.00	0.00	9.836	9.744	9.744
CLOT. KV -5778	1200.000	236825.069	4141820.394	-2218.259	9.836	10.874884	0.000	-0.445	0.00	0.00	9.836	9.748	9.748
CLOT. Tg. Salida	1200.319	236825.123	4141820.708	-2271.856	9.836	10.865835	0.000	-0.500	0.00	0.00	9.836	9.748	9.748
CLOT. Pendiente	1202.000	236825.408	4141822.365	-2603.235	9.835	10.821730	0.000	-0.500	0.00	0.00	9.835	9.748	9.748
CLOT. Pendiente	1210.000	236826.752	4141830.251	-8512.759	9.831	10.693997	0.000	-0.500	0.00	0.00	9.831	9.748	9.748
CLOT. Pendiente	1212.000	236827.087	4141832.223	-19683.466	9.830	10.683284	0.000	-0.500	0.00	0.00	9.830	9.749	9.749
RECTA Pendiente	1213.524	236827.341	4141833.726	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.749	9.749
RECTA Pendiente	1214.000	236827.421	4141834.195	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.750	9.750
RECTA Tg. Entrada	1214.389	236827.486	4141834.579	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.750	9.750
RECTA Punto bajo	1215.818	236827.724	4141835.987	0.000	9.828	10.680819	0.000	-0.000	0.00	0.00	9.828	9.750	9.750

Puntos Principales en Planta y Alzado

Plataforma

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
RECTA KV 2857	1216.000	236827.755	4141836.167	0.000	9.828	10.680819	0.000	0.064	0.00	0.00	9.828	9.750	9.750
RECTA KV 2857	1220.000	236828.423	4141840.111	0.000	9.831	10.680819	0.000	1.464	0.00	0.00	9.831	9.750	9.750
RECTA KV 2857	1230.000	236830.092	4141849.970	0.000	9.864	10.680819	0.000	4.964	0.00	0.00	9.864	9.757	9.757
RECTA Tg. Salida	1234.389	236830.825	4141854.298	0.000	9.889	10.680819	0.000	6.500	0.00	0.00	9.889	9.758	9.758
RECTA Rampa	1240.000	236831.762	4141859.830	0.000	9.925	10.680819	0.000	6.500	0.00	0.00	9.925	9.758	9.758
RECTA Rampa	1240.000	236831.762	4141859.830	0.000	9.925	10.680819	0.000	6.500	0.00	0.00	9.925	9.758	9.758
RECTA Rampa	1242.000	236832.096	4141861.802	0.000	9.938	10.680819	0.000	6.500	0.00	0.00	9.938	9.784	9.784
RECTA Rampa	1250.000	236833.432	4141869.689	0.000	9.990	10.680819	0.000	6.500	0.00	0.00	9.990	9.974	9.974
RECTA Tg. Entrada	1252.833	236833.905	4141872.482	0.000	10.009	10.680819	0.000	6.500	0.00	0.00	10.009	10.006	10.006
RECTA KV -5000	1260.000	236835.102	4141879.549	0.000	10.050	10.680819	0.000	5.067	0.00	0.00	10.050	10.043	10.043
RECTA KV -5000	1270.000	236836.772	4141889.409	0.000	10.091	10.680819	0.000	3.067	0.00	0.00	10.091	10.071	10.071
RECTA Tg. Salida	1272.833	236837.245	4141892.201	0.000	10.099	10.680819	0.000	2.500	0.00	0.00	10.099	10.078	10.078
RECTA Rampa	1280.000	236838.442	4141899.268	0.000	10.117	10.680819	0.000	2.500	0.00	0.00	10.117	10.097	10.097
RECTA Rampa	1290.000	236840.112	4141909.128	0.000	10.142	10.680819	0.000	2.500	0.00	0.00	10.142	10.122	10.122
CLOT. Rampa	1294.207	236840.814	4141913.275	-1000000.000	10.152	10.680819	0.000	2.500	0.00	0.00	10.152	10.130	10.130
CLOT. Tg. Entrada	1295.980	236841.110	4141915.024	-1691.769	10.156	10.647454	0.000	2.500	0.00	0.00	10.156	10.134	10.134
CLOT. KV -10000	1300.000	236841.771	4141918.989	-517.842	10.166	10.324715	0.000	2.098	0.00	0.00	10.166	10.145	10.145
CLOT. KV -10000	1310.000	236843.235	4141928.881	-189.954	10.182	8.034310	0.000	1.098	0.00	0.00	10.182	10.182	10.182
CLOT. Tg. Salida	1310.980	236843.356	4141929.853	-178.856	10.183	7.695674	0.000	1.000	0.00	0.00	10.183	10.187	10.187
CIRC. Rampa	1314.207	236843.714	4141933.060	-150.000	10.186	6.436687	0.000	1.000	0.00	0.00	10.186	10.205	10.205
CIRC. Rampa	1320.000	236844.188	4141938.834	-150.000	10.192	3.977944	0.000	1.000	0.00	0.00	10.192	10.230	10.230
CIRC. Rampa	1323.989	236844.384	4141942.818	-150.000	10.196	2.284838	0.000	1.000	0.00	0.00	10.196	10.372	10.372
CIRC. Rampa	1330.000	236844.479	4141948.827	-150.000	10.202	399.733812	0.000	1.000	0.00	0.00	10.202	10.223	10.223
CIRC. Rampa	1335.985	236844.335	4141954.810	-150.000	10.208	397.193711	0.000	1.000	0.00	0.00	10.208	10.157	10.157
CLOT. Rampa	1336.795	236844.297	4141955.619	-150.000	10.209	396.850084	0.000	1.000	0.00	0.00	10.209	10.156	10.156
CLOT. Rampa	1340.000	236844.106	4141958.819	-178.629	10.212	395.598695	0.000	1.000	0.00	0.00	10.212	10.171	10.171
CLOT. Rampa	1347.981	236843.405	4141966.768	-340.369	10.220	393.430226	0.000	1.000	0.00	0.00	10.220	10.224	10.224
CLOT. Rampa	1349.980	236843.194	4141968.756	-440.226	10.222	393.098695	0.000	1.000	0.00	0.00	10.222	10.216	10.216
CLOT. Rampa	1350.000	236843.192	4141968.776	-441.526	10.222	393.095798	0.000	1.000	0.00	0.00	10.222	10.216	10.216
CLOT. Rampa	1355.194	236842.607	4141973.937	-1874.341	10.227	392.633134	0.000	1.000	0.00	0.00	10.227	10.236	10.236
CLOT. Rampa	1355.364	236842.587	4141974.106	-2096.988	10.227	392.627668	0.000	1.000	0.00	0.00	10.227	10.237	10.237
RECTA Rampa	1356.795	236842.421	4141975.527	0.000	10.229	392.605952	0.000	1.000	0.00	0.00	10.229	10.244	10.244
RECTA Rampa	1357.977	236842.284	4141976.701	0.000	10.230	392.605952	0.000	1.000	0.00	0.00	10.230	10.259	10.259
RECTA Rampa	1360.000	236842.050	4141978.711	0.000	10.232	392.605952	0.000	1.000	0.00	0.00	10.232	10.284	10.284
RECTA Rampa	1370.000	236840.891	4141988.643	0.000	10.242	392.605952	0.000	1.000	0.00	0.00	10.242	10.240	10.240
CLOT. Rampa	1375.287	236840.279	4141993.894	-1000000.000	10.247	392.605952	0.000	1.000	0.00	0.00	10.247	10.217	10.217
CLOT. Tg. Entrada	1376.841	236840.098	4141995.438	-1930.386	10.249	392.580326	0.000	1.000	0.00	0.00	10.249	10.210	10.210
CLOT. KV 2727	1380.000	236839.727	4141998.575	-636.503	10.254	392.370246	0.000	2.158	0.00	0.00	10.254	10.196	10.196
CLOT. KV 2727	1381.968	236839.488	4142000.529	-448.989	10.259	392.132255	0.000	2.880	0.00	0.00	10.259	10.184	10.184
CLOT. KV 2727	1390.000	236838.398	4142008.486	-203.898	10.294	390.309030	0.000	5.825	0.00	0.00	10.294	10.293	10.293
CLOT. Tg. Salida	1391.841	236838.110	4142010.304	-181.224	10.305	389.698319	0.000	6.500	0.00	0.00	10.305	10.316	10.316
CLOT. Rampa	1393.964	236837.755	4142012.398	-160.622	10.319	388.904601	0.000	6.500	0.00	0.00	10.319	10.389	10.389
CIRC. Rampa	1395.287	236837.521	4142013.699	-150.000	10.327	388.361820	0.000	6.500	0.00	0.00	10.327	10.428	10.428
CIRC. Rampa	1397.179	236837.165	4142015.558	-150.000	10.340	387.558740	0.000	6.500	0.00	0.00	10.340	10.392	10.392
CIRC. Rampa	1397.963	236837.011	4142016.326	-150.000	10.345	387.226120	0.000	6.500	0.00	0.00	10.345	10.355	10.355
CIRC. Rampa	1399.962	236836.599	4142018.283	-150.000	10.358	386.377599	0.000	6.500	0.00	0.00	10.358	10.365	10.365
CIRC. Rampa	1400.000	236836.591	4142018.320	-150.000	10.358	386.361454	0.000	6.500	0.00	0.00	10.358	10.365	10.365
CIRC. Rampa	1407.000	236834.944	4142025.123	-150.000	10.403	383.390562	0.000	6.500	0.00	0.00	10.403	10.624	10.624

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
Vía 1													
CIRC. Rampa	0.000	236355.903	4140971.958	4998.050	8.794	132.608019	0.000	3.000	0.00	0.00	8.794	8.779	8.779
CLOT. Rampa	2.272	236357.883	4140970.845	4998.050	8.801	132.636955	0.000	3.000	0.00	0.00	8.801	8.790	8.790
CLOT. Rampa	8.000	236362.873	4140968.032	3671.863	8.818	132.723094	0.000	3.000	0.00	0.00	8.818	8.823	8.823
CLOT. Rampa	10.000	236364.614	4140967.048	3360.535	8.824	132.759376	0.000	3.000	0.00	0.00	8.824	8.836	8.836
CLOT. Rampa	12.000	236366.355	4140966.063	3097.873	8.830	132.798871	0.000	3.000	0.00	0.00	8.830	8.820	8.820
CLOT. Tg. Entrada	17.766	236371.369	4140963.217	2528.219	8.848	132.930701	0.000	3.000	0.00	0.00	8.848	8.804	8.804
CIRC. KV -1000	18.272	236371.809	4140962.967	2488.050	8.849	132.943551	0.000	2.494	0.00	0.00	8.849	8.806	8.806
CIRC. KV -1000	20.000	236373.311	4140962.111	2488.050	8.852	132.987772	0.000	0.766	0.00	0.00	8.852	8.812	8.812
CIRC. Punto alto	20.766	236373.976	4140961.732	2488.050	8.852	133.007360	0.000	0.000	0.00	0.00	8.852	8.808	8.808
CIRC. KV -1000	26.000	236378.520	4140959.133	2488.050	8.839	133.141295	0.000	-5.234	0.00	0.00	8.839	8.795	8.795
CIRC. KV -1000	30.000	236381.988	4140957.141	2488.050	8.810	133.243643	0.000	-9.234	0.00	0.00	8.810	8.827	8.827
CIRC. KV -1000	36.000	236387.185	4140954.142	2488.050	8.736	133.397166	0.000	-15.234	0.00	0.00	8.736	8.799	8.799
CLOT. KV -1000	36.163	236387.326	4140954.060	2488.050	8.734	133.401343	0.000	-15.398	0.00	0.00	8.734	8.801	8.801
CLOT. KV -1000	40.000	236390.646	4140952.136	3272.877	8.667	133.487744	0.000	-19.234	0.00	0.00	8.667	8.851	8.851
CLOT. KV -1000	40.000	236390.646	4140952.136	3272.877	8.667	133.487744	0.000	-19.234	0.00	0.00	8.667	8.851	8.851
CLOT. KV -1000	50.000	236399.288	4140947.105	18402.359	8.425	133.602298	0.000	-29.234	0.00	0.00	8.425	8.724	8.724
RECTA KV -1000	52.163	236401.157	4140946.016	0.000	8.359	133.606040	0.000	-31.398	0.00	0.00	8.359	8.714	8.714
RECTA KV -1000	58.000	236406.199	4140943.076	0.000	8.159	133.606040	0.000	-37.234	0.00	0.00	8.159	8.702	8.702
RECTA KV -1000	60.000	236407.927	4140942.068	0.000	8.083	133.606040	0.000	-39.234	0.00	0.00	8.083	8.702	8.702
RECTA KV -1000	62.000	236409.655	4140941.061	0.000	8.002	133.606040	0.000	-41.234	0.00	0.00	8.002	8.705	8.705
RECTA KV -1000	66.000	236413.110	4140939.046	0.000	7.829	133.606040	0.000	-45.234	0.00	0.00	7.829	8.713	8.713
RECTA KV -1000	70.000	236416.566	4140937.031	0.000	7.640	133.606040	0.000	-49.234	0.00	0.00	7.640	8.731	8.731
RECTA KV -1000	80.000	236425.204	4140931.994	0.000	7.098	133.606040	0.000	-59.234	0.00	0.00	7.098	8.829	8.829
RECTA KV -1000	80.000	236425.204	4140931.994	0.000	7.098	133.606040	0.000	-59.234	0.00	0.00	7.098	8.829	8.829
RECTA Tg. Salida	80.766	236425.866	4140931.609	0.000	7.052	133.606040	0.000	-60.000	0.00	0.00	7.052	8.830	8.830
RECTA Pendiente	84.000	236428.660	4140929.980	0.000	6.858	133.606040	0.000	-60.000	0.00	0.00	6.858	8.833	8.833
RECTA Pendiente	90.000	236433.843	4140926.957	0.000	6.498	133.606040	0.000	-60.000	0.00	0.00	6.498	8.851	8.851
RECTA Pendiente	90.000	236433.843	4140926.957	0.000	6.498	133.606040	0.000	-60.000	0.00	0.00	6.498	8.851	8.851
RECTA Pendiente	98.000	236440.754	4140922.928	0.000	6.018	133.606040	0.000	-60.000	0.00	0.00	6.018	8.782	8.782
RECTA Pendiente	100.000	236442.482	4140921.920	0.000	5.898	133.606040	0.000	-60.000	0.00	0.00	5.898	8.759	8.759
RECTA Pendiente	110.000	236451.121	4140916.883	0.000	5.298	133.606040	0.000	-60.000	0.00	0.00	5.298	8.886	8.886
RECTA Pendiente	120.000	236459.760	4140911.846	0.000	4.698	133.606040	0.000	-60.000	0.00	0.00	4.698	8.915	8.915
RECTA Pendiente	122.000	236461.487	4140910.839	0.000	4.578	133.606040	0.000	-60.000	0.00	0.00	4.578	8.914	8.914
RECTA Pendiente	128.000	236466.671	4140907.816	0.000	4.218	133.606040	0.000	-60.000	0.00	0.00	4.218	8.879	8.879
RECTA Pendiente	130.000	236468.398	4140906.809	0.000	4.098	133.606040	0.000	-60.000	0.00	0.00	4.098	8.857	8.857
RECTA Tg. Entrada	138.253	236475.528	4140902.652	0.000	3.603	133.606040	0.000	-60.000	0.00	0.00	3.603	8.886	8.886
RECTA KV 1558	140.000	236477.037	4140901.772	0.000	3.499	133.606040	0.000	-58.879	0.00	0.00	3.499	8.894	8.894
RECTA KV 1558	142.000	236478.765	4140900.765	0.000	3.383	133.606040	0.000	-57.595	0.00	0.00	3.383	8.891	8.891
CLOT. KV 1558	147.565	236483.572	4140897.962	-1000000.000	3.072	133.606040	0.000	-54.023	0.00	0.00	3.072	8.868	8.868
CLOT. KV 1558	148.000	236483.948	4140897.742	-5412.568	3.049	133.603480	0.000	-53.744	0.00	1.31	3.049	8.864	8.864
CLOT. KV 1558	150.000	236485.676	4140896.736	-967.444	2.942	133.525914	0.000	-52.460	0.00	7.31	2.942	8.870	8.870
CLOT. KV 1558	156.000	236490.880	4140893.750	-279.303	2.639	132.644706	0.000	-48.609	0.00	25.31	2.639	9.051	9.051
CLOT. KV 1558	157.000	236491.753	4140893.261	-249.701	2.591	132.403264	0.000	-47.967	0.00	28.31	2.591	9.055	9.055
CLOT. KV 1558	160.000	236494.382	4140891.816	-189.461	2.450	131.516810	0.000	-46.042	0.00	37.31	2.450	9.066	9.066
CLOT. KV 1558	170.000	236503.333	4140887.363	-105.013	2.022	126.805585	0.000	-39.623	0.00	67.31	2.022	9.100	9.100
CLOT. KV 1558	180.000	236512.664	4140883.783	-72.637	1.657	119.392239	0.000	-33.205	0.00	97.31	1.657	9.127	9.127
CIRC. KV 1558	187.565	236519.993	4140881.924	-58.900	1.425	111.989069	0.000	-28.349	0.00	120.00	1.425	9.140	9.140
CIRC. KV 1558	190.000	236522.393	4140881.517	-58.900	1.358	109.356897	0.000	-26.786	0.00	120.00	1.358	9.010	9.010
CIRC. KV 1558	200.000	236532.362	4140880.897	-58.900	1.122	98.548412	0.000	-20.368	0.00	120.00	1.122	9.023	9.023
CIRC. KV 1558	205.000	236537.350	4140881.223	-58.900	1.028	93.144170	0.000	-17.158	0.00	120.00	1.028	9.027	9.027
CIRC. KV 1558	208.000	236540.323	4140881.622	-58.900	0.979	89.901624	0.000	-15.233	0.00	120.00	0.979	9.007	9.007
CIRC. KV 1558	209.000	236541.309	4140881.788	-58.900	0.964	88.820775	0.000	-14.591	0.00	120.00	0.964	9.009	9.009
CIRC. KV 1558	210.000	236542.292	4140881.971	-58.900	0.950	87.739927	0.000	-13.949	0.00	120.00	0.950	9.010	9.010
CIRC. KV 1558	213.000	236545.221	4140882.620	-58.900	0.911	84.497381	0.000	-12.024	0.00	120.00	0.911	8.954	8.954
CIRC. KV 1558	220.000	236551.898	4140884.707	-58.900	0.843	76.931442	0.000	-7.531	0.00	120.00	0.843	8.970	8.970
CIRC. KV 1558	224.000	236555.588	4140886.251	-58.900	0.818	72.608048	0.000	-4.963	0.00	120.00	0.818	8.983	8.983
CIRC. KV 1558	225.000	236556.493	4140886.676	-58.900	0.813	71.527199	0.000	-4.321	0.00	120.00	0.813	8.960	8.960
CIRC. KV 1558	229.000	236560.038	4140888.527	-58.900	0.801	67.203805	0.000	-1.754	0.00	120.00	0.801	9.000	9.000
CIRC. KV 1558	230.000	236560.904	4140889.027	-58.900	0.800	66.122957	0.000	-1.112	0.00	120.00	0.800	9.021	9.021
CIRC. Punto bajo	231.733	236562.384	4140889.928	-58.900	0.799	64.249999	0.000	-0.000	0.00	120.00	0.799	9.064	9.064
CIRC. KV 1558	233.000	236563.449	4140890.614	-58.900	0.799	62.880411	0.000	0.813	0.00	120.00	0.799	9.088	9.088
CIRC. KV 1558	238.000	236567.501	4140893.541	-58.900	0.811	57.476169	0.000	4.023	0.00	120.00	0.811	9.074	9.074
CIRC. KV 1558	240.000	236569.050	4140894.806	-58.900	0.821	55.314472	0.000	5.306	0.00	120.00	0.821	9.075	9.075
CIRC. KV 1558	240.000	236569.050	4140894.806	-58.900	0.821	55.314472	0.000	5.306	0.00	120.00	0.821	9.075	9.075

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CIRC. KV 1558	241.000	236569.808	4140895.458	-58.900	0.826	54.233623	0.000	5.948	0.00	120.00	0.826	9.138	9.138
CIRC. KV 1558	250.000	236576.103	4140901.878	-58.900	0.906	44.505987	0.000	11.725	0.00	120.00	0.906	9.162	9.162
CLOT. KV 1558	254.357	236578.780	4140905.314	-58.900	0.963	39.797229	0.000	14.521	0.00	120.00	0.963	9.141	9.141
CLOT. KV 1558	260.000	236581.870	4140910.034	-68.575	1.055	34.127796	0.000	18.143	0.00	103.07	1.055	9.125	9.125
CLOT. KV 1558	270.000	236586.398	4140918.943	-96.730	1.269	26.195303	0.000	24.562	0.00	73.07	1.269	9.045	9.045
CLOT. KV 1558	275.000	236588.287	4140923.572	-121.716	1.399	23.242353	0.000	27.771	0.00	58.07	1.399	9.022	9.022
CLOT. KV 1558	280.000	236589.984	4140928.275	-164.106	1.546	20.964932	0.000	30.980	0.00	43.07	1.546	9.005	9.005
CLOT. KV 1558	282.000	236590.619	4140930.171	-190.668	1.610	20.243112	0.000	32.264	0.00	37.07	1.610	9.010	9.010
CLOT. KV 1558	290.000	236592.995	4140937.810	-540.796	1.888	18.436682	0.000	37.399	0.00	13.07	1.888	8.889	8.889
CLOT. KV 1558	292.000	236593.563	4140939.728	-999.772	1.964	18.255286	0.000	38.682	0.00	7.07	1.964	8.888	8.888
CLOT. KV 1558	294.000	236594.128	4140941.646	-6607.985	2.043	18.181976	0.000	39.966	0.00	1.07	2.043	8.886	8.886
RECTA KV 1558	294.357	236594.228	4140941.988	0.000	2.057	18.180258	0.000	40.195	0.00	0.00	2.057	8.886	8.886
RECTA KV 1558	300.000	236595.818	4140947.403	0.000	2.294	18.180258	0.000	43.817	0.00	0.00	2.294	8.984	8.984
RECTA KV 1558	310.000	236598.635	4140956.998	0.000	2.764	18.180258	0.000	50.236	0.00	0.00	2.764	8.921	8.921
RECTA KV 1558	320.000	236601.452	4140966.593	0.000	3.299	18.180258	0.000	56.654	0.00	0.00	3.299	8.878	8.878
RECTA Tg. Salida	325.213	236602.921	4140971.595	0.000	3.603	18.180258	0.000	60.000	0.00	0.00	3.603	8.841	8.841
RECTA Rampa	330.000	236604.269	4140976.188	0.000	3.890	18.180258	0.000	60.000	0.00	0.00	3.890	8.831	8.831
RECTA Rampa	340.000	236607.086	4140985.783	0.000	4.490	18.180258	0.000	60.000	0.00	0.00	4.490	8.786	8.786
RECTA Rampa	350.000	236609.903	4140995.378	0.000	5.090	18.180258	0.000	60.000	0.00	0.00	5.090	8.751	8.751
RECTA Rampa	360.000	236612.720	4141004.973	0.000	5.690	18.180258	0.000	60.000	0.00	0.00	5.690	8.715	8.715
RECTA Rampa	370.000	236615.537	4141014.568	0.000	6.290	18.180258	0.000	60.000	0.00	0.00	6.290	8.685	8.685
RECTA Rampa	372.000	236616.101	4141016.487	0.000	6.410	18.180258	0.000	60.000	0.00	0.00	6.410	8.679	8.679
RECTA Tg. Entrada	375.137	236616.984	4141019.497	0.000	6.598	18.180258	0.000	60.000	0.00	0.00	6.598	8.669	8.669
RECTA KV -1000	376.000	236617.228	4141020.325	0.000	6.650	18.180258	0.000	59.137	0.00	0.00	6.650	8.666	8.666
RECTA KV -1000	380.000	236618.355	4141024.163	0.000	6.878	18.180258	0.000	55.137	0.00	0.00	6.878	8.654	8.654
RECTA KV -1000	390.000	236621.172	4141033.758	0.000	7.380	18.180258	0.000	45.137	0.00	0.00	7.380	8.618	8.618
RECTA KV -1000	400.000	236623.989	4141043.353	0.000	7.781	18.180258	0.000	35.137	0.00	0.00	7.781	8.581	8.581
RECTA KV -1000	410.000	236626.806	4141052.948	0.000	8.082	18.180258	0.000	25.137	0.00	0.00	8.082	8.551	8.551
RECTA KV -1000	420.000	236629.623	4141062.543	0.000	8.284	18.180258	0.000	15.137	0.00	0.00	8.284	8.556	8.556
RECTA KV -1000	420.000	236629.623	4141062.543	0.000	8.284	18.180258	0.000	15.137	0.00	0.00	8.284	8.556	8.556
RECTA KV -1000	430.000	236632.440	4141072.138	0.000	8.385	18.180258	0.000	5.137	0.00	0.00	8.385	8.561	8.561
RECTA Tg. Salida	434.614	236633.740	4141076.565	0.000	8.398	18.180258	0.000	0.523	0.00	0.00	8.398	8.563	8.563
RECTA Rampa	440.000	236635.257	4141081.733	0.000	8.401	18.180258	0.000	0.523	0.00	0.00	8.401	8.566	8.566
RECTA Rampa	450.000	236638.074	4141091.328	0.000	8.406	18.180258	0.000	0.523	0.00	0.00	8.406	8.571	8.571
RECTA Rampa	460.000	236640.891	4141100.923	0.000	8.412	18.180258	0.000	0.523	0.00	0.00	8.412	8.576	8.576
RECTA Rampa	462.000	236641.455	4141102.842	0.000	8.413	18.180258	0.000	0.523	0.00	0.00	8.413	8.577	8.577
RECTA Rampa	470.000	236643.708	4141110.518	0.000	8.417	18.180258	0.000	0.523	0.00	0.00	8.417	8.442	8.442
RECTA Rampa	476.000	236645.399	4141116.275	0.000	8.420	18.180258	0.000	0.523	0.00	0.00	8.420	8.415	8.415
RECTA Rampa	480.000	236646.525	4141120.113	0.000	8.422	18.180258	0.000	0.523	0.00	0.00	8.422	8.398	8.398
RECTA Rampa	480.000	236646.525	4141120.113	0.000	8.422	18.180258	0.000	0.523	0.00	0.00	8.422	8.398	8.398
RECTA Rampa	482.000	236647.089	4141122.032	0.000	8.423	18.180258	0.000	0.523	0.00	0.00	8.423	8.404	8.404
RECTA Rampa	490.000	236649.343	4141129.708	0.000	8.427	18.180258	0.000	0.523	0.00	0.00	8.427	8.436	8.436
RECTA Rampa	494.000	236650.469	4141133.546	0.000	8.429	18.180258	0.000	0.523	0.00	0.00	8.429	8.443	8.443
RECTA Rampa	496.000	236651.033	4141135.465	0.000	8.430	18.180258	0.000	0.523	0.00	0.00	8.430	8.443	8.443
RECTA Rampa	500.000	236652.160	4141139.303	0.000	8.432	18.180258	0.000	0.523	0.00	0.00	8.432	8.434	8.434
RECTA Rampa	508.000	236654.413	4141146.979	0.000	8.437	18.180258	0.000	0.523	0.00	0.00	8.437	8.484	8.484
RECTA Rampa	510.000	236654.977	4141148.898	0.000	8.438	18.180258	0.000	0.523	0.00	0.00	8.438	8.498	8.498
RECTA Rampa	510.000	236654.977	4141148.898	0.000	8.438	18.180258	0.000	0.523	0.00	0.00	8.438	8.498	8.498
RECTA Rampa	512.000	236655.540	4141150.817	0.000	8.439	18.180258	0.000	0.523	0.00	0.00	8.439	8.474	8.474
RECTA Rampa	514.000	236656.104	4141152.736	0.000	8.440	18.180258	0.000	0.523	0.00	0.00	8.440	8.449	8.449
RECTA Tg. Entrada	517.415	236657.066	4141156.013	0.000	8.442	18.180258	0.000	0.523	0.00	0.00	8.442	8.436	8.436
RECTA KV 6056	520.000	236657.794	4141158.493	0.000	8.443	18.180258	0.000	0.950	0.00	0.00	8.443	8.436	8.436
RECTA KV 6056	530.000	236660.611	4141168.088	0.000	8.461	18.180258	0.000	2.601	0.00	0.00	8.461	8.503	8.503
RECTA Tg. Salida	532.415	236661.291	4141170.405	0.000	8.468	18.180258	0.000	3.000	0.00	0.00	8.468	8.519	8.519
RECTA Rampa	540.000	236663.428	4141177.683	0.000	8.491	18.180258	0.000	3.000	0.00	0.00	8.491	8.570	8.570
RECTA Rampa	542.000	236663.991	4141179.602	0.000	8.497	18.180258	0.000	3.000	0.00	0.00	8.497	8.581	8.581
RECTA Rampa	544.000	236664.555	4141181.521	0.000	8.503	18.180258	0.000	3.000	0.00	0.00	8.503	8.591	8.591
RECTA Rampa	550.000	236666.245	4141187.278	0.000	8.521	18.180258	0.000	3.000	0.00	0.00	8.521	8.585	8.585
RECTA Rampa	550.000	236666.245	4141187.278	0.000	8.521	18.180258	0.000	3.000	0.00	0.00	8.521	8.585	8.585
RECTA Rampa	560.000	236669.062	4141196.873	0.000	8.551	18.180258	0.000	3.000	0.00	0.00	8.551	8.602	8.602
RECTA Tg. Entrada	560.607	236669.233	4141197.455	0.000	8.553	18.180258	0.000	3.000	0.00	0.00	8.553	8.601	8.601
RECTA KV -6000	566.000	236670.752	4141202.630	0.000	8.566	18.180258	0.000	2.101	0.00	0.00	8.566	8.599	8.599
RECTA KV -6000	570.000	236671.879	4141206.468	0.000	8.573	18.180258	0.000	1.434	0.00	0.00	8.573	8.597	8.597
RECTA Tg. Salida	575.607	236673.459	4141211.848	0.000	8.579	18.180258	0.000	0.500	0.00	0.00	8.579	8.595	8.595
RECTA Rampa	580.000	236674.696	4141216.063	0.000	8.581	18.180258	0.000	0.500	0.00	0.00	8.581	8.593	8.593
RECTA Rampa	584.000	236675.823	4141219.901	0.000	8.583	18.180258	0.000	0.500	0.00	0.00	8.583	8.591	8.591
RECTA Rampa	588.000	236676.950	4141223.739	0.000	8.585	18.180258	0.000	0.500	0.00	0.00	8.585	8.589	8.589

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
RECTA Rampa	590.000	236677.513	4141225.658	0.000	8.586	18.180258	0.000	0.500	0.00	0.00	8.586	8.588	8.588
RECTA Rampa	600.000	236680.331	4141235.253	0.000	8.591	18.180258	0.000	0.500	0.00	0.00	8.591	8.680	8.680
RECTA Rampa	606.000	236682.021	4141241.010	0.000	8.594	18.180258	0.000	0.500	0.00	0.00	8.594	8.674	8.674
RECTA Rampa	610.000	236683.148	4141244.848	0.000	8.596	18.180258	0.000	0.500	0.00	0.00	8.596	8.670	8.670
RECTA Rampa	620.000	236685.965	4141254.443	0.000	8.601	18.180258	0.000	0.500	0.00	0.00	8.601	8.670	8.670
RECTA Tg. Entrada	620.275	236686.042	4141254.707	0.000	8.601	18.180258	0.000	0.500	0.00	0.00	8.601	8.670	8.670
RECTA KV 9628	630.000	236688.782	4141264.038	0.000	8.611	18.180258	0.000	1.510	0.00	0.00	8.611	8.675	8.675
RECTA KV 9628	640.000	236691.599	4141273.633	0.000	8.631	18.180258	0.000	2.549	0.00	0.00	8.631	8.686	8.686
RECTA Tg. Salida	640.275	236691.676	4141273.897	0.000	8.632	18.180258	0.000	2.577	0.00	0.00	8.632	8.686	8.686
RECTA Rampa	650.000	236694.416	4141283.228	0.000	8.657	18.180258	0.000	2.577	0.00	0.00	8.657	8.706	8.706
RECTA Rampa	660.000	236697.233	4141292.823	0.000	8.683	18.180258	0.000	2.577	0.00	0.00	8.683	8.733	8.733
RECTA Rampa	670.000	236700.050	4141302.418	0.000	8.709	18.180258	0.000	2.577	0.00	0.00	8.709	8.762	8.762
RECTA Tg. Entrada	671.998	236700.613	4141304.336	0.000	8.714	18.180258	0.000	2.577	0.00	0.00	8.714	8.773	8.773
RECTA KV 3615	680.000	236702.867	4141312.013	0.000	8.743	18.180258	0.000	4.790	0.00	0.00	8.743	8.822	8.822
RECTA KV 3615	690.000	236705.684	4141321.608	0.000	8.805	18.180258	0.000	7.556	0.00	0.00	8.805	8.891	8.891
RECTA KV 3615	700.000	236708.501	4141331.203	0.000	8.894	18.180258	0.000	10.322	0.00	0.00	8.894	8.992	8.992
RECTA KV 3615	710.000	236711.319	4141340.798	0.000	9.011	18.180258	0.000	13.088	0.00	0.00	9.011	9.094	9.094
RECTA KV 3615	720.000	236714.136	4141350.393	0.000	9.156	18.180258	0.000	15.854	0.00	0.00	9.156	9.221	9.221
RECTA Tg. Salida	721.998	236714.699	4141352.311	0.000	9.188	18.180258	0.000	16.407	0.00	0.00	9.188	9.249	9.249
RECTA Rampa	730.000	236716.953	4141359.988	0.000	9.320	18.180258	0.000	16.407	0.00	0.00	9.320	9.361	9.361
RECTA Rampa	740.000	236719.770	4141369.583	0.000	9.484	18.180258	0.000	16.407	0.00	0.00	9.484	9.528	9.528
RECTA Rampa	750.000	236722.587	4141379.178	0.000	9.648	18.180258	0.000	16.407	0.00	0.00	9.648	9.711	9.711
CLOT. Rampa	757.797	236724.783	4141386.659	1000000.000	9.776	18.180258	0.000	16.407	0.00	0.00	9.776	9.848	9.848
CLOT. Rampa	760.000	236725.404	4141388.773	18136.865	9.812	18.184125	0.000	16.407	0.00	0.00	9.812	9.886	9.886
CLOT. Rampa	770.000	236728.228	4141398.366	3274.706	9.976	18.298878	0.000	16.407	0.00	0.00	9.976	10.055	10.055
CLOT. Tg. Entrada	775.281	236729.730	4141403.429	2285.614	10.062	18.423757	0.000	16.407	0.00	0.00	10.062	10.136	10.136
CIRC. KV -1705	777.797	236730.449	4141405.840	1998.125	10.102	18.498867	0.000	14.931	0.00	0.00	10.102	10.155	10.155
CIRC. KV -1705	780.000	236731.082	4141407.950	1998.125	10.133	18.569069	0.000	13.639	0.00	0.00	10.133	10.172	10.172
CIRC. KV -1705	790.000	236733.982	4141417.521	1998.125	10.240	18.887677	0.000	7.774	0.00	0.00	10.240	10.186	10.186
CIRC. Tg. Salida	795.281	236735.532	4141422.569	1998.125	10.273	19.055934	0.000	4.677	0.00	0.00	10.273	10.164	10.164
CIRC. Rampa	800.000	236736.929	4141427.076	1998.125	10.295	19.206286	0.000	4.677	0.00	0.00	10.295	10.196	10.196
CIRC. Rampa	804.000	236738.121	4141430.895	1998.125	10.314	19.333729	0.000	4.677	0.00	0.00	10.314	10.235	10.235
CIRC. Rampa	806.000	236738.720	4141432.803	1998.125	10.323	19.397451	0.000	4.677	0.00	0.00	10.323	10.256	10.256
CIRC. Rampa	810.000	236739.924	4141436.617	1998.125	10.342	19.524894	0.000	4.677	0.00	0.00	10.342	10.303	10.303
CIRC. Rampa	820.000	236742.967	4141446.143	1998.125	10.389	19.843503	0.000	4.677	0.00	0.00	10.389	10.364	10.364
CIRC. Rampa	830.000	236746.058	4141455.654	1998.125	10.436	20.162112	0.000	4.677	0.00	0.00	10.436	10.389	10.389
CIRC. Rampa	840.000	236749.196	4141465.148	1998.125	10.482	20.480720	0.000	4.677	0.00	0.00	10.482	10.477	10.477
CLOT. Rampa	845.663	236750.994	4141470.518	1998.125	10.509	20.661153	0.000	4.677	0.00	0.00	10.509	10.528	10.528
CLOT. Tg. Entrada	847.810	236751.680	4141472.553	2238.420	10.519	20.725887	0.000	4.677	0.00	0.00	10.519	10.545	10.545
CLOT. KV -2552	848.000	236751.741	4141472.733	2262.479	10.520	20.731257	0.000	4.602	0.00	0.00	10.520	10.547	10.547
CLOT. KV -2552	850.000	236752.381	4141474.627	2551.371	10.528	20.784348	0.000	3.819	0.00	0.00	10.528	10.563	10.563
CLOT. KV -2552	850.000	236752.381	4141474.627	2551.371	10.528	20.784348	0.000	3.819	0.00	0.00	10.528	10.563	10.563
CLOT. KV -2552	852.000	236753.023	4141476.522	2924.838	10.535	20.831066	0.000	3.035	0.00	0.00	10.535	10.573	10.573
CLOT. Punto alto	859.743	236755.520	4141483.851	6750.409	10.547	20.951846	0.000	-0.000	0.00	0.00	10.547	10.571	10.571
CLOT. KV -2552	860.000	236755.603	4141484.094	7056.585	10.547	20.954216	0.000	-0.101	0.00	0.00	10.547	10.570	10.570
RECTA KV -2552	865.663	236757.435	4141489.453	0.000	10.540	20.979762	0.000	-2.320	0.00	0.00	10.540	10.551	10.551
CLOT. KV -2552	867.675	236758.086	4141491.356	-1000000.000	10.535	20.979762	0.000	-3.108	0.00	0.00	10.535	10.544	10.544
CLOT. KV -2552	870.000	236758.838	4141493.557	-2475.996	10.526	20.949866	0.000	-4.020	0.00	0.00	10.526	10.536	10.536
CLOT. KV -2552	880.000	236762.023	4141503.036	-467.144	10.466	20.139912	0.000	-7.939	0.00	0.00	10.466	10.502	10.502
CLOT. KV -2552	884.000	236763.250	4141506.843	-352.686	10.432	19.506342	0.000	-9.507	0.00	0.00	10.432	10.488	10.488
CIRC. KV -2552	885.675	236763.751	4141508.441	-319.875	10.415	19.188569	0.000	-10.163	0.00	0.00	10.415	10.484	10.484
CIRC. KV -2552	886.000	236763.847	4141508.752	-319.875	10.412	19.123802	0.000	-10.291	0.00	0.00	10.412	10.484	10.484
CIRC. Tg. Salida	887.810	236764.378	4141510.482	-319.875	10.393	18.763542	0.000	-11.000	0.00	0.00	10.393	10.482	10.482
CIRC. Pendiente	890.000	236765.007	4141512.580	-319.875	10.368	18.327716	0.000	-11.000	0.00	0.00	10.368	10.480	10.480
CIRC. Pendiente	892.000	236765.569	4141514.499	-319.875	10.346	17.929673	0.000	-11.000	0.00	0.00	10.346	10.404	10.404
CIRC. Pendiente	894.000	236766.119	4141516.422	-319.875	10.324	17.531630	0.000	-11.000	0.00	0.00	10.324	10.328	10.328
CIRC. Pendiente	900.000	236767.696	4141522.211	-319.875	10.258	16.337502	0.000	-11.000	0.00	0.00	10.258	10.237	10.237
CIRC. Pendiente	910.000	236770.082	4141531.922	-319.875	10.148	14.347288	0.000	-11.000	0.00	0.00	10.148	10.098	10.098
CLOT. Pendiente	912.051	236770.534	4141533.922	-319.875	10.126	13.939184	0.000	-11.000	0.00	0.00	10.126	10.071	10.071
CLOT. Tg. Entrada	914.609	236771.080	4141536.421	-372.875	10.098	13.466178	0.000	-11.000	0.00	0.00	10.098	10.036	10.036
CLOT. KV 3226	920.000	236772.179	4141541.699	-572.879	10.043	12.706432	0.000	-9.329	0.00	0.00	10.043	9.966	9.966
CLOT. KV 3226	928.000	236773.725	4141549.548	-2807.902	9.978	12.171236	0.000	-6.849	0.00	0.00	9.978	9.877	9.877
CLOT. KV 3226	930.000	236774.104	4141551.512	-113897.128	9.965	12.148005	0.000	-6.229	0.00	0.00	9.965	9.854	9.854
CLOT. KV 3226	930.000	236774.104	4141551.512	-113897.128	9.965	12.148005	0.000	-6.229	0.00	0.00	9.965	9.854	9.854
CLOT. KV 3226	930.051	236774.114	4141551.562	1000000.000	9.965	12.147991	0.000	-6.213	0.00	0.00	9.965	9.855	9.855
CLOT. Tg. Salida	934.609	236774.978	4141556.037	87740.195	9.940	12.149645	0.000	-4.800	0.00	0.00	9.940	9.909	9.909
CLOT. Pendiente	940.000	236776.001	4141561.330	40199.467	9.914	12.155869	0.000	-4.800	0.00	0.00	9.914	9.937	9.937

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CLOT. Pendiente	950.000	236777.901	4141571.148	20048.801	9.866	12.179664	0.000	-4.800	0.00	0.00	9.866	9.901	9.901
CIRC. Pendiente	950.051	236777.910	4141571.198	19998.125	9.866	12.179825	0.000	-4.800	0.00	0.00	9.866	9.901	9.901
CIRC. Pendiente	960.000	236779.805	4141580.965	19998.125	9.818	12.211498	0.000	-4.800	0.00	0.00	9.818	9.854	9.854
CIRC. Pendiente	970.000	236781.714	4141590.782	19998.125	9.770	12.243332	0.000	-4.800	0.00	0.00	9.770	9.805	9.805
CIRC. Pendiente	980.000	236783.627	4141600.597	19998.125	9.722	12.275166	0.000	-4.800	0.00	0.00	9.722	9.759	9.759
CIRC. Pendiente	990.000	236785.546	4141610.411	19998.125	9.674	12.307000	0.000	-4.800	0.00	0.00	9.674	9.708	9.708
CIRC. Tg. Entrada	994.763	236786.462	4141615.085	19998.125	9.651	12.322164	0.000	-4.800	0.00	0.00	9.651	9.677	9.677
CIRC. KV 4839	1000.000	236787.470	4141620.224	19998.125	9.629	12.338834	0.000	-3.718	0.00	0.00	9.629	9.641	9.641
CIRC. KV 4839	1002.000	236787.855	4141622.187	19998.125	9.622	12.345201	0.000	-3.304	0.00	0.00	9.622	9.628	9.628
CIRC. KV 4839	1010.000	236789.398	4141630.036	19998.125	9.602	12.370668	0.000	-1.651	0.00	0.00	9.602	9.620	9.620
CIRC. Punto bajo	1017.989	236790.942	4141637.875	19998.125	9.595	12.396100	0.000	0.000	0.00	0.00	9.595	9.643	9.643
CIRC. KV 4839	1020.000	236791.332	4141639.848	19998.125	9.596	12.402502	0.000	0.416	0.00	0.00	9.596	9.648	9.648
CIRC. Tg. Salida	1024.763	236792.254	4141644.521	19998.125	9.600	12.417665	0.000	1.400	0.00	0.00	9.600	9.654	9.654
CIRC. Rampa	1028.000	236792.882	4141647.696	19998.125	9.605	12.427969	0.000	1.400	0.00	0.00	9.605	9.651	9.651
CIRC. Rampa	1030.000	236793.270	4141649.658	19998.125	9.607	12.434336	0.000	1.400	0.00	0.00	9.607	9.649	9.649
CIRC. Rampa	1032.000	236793.658	4141651.620	19998.125	9.610	12.440703	0.000	1.400	0.00	0.00	9.610	9.646	9.646
CIRC. Rampa	1040.000	236795.213	4141659.467	19998.125	9.621	12.466170	0.000	1.400	0.00	0.00	9.621	9.647	9.647
CIRC. Tg. Entrada	1048.977	236796.962	4141668.272	19998.125	9.634	12.494747	0.000	1.400	0.00	0.00	9.634	9.657	9.657
CIRC. KV -17449	1050.000	236797.161	4141669.276	19998.125	9.635	12.498004	0.000	1.341	0.00	0.00	9.635	9.659	9.659
CIRC. KV -17449	1054.000	236797.942	4141673.199	19998.125	9.640	12.510737	0.000	1.112	0.00	0.00	9.640	9.662	9.662
CIRC. KV -17449	1058.000	236798.723	4141677.122	19998.125	9.644	12.523471	0.000	0.883	0.00	0.00	9.644	9.662	9.662
CIRC. KV -17449	1060.000	236799.114	4141679.083	19998.125	9.646	12.529838	0.000	0.768	0.00	0.00	9.646	9.662	9.662
CIRC. Tg. Salida	1068.977	236800.872	4141687.886	19998.125	9.650	12.558415	0.000	0.254	0.00	0.00	9.650	9.662	9.662
CIRC. Rampa	1070.000	236801.072	4141688.890	19998.125	9.651	12.561672	0.000	0.254	0.00	0.00	9.651	9.661	9.661
CIRC. Rampa	1080.000	236803.035	4141698.695	19998.125	9.653	12.593506	0.000	0.254	0.00	0.00	9.653	9.669	9.669
CIRC. Rampa	1086.000	236804.215	4141704.578	19998.125	9.655	12.612606	0.000	0.254	0.00	0.00	9.655	9.675	9.675
CIRC. Rampa	1090.000	236805.003	4141708.500	19998.125	9.656	12.625340	0.000	0.254	0.00	0.00	9.656	9.680	9.680
CIRC. Rampa	1098.000	236806.581	4141716.343	19998.125	9.658	12.650807	0.000	0.254	0.00	0.00	9.658	9.685	9.685
CIRC. Rampa	1100.000	236806.976	4141718.303	19998.125	9.658	12.657174	0.000	0.254	0.00	0.00	9.658	9.685	9.685
CIRC. Rampa	1110.000	236808.953	4141728.106	19998.125	9.661	12.689008	0.000	0.254	0.00	0.00	9.661	9.705	9.705
CIRC. Rampa	1120.000	236810.936	4141737.907	19998.125	9.663	12.720842	0.000	0.254	0.00	0.00	9.663	9.726	9.726
CIRC. Tg. Entrada	1125.214	236811.971	4141743.017	19998.125	9.665	12.737439	0.000	0.254	0.00	0.00	9.665	9.734	9.734
CLOT. KV 7387	1127.779	236812.481	4141745.531	19998.125	9.666	12.745606	0.000	0.601	0.00	0.00	9.666	9.740	9.740
CLOT. KV 7387	1130.000	236812.923	4141747.708	22496.188	9.667	12.752283	0.000	0.902	0.00	0.00	9.667	9.745	9.745
CLOT. KV 7387	1132.000	236813.321	4141749.668	25347.574	9.670	12.757624	0.000	1.172	0.00	0.00	9.670	9.750	9.750
CLOT. KV 7387	1134.000	236813.719	4141751.628	29026.701	9.672	12.762329	0.000	1.443	0.00	0.00	9.672	9.755	9.755
CLOT. KV 7387	1140.000	236814.914	4141757.507	51414.855	9.683	12.772623	0.000	2.255	0.00	0.00	9.683	9.769	9.769
CLOT. KV 7387	1142.000	236815.313	4141759.467	69208.161	9.688	12.774782	0.000	2.526	0.00	0.00	9.688	9.772	9.772
CLOT. KV 7387	1144.000	236815.712	4141761.427	105834.730	9.693	12.776303	0.000	2.797	0.00	0.00	9.693	9.776	9.776
CLOT. Tg. Salida	1145.214	236815.954	4141762.617	155911.377	9.697	12.776916	0.000	2.961	0.00	0.00	9.697	9.780	9.780
CLOT. Rampa	1146.000	236816.110	4141763.387	224808.752	9.699	12.777188	0.000	2.961	0.00	0.00	9.699	9.790	9.790
CLOT. Rampa	1147.779	236816.465	4141765.130	-1000000.000	9.704	12.777440	0.000	2.961	0.00	0.00	9.704	9.811	9.811
CLOT. Rampa	1150.000	236816.908	4141767.307	-13525.065	9.711	12.772213	0.000	2.961	0.00	0.00	9.711	9.838	9.838
CLOT. Rampa	1150.000	236816.908	4141767.307	-13525.065	9.711	12.772213	0.000	2.961	0.00	0.00	9.711	9.838	9.838
CLOT. Rampa	1156.000	236818.101	4141773.187	-3653.807	9.729	12.705821	0.000	2.961	0.00	0.00	9.729	9.714	9.714
CLOT. Rampa	1160.000	236818.892	4141777.108	-2457.884	9.741	12.619172	0.000	2.961	0.00	0.00	9.741	9.736	9.736
CLOT. Rampa	1162.000	236819.285	4141779.069	-2112.212	9.747	12.563131	0.000	2.961	0.00	0.00	9.747	9.747	9.747
CIRC. Rampa	1167.779	236820.409	4141784.738	-1501.875	9.764	12.353556	0.000	2.961	0.00	0.00	9.764	9.766	9.766
CIRC. Rampa	1170.000	236820.836	4141786.917	-1501.875	9.770	12.259417	0.000	2.961	0.00	0.00	9.770	9.767	9.767
CIRC. Rampa	1176.000	236821.972	4141792.809	-1501.875	9.788	12.005087	0.000	2.961	0.00	0.00	9.788	9.764	9.764
CIRC. Rampa	1180.000	236822.717	4141796.739	-1501.875	9.800	11.835534	0.000	2.961	0.00	0.00	9.800	9.764	9.764
CIRC. Rampa	1180.000	236822.717	4141796.739	-1501.875	9.800	11.835534	0.000	2.961	0.00	0.00	9.800	9.764	9.764
CIRC. Tg. Entrada	1183.815	236823.417	4141800.489	-1501.875	9.811	11.673807	0.000	2.961	0.00	0.00	9.811	9.765	9.765
CIRC. KV -5778	1184.000	236823.451	4141800.671	-1501.875	9.812	11.665980	0.000	2.929	0.00	0.00	9.812	9.765	9.765
CIRC. KV -5778	1190.000	236824.532	4141806.572	-1501.875	9.826	11.411650	0.000	1.891	0.00	0.00	9.826	9.767	9.767
CLOT. KV -5778	1197.241	236825.806	4141813.701	-1501.875	9.835	11.104702	0.000	0.638	0.00	0.00	9.835	9.823	9.823
CLOT. KV -5778	1198.000	236825.938	4141814.448	-1561.093	9.836	11.073154	0.000	0.506	0.00	0.00	9.836	9.841	9.841
CLOT. KV -5778	1200.000	236826.283	4141816.418	-1742.180	9.836	10.995832	0.000	0.160	0.00	0.00	9.836	9.890	9.890
CLOT. Punto alto	1200.926	236826.442	4141817.331	-1841.088	9.837	10.962894	0.000	0.000	0.00	0.00	9.837	9.890	9.890
CLOT. KV -5778	1202.000	236826.625	4141818.389	-1970.793	9.836	10.926987	0.000	-0.186	0.00	0.00	9.836	9.890	9.890
CLOT. Tg. Salida	1203.815	236826.935	4141820.177	-2237.267	9.836	10.871839	0.000	-0.500	0.00	0.00	9.836	9.890	9.890
CLOT. Pendiente	1210.000	236827.979	4141826.273	-4148.065	9.833	10.736387	0.000	-0.500	0.00	0.00	9.833	9.890	9.890
CLOT. Pendiente	1212.000	236828.314	4141828.245	-5730.894	9.832	10.709931	0.000	-0.500	0.00	0.00	9.832	9.890	9.890
CLOT. Pendiente	1214.000	236828.648	4141830.217	-9267.033	9.831	10.691953	0.000	-0.500	0.00	0.00	9.831	9.890	9.890
CLOT. Pendiente	1216.000	236828.983	4141832.189	-24197.865	9.830	10.682452	0.000	-0.500	0.00	0.00	9.830	9.890	9.890
RECTA Pendiente	1217.241	236829.190	4141833.413	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.890	9.890
RECTA Tg. Entrada	1217.885	236829.297	4141834.048	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.890	9.890

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
RECTA Punto bajo	1219.314	236829.536	4141835.456	0.000	9.828	10.680819	0.000	-0.000	0.00	0.00	9.828	9.890	9.890
RECTA KV 2857	1220.000	236829.650	4141836.132	0.000	9.828	10.680819	0.000	0.240	0.00	0.00	9.828	9.890	9.890
RECTA KV 2857	1230.000	236831.320	4141845.992	0.000	9.848	10.680819	0.000	3.740	0.00	0.00	9.848	9.890	9.890
RECTA Tg. Salida	1237.885	236832.637	4141853.767	0.000	9.889	10.680819	0.000	6.500	0.00	0.00	9.889	9.890	9.890
RECTA Rampa	1240.000	236832.990	4141855.852	0.000	9.902	10.680819	0.000	6.500	0.00	0.00	9.902	9.890	9.890
RECTA Rampa	1240.000	236832.990	4141855.852	0.000	9.902	10.680819	0.000	6.500	0.00	0.00	9.902	9.890	9.890
RECTA Rampa	1242.000	236833.324	4141857.824	0.000	9.915	10.680819	0.000	6.500	0.00	0.00	9.915	9.890	9.890
RECTA Rampa	1250.000	236834.660	4141865.711	0.000	9.967	10.680819	0.000	6.500	0.00	0.00	9.967	9.880	9.880
RECTA Tg. Entrada	1256.329	236835.717	4141871.951	0.000	10.009	10.680819	0.000	6.500	0.00	0.00	10.009	10.123	10.123
RECTA KV -5000	1260.000	236836.330	4141875.571	0.000	10.031	10.680819	0.000	5.766	0.00	0.00	10.031	10.124	10.124
RECTA KV -5000	1270.000	236838.000	4141885.430	0.000	10.079	10.680819	0.000	3.766	0.00	0.00	10.079	10.136	10.136
RECTA Tg. Salida	1276.329	236839.057	4141891.670	0.000	10.099	10.680819	0.000	2.500	0.00	0.00	10.099	10.154	10.154
RECTA Rampa	1280.000	236839.670	4141895.290	0.000	10.108	10.680819	0.000	2.500	0.00	0.00	10.108	10.164	10.164
RECTA Rampa	1290.000	236841.340	4141905.150	0.000	10.133	10.680819	0.000	2.500	0.00	0.00	10.133	10.170	10.170
CLOT. Rampa	1297.924	236842.663	4141912.962	-1000000.000	10.153	10.680819	0.000	2.500	0.00	0.00	10.153	10.200	10.200
CLOT. Tg. Entrada	1299.476	236842.922	4141914.493	-1956.871	10.156	10.655570	0.000	2.500	0.00	0.00	10.156	10.209	10.209
CLOT. KV -10000	1300.000	236843.009	4141915.009	-1463.210	10.158	10.635659	0.000	2.448	0.00	0.00	10.158	10.212	10.212
CLOT. KV -10000	1310.000	236844.584	4141924.884	-251.534	10.177	9.152641	0.000	1.448	0.00	0.00	10.177	10.257	10.257
CLOT. Tg. Salida	1314.476	236845.181	4141929.320	-183.510	10.183	7.809731	0.000	1.000	0.00	0.00	10.183	10.282	10.282
CIRC. Rampa	1317.924	236845.568	4141932.746	-151.875	10.186	6.489084	0.000	1.000	0.00	0.00	10.186	10.293	10.293
CIRC. Rampa	1320.000	236845.766	4141934.813	-151.875	10.188	5.618915	0.000	1.000	0.00	0.00	10.188	10.309	10.309
CIRC. Rampa	1323.989	236846.065	4141938.791	-151.875	10.192	3.946712	0.000	1.000	0.00	0.00	10.192	10.213	10.213
CIRC. Rampa	1330.000	236846.319	4141944.796	-151.875	10.198	1.427180	0.000	1.000	0.00	0.00	10.198	10.251	10.251
CIRC. Rampa	1335.985	236846.335	4141950.780	-151.875	10.204	398.918438	0.000	1.000	0.00	0.00	10.204	10.200	10.200
CIRC. Rampa	1340.000	236846.214	4141954.793	-151.875	10.208	397.235445	0.000	1.000	0.00	0.00	10.208	10.155	10.155
CLOT. Rampa	1341.044	236846.165	4141955.837	-151.875	10.209	396.797688	0.000	1.000	0.00	0.00	10.209	10.152	10.152
CLOT. Rampa	1347.981	236845.676	4141962.755	-232.515	10.216	394.394353	0.000	1.000	0.00	0.00	10.216	10.191	10.191
CLOT. Rampa	1349.980	236845.492	4141964.746	-274.529	10.218	393.888842	0.000	1.000	0.00	0.00	10.218	10.205	10.205
CLOT. Rampa	1350.000	236845.490	4141964.766	-275.028	10.218	393.884194	0.000	1.000	0.00	0.00	10.218	10.205	10.205
CLOT. Rampa	1355.194	236844.951	4141969.932	-519.207	10.223	392.964615	0.000	1.000	0.00	0.00	10.223	10.219	10.219
CLOT. Rampa	1355.364	236844.932	4141970.101	-534.740	10.224	392.944081	0.000	1.000	0.00	0.00	10.224	10.219	10.219
CLOT. Rampa	1357.977	236844.638	4141972.697	-990.293	10.226	392.704544	0.000	1.000	0.00	0.00	10.226	10.232	10.232
CLOT. Rampa	1360.000	236844.405	4141974.707	-2908.553	10.228	392.617382	0.000	1.000	0.00	0.00	10.228	10.244	10.244
RECTA Rampa	1361.044	236844.284	4141975.744	0.000	10.229	392.605953	0.000	1.000	0.00	0.00	10.229	10.253	10.253
RECTA Rampa	1370.000	236843.246	4141984.639	0.000	10.238	392.605953	0.000	1.000	0.00	0.00	10.238	10.268	10.268
RECTA Rampa	1380.000	236842.087	4141994.572	0.000	10.248	392.605953	0.000	1.000	0.00	0.00	10.248	10.224	10.224
RECTA Tg. Entrada	1381.451	236841.919	4141996.014	0.000	10.250	392.605953	0.000	1.000	0.00	0.00	10.250	10.218	10.218
RECTA KV 2727	1381.968	236841.859	4141996.527	0.000	10.250	392.605953	0.000	1.190	0.00	0.00	10.250	10.215	10.215
RECTA KV 2727	1390.000	236840.928	4142004.505	0.000	10.272	392.605953	0.000	4.135	0.00	0.00	10.272	10.243	10.243
CLOT. KV 2727	1390.973	236840.816	4142005.471	-1000000.000	10.276	392.605953	0.000	4.491	0.00	0.00	10.276	10.269	10.269
CLOT. KV 2727	1393.964	236840.467	4142008.442	-822.418	10.291	392.490182	0.000	5.588	0.00	0.00	10.291	10.264	10.264
CLOT. Tg. Salida	1396.451	236840.170	4142010.911	-449.039	10.306	392.217607	0.000	6.500	0.00	0.00	10.306	10.284	10.284
CLOT. Rampa	1397.179	236840.080	4142011.633	-396.389	10.311	392.107594	0.000	6.500	0.00	0.00	10.311	10.307	10.307
CLOT. Rampa	1397.963	236839.983	4142012.411	-351.944	10.316	391.973778	0.000	6.500	0.00	0.00	10.316	10.332	10.332
CLOT. Rampa	1399.962	236839.725	4142014.394	-273.667	10.329	391.560414	0.000	6.500	0.00	0.00	10.329	10.395	10.395
CLOT. Rampa	1400.000	236839.720	4142014.431	-272.514	10.329	391.551546	0.000	6.500	0.00	0.00	10.329	10.396	10.396
CLOT. Rampa	1410.000	236838.148	4142024.306	-129.290	10.394	387.921503	0.000	6.500	0.00	0.00	10.394	10.387	10.387
CIRC. Rampa	1410.973	236837.961	4142025.260	-123.000	10.400	387.430182	0.000	6.500	0.00	0.00	10.400	10.394	10.394
CIRC. Rampa	1411.439	236837.869	4142025.717	-123.000	10.403	387.188958	0.000	6.500	0.00	0.00	10.403	10.397	10.397

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
Vía 2													
CIRC. Rampa	0.000	236357.815	4140975.358	5001.950	8.794	132.608019	0.000	3.000	0.00	0.00	8.794	8.819	8.819
CLOT. Rampa	2.280	236359.802	4140974.240	5001.950	8.801	132.637038	0.000	3.000	0.00	0.00	8.801	8.826	8.826
CLOT. Rampa	10.000	236366.526	4140970.447	3366.059	8.824	132.759170	0.000	3.000	0.00	0.00	8.824	8.847	8.847
CLOT. Tg. Entrada	17.824	236373.331	4140966.588	2528.125	8.848	132.931661	0.000	3.000	0.00	0.00	8.848	8.957	8.957
CIRC. KV -1000	18.280	236373.728	4140966.362	2491.950	8.849	132.943234	0.000	2.544	0.00	0.00	8.849	8.970	8.970
CIRC. KV -1000	20.000	236375.222	4140965.511	2491.950	8.852	132.987175	0.000	0.824	0.00	0.00	8.852	9.022	9.022
CIRC. Punto alto	20.824	236375.938	4140965.103	2491.950	8.852	133.008219	0.000	0.000	0.00	0.00	8.852	8.999	8.999
CIRC. KV -1000	30.000	236383.900	4140960.541	2491.950	8.810	133.242645	0.000	-9.176	0.00	0.00	8.810	8.844	8.844
CLOT. KV -1000	36.225	236389.291	4140957.429	2491.950	8.734	133.401663	0.000	-15.401	0.00	0.00	8.734	8.809	8.809
CLOT. KV -1000	40.000	236392.557	4140955.536	3261.580	8.669	133.486736	0.000	-19.176	0.00	0.00	8.669	8.832	8.832
CLOT. KV -1000	50.000	236401.200	4140950.505	17923.617	8.427	133.602089	0.000	-29.176	0.00	0.00	8.427	8.733	8.733
RECTA KV -1000	52.225	236403.122	4140949.385	0.000	8.359	133.606040	0.000	-31.401	0.00	0.00	8.359	8.725	8.725
RECTA KV -1000	60.000	236409.839	4140945.468	0.000	8.085	133.606040	0.000	-39.176	0.00	0.00	8.085	8.713	8.713
RECTA KV -1000	70.000	236418.477	4140940.431	0.000	7.643	133.606040	0.000	-49.176	0.00	0.00	7.643	8.748	8.748
RECTA KV -1000	80.000	236427.116	4140935.394	0.000	7.101	133.606040	0.000	-59.176	0.00	0.00	7.101	8.828	8.828
RECTA Tg. Salida	80.824	236427.828	4140934.979	0.000	7.052	133.606040	0.000	-60.000	0.00	0.00	7.052	8.828	8.828
RECTA Pendiente	90.000	236435.755	4140930.357	0.000	6.502	133.606040	0.000	-60.000	0.00	0.00	6.502	8.842	8.842
RECTA Pendiente	100.000	236444.394	4140925.320	0.000	5.902	133.606040	0.000	-60.000	0.00	0.00	5.902	8.777	8.777
RECTA Pendiente	110.000	236453.032	4140920.283	0.000	5.302	133.606040	0.000	-60.000	0.00	0.00	5.302	8.871	8.871
RECTA Pendiente	120.000	236461.671	4140915.246	0.000	4.702	133.606040	0.000	-60.000	0.00	0.00	4.702	8.902	8.902
RECTA Pendiente	130.000	236470.310	4140910.209	0.000	4.102	133.606040	0.000	-60.000	0.00	0.00	4.102	8.877	8.877
RECTA Pendiente	140.000	236478.949	4140905.172	0.000	3.502	133.606040	0.000	-60.000	0.00	0.00	3.502	8.922	8.922
RECTA Tg. Entrada	141.804	236480.507	4140904.263	0.000	3.394	133.606040	0.000	-60.000	0.00	0.00	3.394	8.919	8.919
CLOT. KV 1441	147.690	236485.592	4140901.298	-1000000.000	3.052	133.606040	0.000	-55.915	0.00	0.00	3.052	8.910	8.910
CLOT. KV 1441	150.000	236487.588	4140900.136	-952.555	2.925	133.528862	0.000	-54.312	0.00	6.93	2.925	8.939	8.939
CLOT. KV 1441	160.000	236496.296	4140895.221	-178.723	2.417	131.413670	0.000	-47.373	0.00	36.93	2.417	8.955	8.955
CLOT. KV 1441	170.000	236505.264	4140890.801	-98.612	1.978	126.404752	0.000	-40.433	0.00	66.93	1.978	8.991	8.991
CLOT. KV 1441	180.000	236514.629	4140887.314	-68.091	1.608	118.502107	0.000	-33.494	0.00	96.93	1.608	9.012	9.012
CIRC. KV 1441	187.690	236522.112	4140885.564	-55.000	1.371	110.456230	0.000	-28.157	0.00	120.00	1.371	9.030	9.030
CIRC. KV 1441	190.000	236524.398	4140885.234	-55.000	1.308	107.782914	0.000	-26.554	0.00	120.00	1.308	9.033	9.033
CIRC. KV 1441	200.000	236534.379	4140884.921	-55.000	1.077	96.208009	0.000	-19.614	0.00	120.00	1.077	9.047	9.047
CIRC. KV 1441	210.000	236544.253	4140886.418	-55.000	0.916	84.633104	0.000	-12.675	0.00	120.00	0.916	9.015	9.015
CIRC. KV 1441	220.000	236553.693	4140889.676	-55.000	0.823	73.058200	0.000	-5.735	0.00	120.00	0.823	9.038	9.038
CIRC. Punto bajo	228.264	236560.945	4140893.622	-55.000	0.800	63.492360	0.000	-0.000	0.00	120.00	0.800	9.087	9.087
CIRC. KV 1441	230.000	236562.388	4140894.587	-55.000	0.801	61.483295	0.000	1.205	0.00	120.00	0.801	9.040	9.040
CIRC. KV 1441	240.000	236570.052	4140900.989	-55.000	0.848	49.908390	0.000	8.144	0.00	120.00	0.848	9.030	9.030
CLOT. KV 1441	247.411	236574.916	4140906.573	-55.000	0.927	41.330068	0.000	13.287	0.00	120.00	0.927	9.141	9.141
CLOT. KV 1441	250.000	236576.433	4140908.671	-58.806	0.964	38.430456	0.000	15.084	0.00	112.23	0.964	9.130	9.130
CLOT. KV 1441	260.000	236581.451	4140917.310	-80.259	1.149	29.051561	0.000	22.023	0.00	82.23	1.149	9.038	9.038
CLOT. KV 1441	270.000	236585.359	4140926.510	-126.356	1.404	22.566391	0.000	28.963	0.00	52.23	1.404	8.991	8.991
CLOT. KV 1441	280.000	236588.527	4140935.993	-296.851	1.729	18.974947	0.000	35.903	0.00	22.23	1.729	9.003	9.003
RECTA KV 1441	287.411	236590.645	4140943.096	0.000	2.014	18.180258	0.000	41.046	0.00	0.00	2.014	8.904	8.904
RECTA KV 1441	290.000	236591.374	4140945.580	0.000	2.122	18.180258	0.000	42.842	0.00	0.00	2.122	8.985	8.985
RECTA KV 1441	300.000	236594.191	4140955.175	0.000	2.585	18.180258	0.000	49.782	0.00	0.00	2.585	8.922	8.922
RECTA KV 1441	310.000	236597.008	4140964.770	0.000	3.118	18.180258	0.000	56.722	0.00	0.00	3.118	8.876	8.876
RECTA Tg. Salida	314.724	236598.339	4140969.303	0.000	3.394	18.180258	0.000	60.000	0.00	0.00	3.394	8.857	8.857
RECTA Rampa	320.000	236599.825	4140974.365	0.000	3.710	18.180258	0.000	60.000	0.00	0.00	3.710	8.848	8.848
RECTA Rampa	330.000	236602.642	4140983.960	0.000	4.310	18.180258	0.000	60.000	0.00	0.00	4.310	8.776	8.776
RECTA Rampa	340.000	236605.460	4140993.555	0.000	4.910	18.180258	0.000	60.000	0.00	0.00	4.910	8.758	8.758
RECTA Rampa	350.000	236608.277	4141003.150	0.000	5.510	18.180258	0.000	60.000	0.00	0.00	5.510	8.722	8.722
RECTA Rampa	360.000	236611.094	4141012.745	0.000	6.110	18.180258	0.000	60.000	0.00	0.00	6.110	8.673	8.673
RECTA Tg. Entrada	368.138	236613.386	4141020.553	0.000	6.598	18.180258	0.000	60.000	0.00	0.00	6.598	8.646	8.646
RECTA KV -1000	370.000	236613.911	4141022.340	0.000	6.708	18.180258	0.000	58.138	0.00	0.00	6.708	8.644	8.644
RECTA KV -1000	380.000	236616.728	4141031.935	0.000	7.240	18.180258	0.000	48.138	0.00	0.00	7.240	8.634	8.634
RECTA KV -1000	390.000	236619.545	4141041.530	0.000	7.671	18.180258	0.000	38.138	0.00	0.00	7.671	8.592	8.592
RECTA KV -1000	400.000	236622.362	4141051.125	0.000	8.003	18.180258	0.000	28.138	0.00	0.00	8.003	8.576	8.576
RECTA KV -1000	410.000	236625.179	4141060.720	0.000	8.234	18.180258	0.000	18.138	0.00	0.00	8.234	8.571	8.571
RECTA KV -1000	420.000	236627.996	4141070.315	0.000	8.365	18.180258	0.000	8.138	0.00	0.00	8.365	8.561	8.561
RECTA Tg. Salida	427.615	236630.142	4141077.621	0.000	8.398	18.180258	0.000	0.523	0.00	0.00	8.398	8.553	8.553
RECTA Rampa	430.000	236630.813	4141079.910	0.000	8.400	18.180258	0.000	0.523	0.00	0.00	8.400	8.550	8.550
RECTA Rampa	440.000	236633.630	4141089.505	0.000	8.405	18.180258	0.000	0.523	0.00	0.00	8.405	8.561	8.561
RECTA Rampa	450.000	236636.448	4141099.100	0.000	8.410	18.180258	0.000	0.523	0.00	0.00	8.410	8.572	8.572
RECTA Rampa	460.000	236639.265	4141108.695	0.000	8.415	18.180258	0.000	0.523	0.00	0.00	8.415	8.569	8.569
RECTA Rampa	470.000	236642.082	4141118.290	0.000	8.420	18.180258	0.000	0.523	0.00	0.00	8.420	8.544	8.544
RECTA Rampa	480.000	236644.899	4141127.885	0.000	8.426	18.180258	0.000	0.523	0.00	0.00	8.426	8.578	8.578

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
RECTA Rampa	490.000	236647.716	4141137.480	0.000	8.431	18.180258	0.000	0.523	0.00	0.00	8.431	8.563	8.563
RECTA Rampa	500.000	236650.533	4141147.075	0.000	8.436	18.180258	0.000	0.523	0.00	0.00	8.436	8.560	8.560
RECTA Rampa	510.000	236653.350	4141156.670	0.000	8.441	18.180258	0.000	0.523	0.00	0.00	8.441	8.455	8.455
RECTA Tg. Entrada	510.417	236653.467	4141157.069	0.000	8.442	18.180258	0.000	0.523	0.00	0.00	8.442	8.457	8.457
RECTA KV 6056	520.000	236656.167	4141166.265	0.000	8.454	18.180258	0.000	2.106	0.00	0.00	8.454	8.490	8.490
RECTA Tg. Salida	525.417	236657.693	4141171.462	0.000	8.468	18.180258	0.000	3.000	0.00	0.00	8.468	8.509	8.509
RECTA Rampa	530.000	236658.984	4141175.860	0.000	8.482	18.180258	0.000	3.000	0.00	0.00	8.482	8.526	8.526
RECTA Rampa	540.000	236661.801	4141185.455	0.000	8.512	18.180258	0.000	3.000	0.00	0.00	8.512	8.549	8.549
RECTA Rampa	550.000	236664.618	4141195.050	0.000	8.542	18.180258	0.000	3.000	0.00	0.00	8.542	8.556	8.556
RECTA Tg. Entrada	553.608	236665.635	4141198.512	0.000	8.553	18.180258	0.000	3.000	0.00	0.00	8.553	8.556	8.556
RECTA KV -6000	560.000	236667.436	4141204.645	0.000	8.568	18.180258	0.000	1.935	0.00	0.00	8.568	8.556	8.556
RECTA Tg. Salida	568.608	236669.861	4141212.904	0.000	8.579	18.180258	0.000	0.500	0.00	0.00	8.579	8.548	8.548
RECTA Rampa	570.000	236670.253	4141214.240	0.000	8.580	18.180258	0.000	0.500	0.00	0.00	8.580	8.547	8.547
RECTA Rampa	580.000	236673.070	4141223.835	0.000	8.585	18.180258	0.000	0.500	0.00	0.00	8.585	8.536	8.536
RECTA Rampa	590.000	236675.887	4141233.430	0.000	8.590	18.180258	0.000	0.500	0.00	0.00	8.590	8.541	8.541
RECTA Rampa	600.000	236678.704	4141243.025	0.000	8.595	18.180258	0.000	0.500	0.00	0.00	8.595	8.651	8.651
RECTA Rampa	610.000	236681.521	4141252.620	0.000	8.600	18.180258	0.000	0.500	0.00	0.00	8.600	8.666	8.666
RECTA Tg. Entrada	613.276	236682.444	4141255.763	0.000	8.601	18.180258	0.000	0.500	0.00	0.00	8.601	8.672	8.672
RECTA KV 9628	620.000	236684.338	4141262.215	0.000	8.607	18.180258	0.000	1.198	0.00	0.00	8.607	8.684	8.684
RECTA KV 9628	630.000	236687.155	4141271.810	0.000	8.624	18.180258	0.000	2.237	0.00	0.00	8.624	8.719	8.719
RECTA Tg. Salida	633.276	236688.078	4141274.953	0.000	8.632	18.180258	0.000	2.577	0.00	0.00	8.632	8.730	8.730
RECTA Rampa	640.000	236689.972	4141281.405	0.000	8.649	18.180258	0.000	2.577	0.00	0.00	8.649	8.750	8.750
RECTA Rampa	650.000	236692.789	4141291.000	0.000	8.675	18.180258	0.000	2.577	0.00	0.00	8.675	8.754	8.754
RECTA Rampa	660.000	236695.606	4141300.595	0.000	8.701	18.180258	0.000	2.577	0.00	0.00	8.701	8.766	8.766
RECTA Tg. Entrada	665.000	236697.015	4141305.392	0.000	8.714	18.180258	0.000	2.577	0.00	0.00	8.714	8.787	8.787
RECTA KV 3615	670.000	236698.424	4141310.190	0.000	8.730	18.180258	0.000	3.960	0.00	0.00	8.730	8.808	8.808
RECTA KV 3615	680.000	236701.241	4141319.785	0.000	8.783	18.180258	0.000	6.726	0.00	0.00	8.783	8.850	8.850
RECTA KV 3615	690.000	236704.058	4141329.380	0.000	8.865	18.180258	0.000	9.492	0.00	0.00	8.865	8.945	8.945
RECTA KV 3615	700.000	236706.875	4141338.975	0.000	8.973	18.180258	0.000	12.258	0.00	0.00	8.973	9.054	9.054
RECTA KV 3615	710.000	236709.692	4141348.570	0.000	9.110	18.180258	0.000	15.024	0.00	0.00	9.110	9.171	9.171
RECTA Tg. Salida	715.000	236711.100	4141353.367	0.000	9.188	18.180258	0.000	16.407	0.00	0.00	9.188	9.238	9.238
RECTA Rampa	720.000	236712.509	4141358.165	0.000	9.270	18.180258	0.000	16.407	0.00	0.00	9.270	9.304	9.304
RECTA Rampa	730.000	236715.326	4141367.760	0.000	9.434	18.180258	0.000	16.407	0.00	0.00	9.434	9.468	9.468
RECTA Rampa	740.000	236718.143	4141377.355	0.000	9.598	18.180258	0.000	16.407	0.00	0.00	9.598	9.648	9.648
RECTA Rampa	750.000	236720.960	4141386.950	0.000	9.763	18.180258	0.000	16.407	0.00	0.00	9.763	9.828	9.828
CLOT. Rampa	750.798	236721.185	4141387.715	1000000.000	9.776	18.180258	0.000	16.407	0.00	0.00	9.776	9.841	9.841
CLOT. Rampa	760.000	236723.780	4141396.544	4350.927	9.927	18.247580	0.000	16.407	0.00	0.00	9.927	9.995	9.995
CLOT. Tg. Entrada	768.283	236726.132	4141404.485	2289.851	10.062	18.423312	0.000	16.407	0.00	0.00	10.062	10.126	10.126
CLOT. KV -1705	770.000	236726.623	4141406.131	2085.063	10.090	18.473401	0.000	15.400	0.00	0.00	10.090	10.151	10.151
CIRC. KV -1705	770.798	236726.851	4141406.896	2001.875	10.102	18.498270	0.000	14.932	0.00	0.00	10.102	10.158	10.158
CIRC. KV -1705	780.000	236729.508	4141415.706	2001.875	10.214	18.790907	0.000	9.535	0.00	0.00	10.214	10.239	10.239
CIRC. Tg. Salida	788.283	236731.934	4141423.625	2001.875	10.273	19.054306	0.000	4.677	0.00	0.00	10.273	10.305	10.305
CIRC. Rampa	790.000	236732.441	4141425.266	2001.875	10.281	19.108918	0.000	4.677	0.00	0.00	10.281	10.316	10.316
CIRC. Rampa	800.000	236735.421	4141434.812	2001.875	10.328	19.426930	0.000	4.677	0.00	0.00	10.328	10.377	10.377
CIRC. Rampa	810.000	236738.450	4141444.342	2001.875	10.375	19.744942	0.000	4.677	0.00	0.00	10.375	10.495	10.495
CIRC. Rampa	820.000	236741.525	4141453.857	2001.875	10.422	20.062954	0.000	4.677	0.00	0.00	10.422	10.528	10.528
CIRC. Rampa	830.000	236744.649	4141463.357	2001.875	10.468	20.380965	0.000	4.677	0.00	0.00	10.468	10.548	10.548
CLOT. Rampa	838.811	236747.440	4141471.714	2001.875	10.510	20.661166	0.000	4.677	0.00	0.00	10.510	10.652	10.652
CLOT. Rampa	840.000	236747.819	4141472.841	2128.408	10.515	20.697853	0.000	4.677	0.00	0.00	10.515	10.666	10.666
CLOT. Tg. Entrada	840.812	236748.079	4141473.610	2224.413	10.519	20.721613	0.000	4.677	0.00	0.00	10.519	10.651	10.651
CLOT. KV -2552	850.000	236751.032	4141482.311	4544.029	10.545	20.917456	0.000	1.076	0.00	0.00	10.545	10.573	10.573
CLOT. Punto alto	852.745	236751.918	4141484.909	6600.152	10.547	20.949922	0.000	-0.000	0.00	0.00	10.547	10.562	10.562
RECTA KV -2552	858.811	236753.881	4141490.649	0.000	10.540	20.979178	0.000	-2.377	0.00	0.00	10.540	10.540	10.540
RECTA KV -2552	860.000	236754.265	4141491.774	0.000	10.537	20.979178	0.000	-2.843	0.00	0.00	10.537	10.536	10.536
CLOT. KV -2552	860.766	236754.513	4141492.499	-1000000.000	10.534	20.979178	0.000	-3.144	0.00	0.00	10.534	10.534	10.534
CLOT. KV -2552	870.000	236757.480	4141501.243	-616.260	10.489	20.502248	0.000	-6.763	0.00	0.00	10.489	10.504	10.504
CIRC. KV -2552	878.766	236760.176	4141509.584	-316.125	10.414	19.166737	0.000	-10.198	0.00	0.00	10.414	10.477	10.477
CIRC. KV -2552	880.000	236760.540	4141510.763	-316.125	10.401	18.918326	0.000	-10.682	0.00	0.00	10.401	10.473	10.473
CIRC. Tg. Salida	880.812	236760.776	4141511.540	-316.125	10.393	18.754827	0.000	-11.000	0.00	0.00	10.393	10.452	10.452
CIRC. Pendiente	890.000	236763.316	4141520.370	-316.125	10.291	16.904503	0.000	-11.000	0.00	0.00	10.291	10.333	10.333
CIRC. Pendiente	900.000	236765.787	4141530.059	-316.125	10.181	14.890680	0.000	-11.000	0.00	0.00	10.181	10.154	10.154
CLOT. Pendiente	903.605	236766.603	4141533.570	-316.125	10.142	14.164706	0.000	-11.000	0.00	0.00	10.142	10.087	10.087
CLOT. Tg. Entrada	907.611	236767.464	4141537.483	-395.300	10.098	13.438794	0.000	-11.000	0.00	0.00	10.098	10.013	10.013
CLOT. KV 3226	910.000	236767.958	4141539.820	-464.720	10.072	13.082754	0.000	-10.259	0.00	0.00	10.072	9.968	9.968
CLOT. KV 3226	920.000	236769.919	4141549.626	-1753.836	9.985	12.216311	0.000	-7.159	0.00	0.00	9.985	9.833	9.833
CLOT. KV 3226	923.605	236770.604	4141553.165	1000000.000	9.961	12.150883	0.000	-6.042	0.00	0.00	9.961	9.897	9.897
CLOT. Tg. Salida	927.611	236771.364	4141557.098	99864.334	9.940	12.152160	0.000	-4.800	0.00	0.00	9.940	9.925	9.925

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CLOT. Pendiente	930.000	236771.817	4141559.444	62554.282	9.928	12.154137	0.000	-4.800	0.00	0.00	9.928	9.927	9.927
CLOT. Pendiente	940.000	236773.716	4141569.262	24399.901	9.880	12.172272	0.000	-4.800	0.00	0.00	9.880	9.897	9.897
CIRC. Pendiente	943.605	236774.401	4141572.801	20001.875	9.863	12.182711	0.000	-4.800	0.00	0.00	9.863	9.884	9.884
CIRC. Pendiente	950.000	236775.618	4141579.080	20001.875	9.832	12.203065	0.000	-4.800	0.00	0.00	9.832	9.742	9.742
CIRC. Pendiente	960.000	236777.526	4141588.896	20001.875	9.784	12.234893	0.000	-4.800	0.00	0.00	9.784	9.697	9.697
CIRC. Pendiente	970.000	236779.439	4141598.711	20001.875	9.736	12.266721	0.000	-4.800	0.00	0.00	9.736	9.651	9.651
CIRC. Pendiente	980.000	236781.356	4141608.526	20001.875	9.688	12.298549	0.000	-4.800	0.00	0.00	9.688	9.600	9.600
CIRC. Tg. Entrada	987.765	236782.848	4141616.146	20001.875	9.651	12.323264	0.000	-4.800	0.00	0.00	9.651	9.556	9.556
CIRC. KV 4839	990.000	236783.278	4141618.339	20001.875	9.641	12.330377	0.000	-4.338	0.00	0.00	9.641	9.543	9.543
CIRC. KV 4839	1000.000	236785.205	4141628.152	20001.875	9.608	12.362205	0.000	-2.271	0.00	0.00	9.608	9.496	9.496
CIRC. KV 4839	1010.000	236787.138	4141637.963	20001.875	9.595	12.394033	0.000	-0.205	0.00	0.00	9.595	9.507	9.507
CIRC. Punto bajo	1010.991	236787.329	4141638.936	20001.875	9.595	12.397187	0.000	0.000	0.00	0.00	9.595	9.508	9.508
CIRC. Tg. Salida	1017.765	236788.641	4141645.581	20001.875	9.600	12.418748	0.000	1.400	0.00	0.00	9.600	9.515	9.515
CIRC. Rampa	1020.000	236789.075	4141647.774	20001.875	9.603	12.425861	0.000	1.400	0.00	0.00	9.603	9.517	9.517
CIRC. Rampa	1030.000	236791.017	4141657.584	20001.875	9.617	12.457689	0.000	1.400	0.00	0.00	9.617	9.532	9.532
CIRC. Rampa	1040.000	236792.963	4141667.392	20001.875	9.631	12.489518	0.000	1.400	0.00	0.00	9.631	9.540	9.540
CIRC. Tg. Entrada	1041.979	236793.349	4141669.333	20001.875	9.634	12.495815	0.000	1.400	0.00	0.00	9.634	9.542	9.542
CIRC. KV -17449	1050.000	236794.915	4141677.200	20001.875	9.643	12.521346	0.000	0.940	0.00	0.00	9.643	9.538	9.538
CIRC. KV -17449	1060.000	236796.872	4141687.007	20001.875	9.650	12.553174	0.000	0.367	0.00	0.00	9.650	9.557	9.557
CIRC. Tg. Salida	1061.979	236797.260	4141688.947	20001.875	9.650	12.559471	0.000	0.254	0.00	0.00	9.650	9.560	9.560
CIRC. Rampa	1070.000	236798.833	4141696.812	20001.875	9.652	12.585002	0.000	0.254	0.00	0.00	9.652	9.570	9.570
CIRC. Rampa	1080.000	236800.800	4141706.617	20001.875	9.655	12.616830	0.000	0.254	0.00	0.00	9.655	9.577	9.577
CIRC. Rampa	1090.000	236802.771	4141716.421	20001.875	9.658	12.648658	0.000	0.254	0.00	0.00	9.658	9.568	9.568
CIRC. Rampa	1100.000	236804.747	4141726.224	20001.875	9.660	12.680486	0.000	0.254	0.00	0.00	9.660	9.567	9.567
CIRC. Rampa	1110.000	236806.729	4141736.025	20001.875	9.663	12.712314	0.000	0.254	0.00	0.00	9.663	9.571	9.571
CIRC. Tg. Entrada	1118.216	236808.360	4141744.077	20001.875	9.665	12.738462	0.000	0.254	0.00	0.00	9.665	9.582	9.582
CIRC. KV 7387	1120.000	236808.715	4141745.826	20001.875	9.665	12.744142	0.000	0.495	0.00	0.00	9.665	9.585	9.585
CLOT. KV 7387	1120.462	236808.806	4141746.279	20001.875	9.666	12.745612	0.000	0.558	0.00	0.00	9.666	9.586	9.586
CLOT. KV 7387	1130.000	236810.705	4141755.626	38237.715	9.677	12.768731	0.000	1.849	0.00	0.00	9.677	9.634	9.634
CLOT. Tg. Salida	1138.216	236812.343	4141763.677	178085.083	9.697	12.777038	0.000	2.961	0.00	0.00	9.697	9.662	9.662
CLOT. Rampa	1140.000	236812.698	4141765.425	866150.527	9.702	12.777423	0.000	2.961	0.00	0.00	9.702	9.650	9.650
CLOT. Rampa	1140.462	236812.790	4141765.878	-1000000.000	9.704	12.777440	0.000	2.961	0.00	0.00	9.704	9.653	9.653
CLOT. Rampa	1150.000	236814.687	4141775.226	-3141.335	9.732	12.680790	0.000	2.961	0.00	0.00	9.732	9.674	9.674
CLOT. Rampa	1160.000	236816.645	4141785.032	-1533.539	9.761	12.371895	0.000	2.961	0.00	0.00	9.761	9.675	9.675
CIRC. Rampa	1160.462	236816.734	4141785.485	-1498.125	9.763	12.352495	0.000	2.961	0.00	0.00	9.763	9.675	9.675
CIRC. Rampa	1170.000	236818.543	4141794.850	-1498.125	9.791	11.947177	0.000	2.961	0.00	0.00	9.791	9.675	9.675
CIRC. Tg. Entrada	1176.817	236819.800	4141801.551	-1498.125	9.811	11.657489	0.000	2.961	0.00	0.00	9.811	9.684	9.684
CIRC. KV -5778	1180.000	236820.376	4141804.681	-1498.125	9.820	11.522233	0.000	2.410	0.00	0.00	9.820	9.699	9.699
CLOT. KV -5778	1189.801	236822.109	4141814.327	-1498.125	9.835	11.105764	0.000	0.714	0.00	0.00	9.835	9.700	9.700
CLOT. KV -5778	1190.000	236822.143	4141814.524	-1513.215	9.835	11.097331	0.000	0.680	0.00	0.00	9.835	9.700	9.700
CLOT. Punto alto	1193.928	236822.820	4141818.393	-1887.688	9.837	10.948469	0.000	0.000	0.00	0.00	9.837	9.706	9.706
CLOT. Tg. Salida	1196.817	236823.312	4141821.240	-2307.740	9.836	10.859902	0.000	-0.500	0.00	0.00	9.836	9.713	9.713
CLOT. Pendiente	1200.000	236823.851	4141824.377	-3057.223	9.834	10.782860	0.000	-0.500	0.00	0.00	9.834	9.723	9.723
RECTA Pendiente	1209.801	236825.492	4141834.039	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.742	9.742
RECTA Pendiente	1210.000	236825.526	4141834.235	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.743	9.743
RECTA Tg. Entrada	1210.887	236825.674	4141835.110	0.000	9.829	10.680819	0.000	-0.500	0.00	0.00	9.829	9.740	9.740
RECTA Punto bajo	1212.316	236825.912	4141836.519	0.000	9.828	10.680819	0.000	-0.000	0.00	0.00	9.828	9.736	9.736
RECTA KV 2857	1220.000	236827.196	4141844.095	0.000	9.839	10.680819	0.000	2.689	0.00	0.00	9.839	9.728	9.728
RECTA KV 2857	1230.000	236828.866	4141853.955	0.000	9.883	10.680819	0.000	6.189	0.00	0.00	9.883	9.743	9.743
RECTA Tg. Salida	1230.887	236829.014	4141854.829	0.000	9.889	10.680819	0.000	6.500	0.00	0.00	9.889	9.743	9.743
RECTA Rampa	1240.000	236830.535	4141863.814	0.000	9.948	10.680819	0.000	6.500	0.00	0.00	9.948	9.763	9.763
RECTA Tg. Entrada	1249.331	236832.093	4141873.014	0.000	10.009	10.680819	0.000	6.500	0.00	0.00	10.009	9.993	9.993
RECTA KV -5000	1250.000	236832.205	4141873.674	0.000	10.013	10.680819	0.000	6.366	0.00	0.00	10.013	10.005	10.005
RECTA KV -5000	1260.000	236833.875	4141883.533	0.000	10.067	10.680819	0.000	4.366	0.00	0.00	10.067	10.039	10.039
RECTA Tg. Salida	1269.331	236835.433	4141892.733	0.000	10.099	10.680819	0.000	2.500	0.00	0.00	10.099	10.065	10.065
RECTA Rampa	1270.000	236835.545	4141893.393	0.000	10.100	10.680819	0.000	2.500	0.00	0.00	10.100	10.067	10.067
RECTA Rampa	1280.000	236837.215	4141903.253	0.000	10.125	10.680819	0.000	2.500	0.00	0.00	10.125	10.096	10.096
RECTA Rampa	1290.000	236838.885	4141913.112	0.000	10.150	10.680819	0.000	2.500	0.00	0.00	10.150	10.125	10.125
CLOT. Rampa	1290.483	236838.965	4141913.588	-1000000.000	10.152	10.680819	0.000	2.500	0.00	0.00	10.152	10.127	10.127
CLOT. Tg. Entrada	1292.478	236839.298	4141915.555	-1484.937	10.156	10.638054	0.000	2.500	0.00	0.00	10.156	10.133	10.133
CLOT. KV -10000	1300.000	236840.507	4141922.980	-311.285	10.172	9.707642	0.000	1.748	0.00	0.00	10.172	10.154	10.154
CLOT. Tg. Salida	1307.478	236841.531	4141930.387	-174.316	10.183	7.577433	0.000	1.000	0.00	0.00	10.183	10.175	10.175
CLOT. Rampa	1310.000	236841.811	4141932.893	-151.791	10.185	6.588043	0.000	1.000	0.00	0.00	10.185	10.186	10.186
CIRC. Rampa	1310.483	236841.860	4141933.374	-148.125	10.186	6.382964	0.000	1.000	0.00	0.00	10.186	10.189	10.189
CIRC. Rampa	1320.000	236842.508	4141942.867	-148.125	10.195	2.292695	0.000	1.000	0.00	0.00	10.195	10.225	10.225
CIRC. Rampa	1330.000	236842.531	4141952.865	-148.125	10.205	397.994840	0.000	1.000	0.00	0.00	10.205	10.181	10.181
CLOT. Rampa	1332.539	236842.429	4141955.401	-148.125	10.208	396.903808	0.000	1.000	0.00	0.00	10.208	10.159	10.159

Puntos Principales en Planta y Alzado

Ejes de Vía

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
CLOT. Rampa	1340.000	236841.902	4141962.844	-236.271	10.215	394.295173	0.000	1.000	0.00	0.00	10.215	10.204	10.204
CLOT. Rampa	1350.000	236840.852	4141972.788	-1167.005	10.225	392.675194	0.000	1.000	0.00	0.00	10.225	10.229	10.229
RECTA Rampa	1352.539	236840.559	4141975.310	0.000	10.228	392.605953	0.000	1.000	0.00	0.00	10.228	10.251	10.251
RECTA Rampa	1360.000	236839.694	4141982.721	0.000	10.235	392.605953	0.000	1.000	0.00	0.00	10.235	10.257	10.257
CLOT. Rampa	1368.266	236838.736	4141990.932	-1000000.000	10.244	392.605953	0.000	1.000	0.00	0.00	10.244	10.220	10.220
CLOT. Rampa	1370.000	236838.535	4141992.654	-1442.116	10.245	392.567689	0.000	1.000	0.00	0.00	10.245	10.213	10.213
CLOT. Tg. Entrada	1371.927	236838.309	4141994.567	-683.024	10.247	392.435376	0.000	1.000	0.00	0.00	10.247	10.204	10.204
CLOT. KV 2727	1380.000	236837.270	4142002.573	-213.064	10.267	390.853001	0.000	3.960	0.00	0.00	10.267	10.185	10.185
CLOT. Tg. Salida	1386.927	236836.145	4142009.407	-133.975	10.303	388.172496	0.000	6.500	0.00	0.00	10.303	10.413	10.413
CIRC. Rampa	1388.266	236835.891	4142010.723	-125.000	10.312	387.512995	0.000	6.500	0.00	0.00	10.312	10.470	10.470
CIRC. Rampa	1390.000	236835.541	4142012.420	-125.000	10.323	386.630098	0.000	6.500	0.00	0.00	10.323	10.356	10.356
CIRC. Rampa	1400.000	236833.068	4142022.107	-125.000	10.388	381.537139	0.000	6.500	0.00	0.00	10.388	10.418	10.418
CIRC. Rampa	1402.303	236832.389	4142024.307	-125.000	10.403	380.364231	0.0000	6.500	0.00	0.00	10.403	10.447	10.447

Puntos Principales en Planta y Alzado

Escapes

TIPO	P.K.	X	Y	RADIO	COTA	AZIMUT	DIST. EJE	PEND (%)	PERAL_I	PERAL_D	HILO BAJO	ZT (eje)	Z TERR.
Escape 1. (EGv- 60R2-25-1:4-r-Fz(Sp)-1435-3750)													
RECTA Rampa	0.000	236631.242	4141081.368	0.000	8.400	18.180258	0.000	0.514	0.00	0.00	8.400	8.551	8.551
CIRC. Rampa	0.500	236631.382	4141081.848	25.000	8.401	18.180258	0.000	0.514	0.00	0.00	8.401	8.552	8.552
RECTA Rampa	6.624	236633.807	4141087.455	0.000	8.404	33.774896	0.000	0.514	0.00	0.00	8.404	8.558	8.558
RECTA Rampa	10.000	236635.515	4141090.367	0.000	8.405	33.774896	0.000	0.514	0.00	0.00	8.405	8.562	8.562
CIRC. Rampa	15.930	236638.515	4141095.482	-25.000	8.409	33.774896	0.000	0.514	0.00	0.00	8.409	8.570	8.570
CIRC. Rampa	20.000	236640.280	4141099.144	-25.000	8.411	23.410726	0.000	0.514	0.00	0.00	8.411	8.575	8.575
RECTA Rampa	22.054	236640.939	4141101.089	0.000	8.412	18.180258	0.000	0.514	0.00	0.00	8.412	8.576	8.576
RECTA Rampa	22.554	236641.080	4141101.569	0.000	8.412	18.180258	0.000	0.514	0.00	0.00	8.412	8.576	8.576
Escape 2. (ETI-RI60-50-1/6-CR-D-3750)													
CIRC. Rampa	0.000	236711.765	4141355.631	50.000	9.227	18.180258	0.000	16.263	0.00	0.00	9.227	9.269	9.269
RECTA Rampa	8.257	236714.733	4141363.326	0.000	9.361	28.693397	0.000	16.263	0.00	0.00	9.361	9.389	9.389
RECTA Rampa	10.000	236715.493	4141364.895	0.000	9.390	28.693397	0.000	16.263	0.00	0.00	9.390	9.420	9.420
RECTA Rampa	20.000	236719.849	4141373.897	0.000	9.552	28.693397	0.000	16.263	0.00	0.00	9.552	9.601	9.601
CIRC. Rampa	22.791	236721.065	4141376.409	-50.000	9.598	28.693397	0.000	16.263	0.00	0.00	9.598	9.653	9.653
CIRC. Rampa	30.000	236723.727	4141383.102	-50.000	9.715	19.514613	0.000	16.263	0.00	0.00	9.715	9.785	9.785
CIRC. Rampa	31.048	236724.033	4141384.104	-50.000	9.732	18.180258	0.000	16.263	0.00	0.00	9.732	9.804	9.804