A SOLICITUD DE **LA ALCALDÍA MUNICIPAL DE VILLA DE SAN DIEGO DE UBATÉ** DAICONC INGENIERIA S.A.S. PRESENTA A CONTINUACIÓN EL DISEÑO GEOMÉTRICO DE LA VÍA PARA EL PROYECTO DENOMINADA **"LEVANTAMIENTO TOPOGRÁFICO, ESTUDIO DE SUELOS, ESTUDIO HIDRÁULICO Y DISEÑO ESTRUCTURAL PARA LA CONSTRUCCIÓN DE LA VÍA QUE CONDUCE DE LA ESCUELA GUATANCUY A LA VÍA UBATÉ - CHIQUINQUIRÁ DEL MUNICIPIO DE VILLA DE SAN DIEGO DE UBATÉ"**, LOCALIZADO EN EL DEPARTAMENTO DE CUNDINAMARCA.

DAICONC INGENIERIA S.A.S. SE ENCUENTRA EN DISPOSICIÓN PLENA PARA AMPLIAR O COMPLEMENTAR DENTRO DE LO POSIBLE, EL CONTENIDO DEL PRESENTE INFORME CUANDO A ELLO FUERE REQUERIDO POR EL SOLICITANTE.

EL PRESENTE INFORME ES CON DESTINO EXCLUSIVO AL SOLICITANTE ANTES MENCIONADO O A SU ORDEN.

INFORME DISEÑO GEOMÉTRICO DE VÍAS (GUATANCUY)



TABLA DE CONTENIDO

1. OBJETIVOS Y ALCANCE 10
2. LOCALIZACIÓN DEL PROYECTO 11
3. PARÁMETROS DE DISEÑO 12
3.1. Diseño Horizontal 12
3.2. Diseño Vertical 12
4. METODOLOGÍA GENERAL 13
4.1 Diseño horizontal 13
4.2. Análisis de velocidades específicas – AH 13
4.3. Peralte 13
4.4. Sobreancho 14
4.5. Diseño de la rasante (pendientes y curvas verticales – cartera de rasante) 14
4.6. Análisis de velocidades específicas – AV 14
4.7. Determinación del tipo de terreno 14
5. CÁLCULOS 15
5.1. Diseño de las Curvas 15
5.2. Peralte 19
5.3. Sobreancho 19
5.4. Diseño Vertical 20
5.4.1 Alineamiento Vertical 20
5.4.2 Cotas del eje de la vía 22
5.5. Diseño Sección Transversal 52
5.5.1 Secciones Típicas 52
5.5.2 Cartera de la Rasante 54
5.5.3 Cartera Chaflanes 58
5.5.4 Cartera Volúmenes 63
5.5.5 Calculo de materiales 69
6. SEÑALIZACIÓN VIAL 94
7. ANEXOS 95
Anexo 1 Planos de Diseño 96

1. OBJETIVOS Y ALCANCE

Diseñar una vía de tercer orden para su mejoramiento vial donde se determinen sus parámetros, ubicación y geometría definidos por la normatividad del Instituto Nacional de Vías (INVIAS) para la elaboración de carreteras.

Este proyecto involucra un grupo interdisciplinario de profesionales, así mismo un gran número de estudios que condicionan o están condicionados por el trazado y el diseño geométrico. No existe un orden lógico en la ejecución de los diferentes estudios, pero algunos de ellos son indispensables para la ejecución de otros. Se debe tener en cuenta, además, que hay estudios básicos o indispensables que se deben llevar a cabo para demostrar la necesidad o viabilidad del proyecto y por ende deben de ser ejecutados completamente antes de iniciar los demás estudios.

2. LOCALIZACIÓN DEL PROYECTO

El proyecto se encuentra ubicado en el municipio de Villa de San Diego de Ubaté es un municipio del departamento de Cundinamarca, ubicado en la provincia de Ubaté en la parte norte de la Sabana de Bogotá a 97 Km de la capital de la Republica de Colombia, su casco urbano se encuentra sobre las coordenadas 05º 18' 24" Latitud Norte y 73º 48' 52" Longitud Oeste a los 2556 m.s.n.m. El municipio cuenta con una extensión de 102 Km2, su división política está constituida por su cabecera municipal y nueve veredas: Apartadero, Centro del Llano, Guatancuy, La Patera, Palo Gordo, Soagá, Sucunchoque, Tausavita y Volcán (PDM, 2020).



Ilustración 1 *localización del proyecto*

Coordenadas Elipsoidales		Coordenadas (Origen Nacional)		Altitud (m.s.n.m.) LATITUD (N)	UBICACIÓN
LATITUD (N)	**LONGITUD (W)**	**NORTE (m)**	**ESTE (m)**		
5°20'43.50"N	73°47'36.92"O	2148716.141	4912107.306	2557	**Inicio**
5°21'16.61"N	73°48'9.22"O	2149733.781	2149733.781		**Fin**

Tabla 2-1 Cuadro de coordenadas

3. PARÁMETROS DE DISEÑO

3.1. Diseño Horizontal

1. VIA: TERCIARIA
2. VELOCIDAD: 20.000 Km/h
3. TIPO DE TERRENO: MONTAÑOSO
4. VEHÍCULO DE DISEÑO: VEHÍCULO LIVIANO
5. ANCHO DEL CARRIL: 3. m
6. PERALTE: 6.00%
7. RADIO DE CURVA: 15 m
8. m (∆s): 1.35
9. J m/seg3: 0.7
10. LONGITUD MÍNIMA DE LA ESPIRAL

CRITERIO I	16.178m
CRITERIO II	10.067m
CRITERIO III.1	12.247m
CRITERIO III.2	2.618m

11. LONGITUD MAX: 30.250m

3.2. Diseño Vertical

1. PENDIENTE MÍNIMA: 0.50%
2. PENDIENTE MÁXIMA: 14.00%
3. Kmin CÓNCAVA: 3
4. Kmin CONVEXA: 1
5. Kmax: 50
6. LONGITUD MÍNIMA OPERACIÓN: 20m
7. LONGITUD MÍNIMA TANGENTE VERTICAL: 40m

4. METODOLOGÍA GENERAL

4.1 Diseño horizontal.

El diseño horizontal está conformado por veintidós curvas, en las cuales la novena curva es espiral-circulo-espiral y el resto son circulares simples. Este diseño horizontal se diseñó los más cercano posible al trazado existente para mantener los parámetros de la pendiente y no tener grandes cantidades con cortes y rellenos en el diseño vertical.

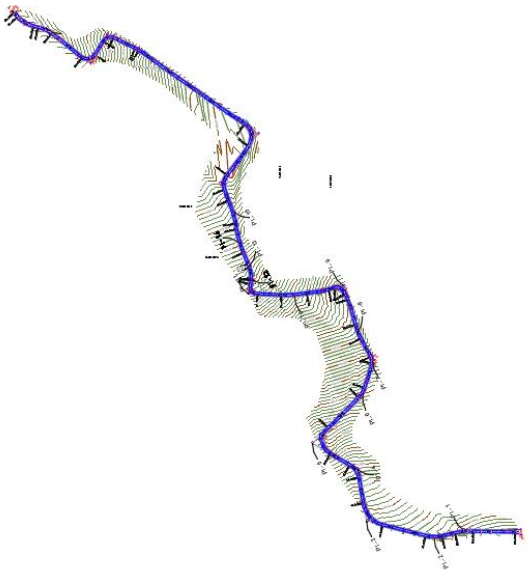


Ilustración 2 *diseño geométrico*

4.2. Análisis de velocidades específicas – AH

En el proceso de asignación de la Velocidad de Diseño se debe tener siempre en cuenta que la máxima prioridad es la seguridad de los usuarios. Por ello la velocidad de diseño a lo largo del trazado debe ser tal que los conductores no sean sorprendidos por cambios bruscos en la velocidad con la que puedan realizar con seguridad el recorrido. En este diseño por las características del terreno y según los estipulado por el Invias se escoge una velocidad de 20 km/h para todo el diseño vial.

4.3. Peralte

En carreteras terciarias, especialmente en terreno montañoso y escarpado, es difícil disponer de longitudes de entre tangencia amplias, por lo que no es fácil hacer la transición de peralte. Por lo anterior se considera que el peralte máximo más adecuado para este caso es de ocho por ciento (6%). Los peraltes calculados para las diferentes curvas son los siguientes:

4.4. Sobreancho

En curvas de radio reducido o especialmente en este diseño se opta por el tipo de vehículo que va circular por la carretera. Ensanchar la calzada con el objeto de asegurar espacios libres adecuados entre los vehículos que se cruzan en calzadas bidireccionales o que se adelantan en calzadas unidireccionales, entre el vehículo y el borde de calzada

4.5. Diseño de la rasante (pendientes y curvas verticales – cartera de rasante)

El alineamiento vertical está formado por una serie de rectas enlazadas por arcos parabólicos, a los que dichas rectas son tangentes. La inclinación de las tangentes verticales y la longitud de las curvas dependen principalmente de la topografía de la zona, del alineamiento horizontal, de la visibilidad, de la velocidad del proyecto, de los costos de construcción, de los costos de operación, del porcentaje de vehículos pesados y de su rendimiento en los ascensos. En este diseño se emplearon 13 curvas verticales en las que se respetó los parámetros de pendiente respeto al invias.

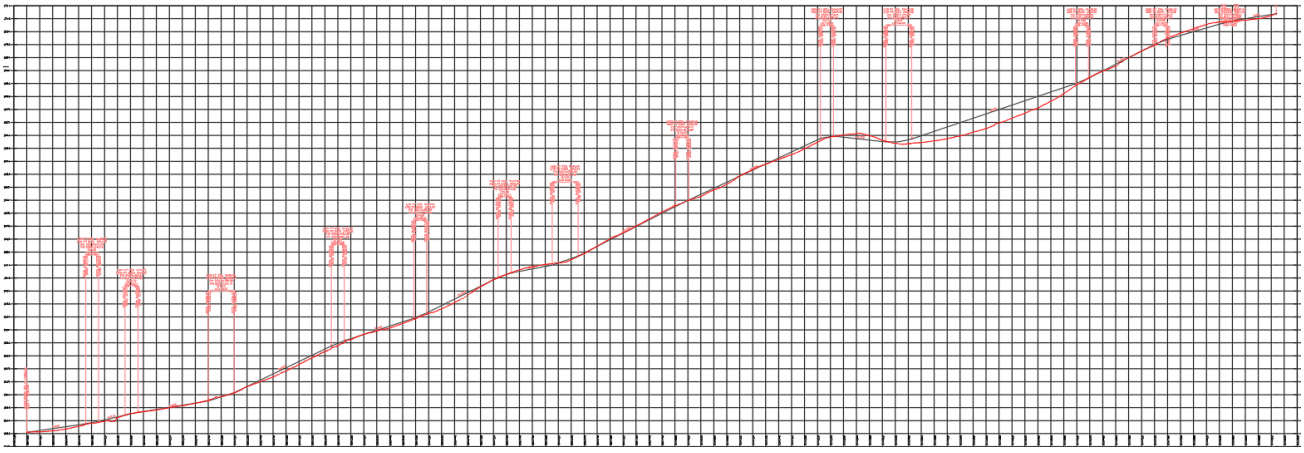


Ilustración 3 *Perfil de terreno y diseño*

4.6. Análisis de velocidades específicas – AV

En el proceso de asignación de la Velocidad de Diseño se debe otorgar la máxima prioridad a la seguridad de los usuarios. Por ello la velocidad de diseño a lo largo del trazado debe ser tal que los conductores no sean sorprendidos por cambios bruscos y/o muy frecuentes en la velocidad a la que pueden realizar con seguridad del recorrido. En este caso mirando todos los parámetros necesarios se opta que la velocidad es de 20 km/h. en todos los trayectos.

4.7. Determinación del tipo de terreno

Tiene pendientes transversales al eje de la vía entre trece y cuarenta grados (13° -40°) Generalmente requiere grandes movimientos de tierra durante la construcción, razón por la cual presenta dificultades en el trazado y en la explanación. Sus pendientes longitudinales predominantes se encuentran entre seis y ocho por ciento (6% - 8%). Conceptualmente, este tipo de carreteras se definen como la combinación de alineamientos horizontal y vertical que obliga a los vehículos pesados a operar a velocidades sostenidas en rampa durante distancias considerables y en oportunidades frecuentes.

5. CÁLCULOS

5.1. Diseño de las Curvas

PI	NORTE	ESTE
BOP	1082857.410	1031463.262
PI 1	1082859.085	1031362.427
PI 2	1082845.291	1031302.732
PI 3	1082878.740	1031169.258
PI 4	1082979.482	1031151.795
PI 5	1083031.378	1031062.466
PI 6	1083128.740	1031161.631
PI 7	1083194.792	1031181.528
PI 8	1083250.240	1031151.509
PI 9	1083341.620	1031124.181
PI 10	1083322.492	1031027.317
PI 11	1083325.865	1030936.413
PI 12	1083353.351	1030942.877
PI 13	1083380.217	1030938.022
PI 14	1083427.904	1030916.598
PI 15	1083486.821	1030907.266
PI 16	1083546.126	1030882.508
PI 17	1083641.028	1030955.35
PI 18	1083807.941	1030717.742
PI 19	1083837.357	1030657.348
PI 20	1083780.421	1030623.833
PI 21	1083848.323	1030536.339
PI 22	1083857.116	1030493.733
BOP	1083878.929	1030474.173

TABLA 5-1 COORDENADAS PI

# Curva	Rc
1	148
2	68
3	52
4	37
5	32
6	46
7	20

# Curva	Rc
8	136
9	25
10	215
11	15
12	15
13	40
14	181
15	200
16	29
17	31
18	55
19	17
20	17
21	65
22	57

Tabla 5-2 *Radios de curvatura empleados*

# Curva	Rc	ANCHO DE	VELOCIDAD	PERALTE	m (Δs)	J m/seg3	CRITERIO I	CRITERIO II	CRITERIO III.	CRITERIO III.2	LONGITUD MAXIMA	Le	ASUMIDA
9	25	3	30	4.53%	1.35	0.7	16.178	10.067	12.247	2.618	30.250	16.178 - 30.250	17.000

Tabla 5-3 *Criterios curva dos, espiral circular espiral.*

ABSCISA	NORTE	ESTE
0+000.00	1,082,857.4100m	1,031,463.2618m
0+020.00	1,082,857.7422m	1,031,443.2645m
0+040.00	1,082,858.0743m	1,031,423.2673m
0+060.00	1,082,858.4065m	1,031,403.2701m
0+080.00	1,082,858.7387m	1,031,383.2728m
0+100.00	1,082,858.0606m	1,031,363.2981m
0+120.00	1,082,854.7329m	1,031,343.5920m
0+140.00	1,082,850.2302m	1,031,324.1054m
0+160.00	1,082,847.2334m	1,031,304.3815m
0+180.00	1,082,849.8305m	1,031,284.6188m
0+200.00	1,082,854.6923m	1,031,265.2187m
0+220.00	1,082,859.5540m	1,031,245.8186m
0+240.00	1,082,864.4157m	1,031,226.4185m
0+260.00	1,082,869.2774m	1,031,207.0184m
0+280.00	1,082,876.1669m	1,031,188.3388m
0+300.00	1,082,889.3476m	1,031,173.4596m
0+320.00	1,082,907.1386m	1,031,164.5940m

ABSCISA	NORTE	ESTE
0+340.00	1,082,926.7930m	1,031,160.9284m
0+360.00	1,082,946.4991m	1,031,157.5124m
0+380.00	1,082,966.1644m	1,031,153.9013m
0+400.00	1,082,983.0661m	1,031,143.6661m
0+420.00	1,082,993.9259m	1,031,126.9327m
0+440.00	1,083,003.9725m	1,031,109.6392m
0+460.00	1,083,014.6996m	1,031,092.8134m
0+480.00	1,083,031.9365m	1,031,083.3302m
0+500.00	1,083,051.4576m	1,031,085.7739m
0+520.00	1,083,066.7304m	1,031,098.4726m
0+540.00	1,083,080.7422m	1,031,112.7440m
0+560.00	1,083,094.7539m	1,031,127.0153m
0+580.00	1,083,108.7657m	1,031,141.2866m
0+600.00	1,083,122.8596m	1,031,155.4733m
0+620.00	1,083,140.2179m	1,031,165.0883m
0+640.00	1,083,159.3679m	1,031,170.8569m
0+660.00	1,083,178.5179m	1,031,176.6255m
0+680.00	1,083,197.9980m	1,031,179.2318m
0+700.00	1,083,215.7883m	1,031,170.1606m
0+720.00	1,083,233.3763m	1,031,160.6390m
0+740.00	1,083,251.3253m	1,031,151.8462m
0+760.00	1,083,270.2857m	1,031,145.5145m
0+780.00	1,083,289.4472m	1,031,139.7841m
0+800.00	1,083,308.6087m	1,031,134.0537m
0+820.00	1,083,327.1094m	1,031,126.7334m
0+840.00	1,083,337.1227m	1,031,110.0346m
0+860.00	1,083,334.9212m	1,031,090.2570m
0+880.00	1,083,331.0466m	1,031,070.6359m
0+900.00	1,083,327.1738m	1,031,051.0144m
0+920.00	1,083,324.2996m	1,031,031.2293m
0+940.00	1,083,323.2758m	1,031,011.2627m
0+960.00	1,083,323.8294m	1,030,991.2721m
0+980.00	1,083,324.5709m	1,030,971.2859m
1+000.00	1,083,325.6802m	1,030,951.3407m
1+020.00	1,083,340.5073m	1,030,940.1917m
1+040.00	1,083,360.1877m	1,030,941.6412m
1+060.00	1,083,379.8136m	1,030,937.8335m
1+080.00	1,083,398.1820m	1,030,929.9511m
1+100.00	1,083,416.5691m	1,030,922.0938m
1+120.00	1,083,435.6473m	1,030,916.1260m

ABSCISA	NORTE	ESTE
1+140.00	1,083,455.2622m	1,030,912.2647m
1+160.00	1,083,474.9525m	1,030,908.7815m
1+180.00	1,083,494.2354m	1,030,903.5053m
1+200.00	1,083,512.9134m	1,030,896.3733m
1+220.00	1,083,531.3730m	1,030,888.6765m
1+240.00	1,083,550.9687m	1,030,888.2062m
1+260.00	1,083,567.6527m	1,030,899.0306m
1+280.00	1,083,583.5180m	1,030,911.2080m
1+300.00	1,083,599.3834m	1,030,923.3855m
1+320.00	1,083,615.2487m	1,030,935.5629m
1+340.00	1,083,633.8138m	1,030,942.0235m
1+360.00	1,083,652.5446m	1,030,936.0603m
1+380.00	1,083,665.2977m	1,030,920.8010m
1+400.00	1,083,676.7940m	1,030,904.4354m
1+420.00	1,083,688.2904m	1,030,888.0698m
1+440.00	1,083,699.7867m	1,030,871.7041m
1+460.00	1,083,711.2831m	1,030,855.3385m
1+480.00	1,083,722.7794m	1,030,838.9729m
1+500.00	1,083,734.2758m	1,030,822.6073m
1+520.00	1,083,745.7721m	1,030,806.2416m
1+540.00	1,083,757.2685m	1,030,789.8760m
1+560.00	1,083,768.7648m	1,030,773.5104m
1+580.00	1,083,780.2612m	1,030,757.1447m
1+600.00	1,083,791.7576m	1,030,740.7791m
1+620.00	1,083,803.2539m	1,030,724.4135m
1+640.00	1,083,813.1362m	1,030,707.0746m
1+660.00	1,083,821.8940m	1,030,689.0941m
1+680.00	1,083,830.6518m	1,030,671.1135m
1+700.00	1,083,827.8553m	1,030,652.5225m
1+720.00	1,083,811.0093m	1,030,641.8387m
1+740.00	1,083,793.9627m	1,030,631.4162m
1+760.00	1,083,789.6086m	1,030,613.1206m
1+780.00	1,083,801.2840m	1,030,596.9499m
1+800.00	1,083,813.5460m	1,030,581.1498m
1+820.00	1,083,825.8081m	1,030,565.3498m
1+840.00	1,083,838.0701m	1,030,549.5497m
1+860.00	1,083,848.1399m	1,030,532.3573m
1+880.00	1,083,853.1345m	1,030,513.0249m
1+900.00	1,083,860.2089m	1,030,494.4257m
1+920.00	1,083,873.1826m	1,030,479.3261m

ABSCISA	NORTE	ESTE
1+927.72	1,083,878.9294m	1,030,474.1730m

Tabla 5-4 *Abscisas diseño horizontal.*

5.2. Peralte

la inclinación transversal de la calzada en las curvas horizontales que sirven para contrarrestar la fuerza centrífuga que tiende a desviar radialmente a los vehículos hacia fuera de su trayecto.

Para estos tipos de vías establece como peralte máximo seis por ciento (6%), el cual permite no incomodar a vehículos que viajan a velocidades menores, especialmente a los vehículos con centro de gravedad muy alto y a los vehículos articulados (tracto – camión con remolque) los cuales pueden tener un potencial de volcamiento de su carga al circular por curvas con peraltes muy altos.

# Curva	Rc	ANCHO DE CARRIL	VELOCIDAD (Km/h)	PERALTE
1	148	3	20	2.00%
2	68	3	20	3.25%
3	52	3	20	3.58%
4	37	3	20	3.96%
5	32	3	20	4.17%
6	46	3	20	3.71%
7	20	3	20	4.90%
8	136	3	20	2.02%
9	25	3	30	4.53%
10	215	3	20	2.57%
11	15	3	20	6.00%
12	15	3	20	6.00%
13	40	3	20	3.87%
14	181	3	20	2.00%
15	200	3	20	2.71%
16	29	3	20	4.31%
17	31	3	20	4.20%
18	55	3	20	3.52%
19	17	3	20	5.10%
20	17	3	20	5.10%
21	65	3	20	3.31%
22	57	3	20	3.47%

Tabla 5-5 *Peralte adoptado para cada curva.*

5.3. Sobreancho

Sobreancho estará limitado a curvas de Radio menor a ciento sesenta metros (160 m) y todo el sobreancho requerido por los carriles que integran la calzada se debe construir en la parte interior de la curva. La línea central divisoria de carriles, demarcada sobre el pavimento, se debe fijar en la mitad de los bordes de la calzada ya ensanchada. En curvas de radio reducido o especialmente en este diseño se opta por el tipo de vehículo que va circular por la carretera. Ensanchar la calzada con el objeto de asegurar espacios libres adecuados entre los vehículos que se cruzan en calzadas bidireccionales o que se adelantan en calzadas unidireccional.

SOBREANCHO								
# Curva	**Rc (m)**	**e (%)**	**L (Vehiculo m)**	**n (# Carriles)**	**SOBREANCHO CADA CARRIL (m) (ECUACION 1)**	**SOBREANCHO CALZADA (m) (ECUACION 1)**	**ANCHO DEL CARRIL (m)**	**SOBREANCHO + ANCHO CARRIL**
1	148	1.91%	3.7	2	0.046	0.092	3	3.046
2	68	3.25%	3.7	2	0.101	0.202	3	3.101
3	52	3.58%	3.7	2	0.131	0.263	3	3.131
4	37	3.96%	3.7	2	0.185	0.370	3	3.185
5	32	4.17%	3.7	2	0.215	0.431	3	3.215
6	46	3.71%	3.7	2	0.149	0.298	3	3.149
7	20	4.90%	3.7	2	0.345	0.690	3	3.345
8	136	2.02%	3.7	2	0.050	0.100	3	3.050
9	25	4.53%	3.7	2	0.275	0.551	3	3.275
10	215	2.57%	3.7	2	0.032	0.064	3	3.032
11	15	6.00%	3.7	2	0.463	0.927	3	3.463
12	15	6.00%	3.7	2	0.463	0.927	3	3.463
13	40	3.87%	3.7	2	0.171	0.343	3	3.171
14	181	1.62%	3.7	2	0.038	0.076	3	3.038
15	200	2.71%	3.7	2	0.034	0.068	3	3.034
16	29	4.31%	3.7	2	0.238	0.477	3	3.238
17	31	4.20%	3.7	2	0.221	0.442	3	3.221
18	55	3.52%	3.7	2	0.125	0.250	3	3.125
19	17	5.10%	3.7	2	0.420	0.840	3	3.420
20	17	5.10%	3.7	2	0.419	0.837	3	3.419
21	65	3.31%	3.7	2	0.105	0.210	3	3.105
22	57	3.47%	3.7	2	0.120	0.240	3	3.120

***Tabla 5-6**. Sobreancho adoptado en cada curva.*

5.4. Diseño Vertical

5.4.1 Alineamiento Vertical

Cálculos de longitudes mínimas y máximas de curvas verticales según parámetros

Teniendo en cuenta los criterios mínimos para las longitudes verticales:

$$LVseguridad = K * A$$

$$LVoperacion = 0.6 * Vcv$$

						DISEÑO	
# CURVA	**TIPO DE CURVA**	**k_{min}**	**Lv CRITERIO OPERACION (m)**	**Lv CRITERIO OPERACIÓN APROX. (m)**	**LONGITUD MINIMA OPERACIÓN (m)**	**Lv (m)**	**k**
1	Concava	3	6.930	20.000	CUMPLE	20	8.658
2	Convexa	1	1.890	20.000	CUMPLE	20	10.582
3	Concava	3	23.850	40.000	CUMPLE	40	5.031
4	Convexa	1	3.920	20.000	CUMPLE	20	5.102
5	Concava	3	13.020	20.000	CUMPLE	20	4.608
6	Convexa	1	7.680	20.000	CUMPLE	20	2.604
7	Concava	3	23.970	40.000	CUMPLE	40	5.006
8	Convexa	1	1.060	20.000	CUMPLE	20	18.868
9	Convexa	1	14.450	20.000	CUMPLE	20	1.384
10	Concava	3	33.630	40.000	CUMPLE	40	3.568
11	Concava	3	12.900	20.000	CUMPLE	20	4.651
12	Convexa	1	5.480	20.000	CUMPLE	20	3.650
13	Convexa	1	3.270	20.000	CUMPLE	20	6.116

Tabla 5-7 *Diseño vertical.*

PVI	ABSCISA	COTA	PENDIENTE (%)	LONGITUD DE CURVA (m)
BOP	0	2550.48	3.64%	0
1	100.759	2554.14	5.95%	20
2	161.632	2557.77	4.06%	20
3	300	2563.38	12.01%	40
4	480	2585	8.09%	20
5	607.011	2595.28	12.43%	20
6	737.359	2611.48	4.75%	20
7	830.692	2615.91	12.74%	40
8	1011.136	2638.89	11.68%	20
9	1234.607	2665	-2.77%	20
10	1345.304	2661.93	8.44%	40

11	1628.005	2685.79	12.74%	20
12	1750.17	2701.36	7.26%	20
13	1856.257	2709.06	3.99%	20
EOP	1927.719	2711.91		

Tabla 5-8 *Longitud de curva*

5.4.2 Cotas del eje de la vía

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+000.00	2 550.480m	2 550.480m	-0.000m
0+003.45	2 550.583m	2 550.605m	-0.022m
0+014.88	2 550.687m	2 551.021m	-0.334m
0+017.59	2 550.648m	2 551.119m	-0.472m
0+023.44	2 550.694m	2 551.332m	-0.638m
0+023.73	2 550.698m	2 551.343m	-0.645m
0+025.00	2 550.749m	2 551.389m	-0.640m
0+025.10	2 550.753m	2 551.392m	-0.640m
0+027.00	2 550.787m	2 551.462m	-0.675m
0+033.54	2 550.941m	2 551.699m	-0.758m
0+042.05	2 551.104m	2 552.009m	-0.905m
0+048.20	2 551.258m	2 552.233m	-0.975m
0+049.01	2 551.353m	2 552.262m	-0.908m
0+049.18	2 551.372m	2 552.268m	-0.896m
0+049.85	2 551.372m	2 552.292m	-0.921m
0+050.00	2 551.378m	2 552.298m	-0.920m
0+062.92	2 551.882m	2 552.768m	-0.886m
0+069.52	2 552.209m	2 553.008m	-0.799m
0+069.54	2 552.223m	2 553.008m	-0.785m
0+072.10	2 552.372m	2 553.101m	-0.729m
0+075.00	2 552.527m	2 553.207m	-0.680m
0+076.05	2 552.582m	2 553.245m	-0.663m
0+076.52	2 552.598m	2 553.262m	-0.664m
0+082.68	2 552.962m	2 553.486m	-0.524m
0+082.68	2 552.962m	2 553.486m	-0.524m
0+084.47	2 553.068m	2 553.551m	-0.483m
0+085.97	2 553.133m	2 553.606m	-0.472m
0+087.46	2 553.200m	2 553.660m	-0.460m
0+089.25	2 553.392m	2 553.725m	-0.333m
0+090.76	2 553.549m	2 553.780m	-0.231m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+092.39	2 553.718m	2 553.841m	-0.122m
0+092.54	2 553.722m	2 553.846m	-0.124m
0+093.55	2 553.747m	2 553.886m	-0.139m
0+094.45	2 553.766m	2 553.922m	-0.156m
0+095.83	2 553.815m	2 553.979m	-0.164m
0+095.84	2 553.815m	2 553.979m	-0.164m
0+096.49	2 553.940m	2 554.007m	-0.068m
0+099.12	2 554.084m	2 554.124m	-0.040m
0+100.00	2 554.134m	2 554.165m	-0.031m
0+100.52	2 554.164m	2 554.190m	-0.026m
0+100.76	2 554.143m	2 554.201m	-0.058m
0+100.76	2 554.143m	2 554.201m	-0.058m
0+101.81	2 554.055m	2 554.252m	-0.197m
0+102.40	2 554.007m	2 554.282m	-0.275m
0+103.36	2 553.929m	2 554.330m	-0.401m
0+105.69	2 554.050m	2 554.452m	-0.401m
0+108.98	2 554.218m	2 554.634m	-0.416m
0+110.76	2 554.307m	2 554.738m	-0.432m
0+112.26	2 554.382m	2 554.828m	-0.446m
0+115.55	2 554.541m	2 555.024m	-0.483m
0+118.84	2 554.696m	2 555.219m	-0.523m
0+118.84	2 554.696m	2 555.219m	-0.523m
0+123.76	2 554.924m	2 555.512m	-0.588m
0+125.00	2 554.987m	2 555.586m	-0.599m
0+125.02	2 554.988m	2 555.587m	-0.599m
0+126.72	2 555.195m	2 555.688m	-0.493m
0+128.40	2 554.642m	2 555.788m	-1.146m
0+128.93	2 554.692m	2 555.820m	-1.127m
0+135.81	2 554.721m	2 556.229m	-1.508m
0+138.76	2 556.123m	2 556.404m	-0.282m
0+141.30	2 556.260m	2 556.556m	-0.296m
0+145.62	2 556.613m	2 556.813m	-0.200m
0+145.62	2 556.613m	2 556.813m	-0.200m
0+147.90	2 556.801m	2 556.949m	-0.148m
0+150.00	2 556.974m	2 557.073m	-0.099m
0+150.19	2 556.990m	2 557.085m	-0.094m
0+150.43	2 557.010m	2 557.099m	-0.089m
0+151.10	2 557.062m	2 557.139m	-0.077m
0+151.45	2 557.090m	2 557.160m	-0.070m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+151.63	2 557.102m	2 557.171m	-0.069m
0+152.48	2 557.156m	2 557.221m	-0.064m
0+154.77	2 557.300m	2 557.352m	-0.052m
0+156.79	2 557.424m	2 557.465m	-0.040m
0+157.06	2 557.464m	2 557.479m	-0.015m
0+158.57	2 557.697m	2 557.561m	0.137m
0+159.34	2 557.715m	2 557.601m	0.114m
0+161.63	2 557.766m	2 557.718m	0.047m
0+161.63	2 557.766m	2 557.718m	0.047m
0+161.63	2 557.766m	2 557.718m	0.047m
0+162.85	2 557.791m	2 557.778m	0.013m
0+163.89	2 557.875m	2 557.829m	0.046m
0+163.92	2 557.876m	2 557.830m	0.046m
0+163.97	2 557.880m	2 557.833m	0.047m
0+164.56	2 557.898m	2 557.861m	0.037m
0+166.21	2 557.960m	2 557.937m	0.023m
0+168.50	2 558.048m	2 558.039m	0.009m
0+170.78	2 558.137m	2 558.137m	0.000m
0+171.63	2 558.170m	2 558.171m	-0.001m
0+173.00	2 558.224m	2 558.227m	-0.003m
0+173.07	2 558.226m	2 558.230m	-0.004m
0+175.00	2 558.283m	2 558.308m	-0.025m
0+175.36	2 558.294m	2 558.323m	-0.029m
0+175.39	2 558.295m	2 558.324m	-0.029m
0+177.65	2 558.377m	2 558.416m	-0.039m
0+177.65	2 558.377m	2 558.416m	-0.039m
0+179.78	2 558.455m	2 558.502m	-0.047m
0+188.96	2 558.704m	2 558.875m	-0.171m
0+200.00	2 559.128m	2 559.323m	-0.195m
0+202.13	2 559.209m	2 559.409m	-0.200m
0+222.91	2 560.081m	2 560.253m	-0.172m
0+224.24	2 560.135m	2 560.307m	-0.172m
0+225.00	2 560.168m	2 560.338m	-0.170m
0+229.41	2 560.359m	2 560.516m	-0.158m
0+233.29	2 560.554m	2 560.674m	-0.120m
0+240.99	2 560.839m	2 560.987m	-0.148m
0+243.69	2 560.885m	2 561.096m	-0.211m
0+245.24	2 560.907m	2 561.159m	-0.252m
0+245.88	2 561.008m	2 561.185m	-0.177m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+248.96	2 561.191m	2 561.310m	-0.119m
0+250.00	2 561.235m	2 561.352m	-0.117m
0+251.35	2 561.291m	2 561.407m	-0.116m
0+252.01	2 561.320m	2 561.434m	-0.114m
0+258.72	2 561.628m	2 561.706m	-0.078m
0+259.86	2 561.658m	2 561.752m	-0.094m
0+264.98	2 561.943m	2 561.960m	-0.017m
0+265.00	2 561.944m	2 561.961m	-0.017m
0+265.00	2 561.944m	2 561.961m	-0.017m
0+267.01	2 562.043m	2 562.043m	0.000m
0+267.18	2 562.051m	2 562.050m	0.002m
0+269.01	2 562.172m	2 562.124m	0.048m
0+271.02	2 562.303m	2 562.205m	0.098m
0+271.52	2 562.335m	2 562.226m	0.110m
0+273.02	2 562.426m	2 562.287m	0.139m
0+275.00	2 562.539m	2 562.367m	0.172m
0+275.03	2 562.541m	2 562.368m	0.173m
0+277.03	2 562.651m	2 562.449m	0.201m
0+277.47	2 562.674m	2 562.467m	0.207m
0+279.04	2 562.810m	2 562.531m	0.279m
0+280.00	2 562.890m	2 562.570m	0.320m
0+281.03	2 562.977m	2 562.613m	0.364m
0+281.04	2 562.978m	2 562.613m	0.365m
0+283.05	2 563.136m	2 562.703m	0.433m
0+285.05	2 563.288m	2 562.800m	0.488m
0+286.16	2 563.370m	2 562.858m	0.512m
0+287.06	2 563.518m	2 562.906m	0.612m
0+288.04	2 563.677m	2 562.960m	0.716m
0+289.06	2 563.813m	2 563.019m	0.794m
0+289.52	2 563.874m	2 563.047m	0.828m
0+291.07	2 564.011m	2 563.141m	0.870m
0+292.68	2 564.155m	2 563.244m	0.911m
0+293.07	2 564.141m	2 563.270m	0.870m
0+295.08	2 564.068m	2 563.408m	0.660m
0+295.08	2 564.068m	2 563.408m	0.660m
0+295.27	2 564.061m	2 563.421m	0.640m
0+295.52	2 564.079m	2 563.439m	0.640m
0+296.09	2 563.972m	2 563.480m	0.491m
0+297.08	2 564.027m	2 563.553m	0.474m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+299.09	2 564.133m	2 563.707m	0.426m
0+300.00	2 564.177m	2 563.779m	0.398m
0+300.03	2 564.179m	2 563.782m	0.397m
0+301.09	2 564.290m	2 563.868m	0.422m
0+301.23	2 564.305m	2 563.879m	0.425m
0+303.10	2 564.457m	2 564.038m	0.420m
0+305.11	2 564.622m	2 564.215m	0.406m
0+305.35	2 564.642m	2 564.238m	0.404m
0+305.68	2 564.561m	2 564.267m	0.293m
0+307.11	2 564.675m	2 564.401m	0.274m
0+307.36	2 564.694m	2 564.424m	0.270m
0+308.00	2 564.742m	2 564.486m	0.257m
0+309.12	2 564.816m	2 564.594m	0.222m
0+310.06	2 564.876m	2 564.688m	0.188m
0+311.12	2 564.958m	2 564.796m	0.162m
0+313.13	2 565.112m	2 565.005m	0.107m
0+315.13	2 565.268m	2 565.222m	0.045m
0+317.14	2 565.423m	2 565.448m	-0.024m
0+317.38	2 565.443m	2 565.476m	-0.033m
0+317.92	2 565.489m	2 565.538m	-0.048m
0+319.14	2 565.609m	2 565.681m	-0.072m
0+320.00	2 565.694m	2 565.784m	-0.089m
0+321.15	2 565.808m	2 565.921m	-0.113m
0+322.86	2 565.980m	2 566.128m	-0.148m
0+323.15	2 566.008m	2 566.162m	-0.154m
0+325.00	2 566.190m	2 566.384m	-0.194m
0+325.16	2 566.205m	2 566.403m	-0.198m
0+325.16	2 566.205m	2 566.403m	-0.198m
0+326.13	2 566.301m	2 566.519m	-0.218m
0+326.93	2 566.368m	2 566.616m	-0.247m
0+331.20	2 566.924m	2 567.129m	-0.205m
0+334.76	2 567.483m	2 567.556m	-0.073m
0+335.15	2 567.540m	2 567.604m	-0.063m
0+336.13	2 567.673m	2 567.721m	-0.048m
0+338.69	2 567.965m	2 568.028m	-0.064m
0+339.53	2 568.035m	2 568.129m	-0.094m
0+348.86	2 568.960m	2 569.250m	-0.290m
0+350.00	2 569.059m	2 569.387m	-0.328m
0+352.52	2 569.279m	2 569.689m	-0.410m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+353.42	2 569.341m	2 569.797m	-0.456m
0+359.03	2 569.824m	2 570.471m	-0.647m
0+360.73	2 570.130m	2 570.675m	-0.545m
0+371.71	2 571.032m	2 571.994m	-0.962m
0+372.03	2 571.048m	2 572.032m	-0.984m
0+373.76	2 571.217m	2 572.240m	-1.022m
0+374.47	2 571.276m	2 572.326m	-1.050m
0+375.00	2 571.326m	2 572.389m	-1.063m
0+376.15	2 571.436m	2 572.528m	-1.092m
0+376.15	2 571.436m	2 572.528m	-1.092m
0+377.00	2 571.516m	2 572.629m	-1.113m
0+377.86	2 571.613m	2 572.733m	-1.119m
0+379.56	2 571.805m	2 572.937m	-1.132m
0+381.27	2 571.996m	2 573.142m	-1.146m
0+382.98	2 572.185m	2 573.347m	-1.163m
0+384.47	2 572.348m	2 573.526m	-1.179m
0+384.68	2 572.377m	2 573.552m	-1.176m
0+385.58	2 572.494m	2 573.659m	-1.166m
0+386.39	2 572.585m	2 573.757m	-1.173m
0+388.10	2 572.771m	2 573.962m	-1.192m
0+389.31	2 572.899m	2 574.107m	-1.208m
0+389.80	2 573.004m	2 574.167m	-1.163m
0+390.61	2 573.178m	2 574.264m	-1.086m
0+391.51	2 573.275m	2 574.372m	-1.097m
0+392.36	2 573.366m	2 574.474m	-1.108m
0+393.21	2 573.457m	2 574.577m	-1.120m
0+394.92	2 573.639m	2 574.782m	-1.143m
0+396.61	2 573.817m	2 574.985m	-1.168m
0+396.63	2 573.817m	2 574.987m	-1.170m
0+397.57	2 573.807m	2 575.100m	-1.293m
0+398.33	2 573.896m	2 575.192m	-1.296m
0+398.93	2 573.963m	2 575.264m	-1.300m
0+399.91	2 574.098m	2 575.382m	-1.284m
0+400.00	2 574.106m	2 575.392m	-1.285m
0+400.04	2 574.110m	2 575.397m	-1.286m
0+401.33	2 574.235m	2 575.551m	-1.316m
0+401.75	2 574.388m	2 575.601m	-1.214m
0+401.84	2 574.423m	2 575.613m	-1.190m
0+403.45	2 574.626m	2 575.806m	-1.181m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+405.16	2 574.837m	2 576.011m	-1.175m
0+406.86	2 575.043m	2 576.216m	-1.174m
0+408.57	2 575.244m	2 576.421m	-1.178m
0+408.57	2 575.244m	2 576.421m	-1.178m
0+411.72	2 575.610m	2 576.800m	-1.190m
0+416.42	2 576.109m	2 577.364m	-1.255m
0+416.59	2 576.126m	2 577.384m	-1.259m
0+422.34	2 577.064m	2 578.074m	-1.010m
0+425.00	2 577.247m	2 578.394m	-1.148m
0+425.73	2 577.297m	2 578.482m	-1.186m
0+428.81	2 577.824m	2 578.852m	-1.029m
0+436.15	2 578.727m	2 579.734m	-1.006m
0+437.80	2 578.919m	2 579.932m	-1.013m
0+438.61	2 579.020m	2 580.028m	-1.008m
0+444.44	2 579.706m	2 580.730m	-1.024m
0+446.21	2 579.939m	2 580.942m	-1.003m
0+450.00	2 580.427m	2 581.397m	-0.970m
0+452.74	2 580.781m	2 581.726m	-0.945m
0+452.74	2 580.781m	2 581.726m	-0.945m
0+454.32	2 580.985m	2 581.916m	-0.932m
0+455.75	2 581.168m	2 582.088m	-0.920m
0+455.91	2 581.184m	2 582.107m	-0.922m
0+457.49	2 581.351m	2 582.297m	-0.946m
0+457.57	2 581.359m	2 582.306m	-0.947m
0+458.91	2 581.521m	2 582.467m	-0.947m
0+459.08	2 581.539m	2 582.487m	-0.949m
0+460.66	2 581.709m	2 582.677m	-0.968m
0+462.25	2 581.876m	2 582.868m	-0.992m
0+463.83	2 582.039m	2 583.058m	-1.019m
0+465.35	2 582.192m	2 583.241m	-1.049m
0+465.41	2 582.198m	2 583.248m	-1.050m
0+466.25	2 582.278m	2 583.349m	-1.070m
0+467.00	2 582.348m	2 583.438m	-1.091m
0+467.33	2 582.377m	2 583.478m	-1.101m
0+468.58	2 582.516m	2 583.629m	-1.113m
0+469.17	2 582.578m	2 583.700m	-1.121m
0+470.00	2 583.004m	2 583.799m	-0.795m
0+470.17	2 583.089m	2 583.819m	-0.730m
0+470.46	2 583.242m	2 583.854m	-0.611m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+471.75	2 583.269m	2 584.006m	-0.737m
0+473.33	2 583.306m	2 584.189m	-0.883m
0+474.92	2 583.347m	2 584.366m	-1.019m
0+475.00	2 583.349m	2 584.375m	-1.026m
0+476.16	2 583.382m	2 584.501m	-1.119m
0+476.50	2 583.448m	2 584.539m	-1.091m
0+476.80	2 583.507m	2 584.570m	-1.063m
0+478.09	2 583.654m	2 584.706m	-1.052m
0+479.67	2 583.859m	2 584.869m	-1.010m
0+480.00	2 583.907m	2 584.902m	-0.995m
0+481.26	2 584.088m	2 585.027m	-0.939m
0+482.05	2 584.213m	2 585.104m	-0.890m
0+482.84	2 584.339m	2 585.180m	-0.841m
0+484.29	2 584.589m	2 585.315m	-0.726m
0+484.42	2 584.596m	2 585.327m	-0.732m
0+486.01	2 584.682m	2 585.471m	-0.789m
0+487.59	2 584.772m	2 585.609m	-0.837m
0+488.62	2 584.833m	2 585.696m	-0.863m
0+489.18	2 584.913m	2 585.742m	-0.829m
0+489.35	2 584.940m	2 585.756m	-0.816m
0+490.00	2 585.093m	2 585.809m	-0.716m
0+490.17	2 585.133m	2 585.822m	-0.690m
0+490.76	2 585.254m	2 585.871m	-0.617m
0+492.35	2 585.601m	2 585.999m	-0.398m
0+493.93	2 585.970m	2 586.127m	-0.157m
0+494.37	2 586.079m	2 586.163m	-0.084m
0+495.51	2 586.104m	2 586.255m	-0.151m
0+497.10	2 586.158m	2 586.383m	-0.226m
0+497.51	2 586.176m	2 586.417m	-0.241m
0+498.68	2 586.210m	2 586.512m	-0.302m
0+500.00	2 586.263m	2 586.618m	-0.355m
0+500.27	2 586.274m	2 586.640m	-0.366m
0+501.42	2 586.334m	2 586.733m	-0.399m
0+501.85	2 586.395m	2 586.768m	-0.373m
0+503.43	2 586.614m	2 586.896m	-0.282m
0+505.02	2 586.826m	2 587.024m	-0.198m
0+505.19	2 586.849m	2 587.038m	-0.190m
0+506.60	2 586.994m	2 587.152m	-0.158m
0+508.19	2 587.156m	2 587.281m	-0.124m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+509.77	2 587.318m	2 587.409m	-0.091m
0+511.36	2 587.478m	2 587.537m	-0.059m
0+511.36	2 587.478m	2 587.537m	-0.059m
0+511.87	2 587.530m	2 587.578m	-0.049m
0+513.58	2 587.715m	2 587.717m	-0.002m
0+515.51	2 587.880m	2 587.873m	0.008m
0+516.93	2 588.011m	2 587.988m	0.023m
0+517.72	2 588.070m	2 588.052m	0.018m
0+520.73	2 588.315m	2 588.295m	0.020m
0+525.00	2 588.686m	2 588.641m	0.046m
0+526.49	2 588.816m	2 588.761m	0.055m
0+529.19	2 588.923m	2 588.980m	-0.057m
0+530.78	2 588.948m	2 589.108m	-0.160m
0+531.68	2 588.912m	2 589.181m	-0.270m
0+539.29	2 589.491m	2 589.797m	-0.306m
0+545.30	2 590.050m	2 590.284m	-0.233m
0+546.61	2 590.133m	2 590.389m	-0.256m
0+548.09	2 590.227m	2 590.509m	-0.282m
0+548.77	2 590.254m	2 590.564m	-0.310m
0+549.26	2 590.300m	2 590.604m	-0.304m
0+550.00	2 590.313m	2 590.664m	-0.350m
0+551.21	2 590.335m	2 590.762m	-0.427m
0+553.59	2 590.286m	2 590.954m	-0.668m
0+563.24	2 590.956m	2 591.735m	-0.779m
0+565.12	2 591.143m	2 591.887m	-0.744m
0+570.90	2 591.652m	2 592.354m	-0.703m
0+574.49	2 591.996m	2 592.645m	-0.649m
0+575.00	2 592.041m	2 592.686m	-0.645m
0+582.58	2 592.718m	2 593.300m	-0.582m
0+595.13	2 593.832m	2 594.315m	-0.482m
0+595.47	2 593.918m	2 594.343m	-0.425m
0+595.56	2 593.928m	2 594.350m	-0.422m
0+596.44	2 593.980m	2 594.421m	-0.441m
0+596.70	2 594.007m	2 594.442m	-0.435m
0+596.70	2 594.007m	2 594.442m	-0.435m
0+597.01	2 594.040m	2 594.467m	-0.428m
0+598.48	2 594.194m	2 594.588m	-0.395m
0+600.00	2 594.355m	2 594.719m	-0.364m
0+600.26	2 594.382m	2 594.741m	-0.359m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+602.04	2 594.572m	2 594.901m	-0.329m
0+603.82	2 594.763m	2 595.068m	-0.305m
0+604.65	2 594.854m	2 595.149m	-0.295m
0+605.59	2 595.011m	2 595.242m	-0.231m
0+605.63	2 595.016m	2 595.245m	-0.229m
0+607.01	2 595.155m	2 595.385m	-0.230m
0+607.37	2 595.191m	2 595.422m	-0.231m
0+608.26	2 595.278m	2 595.515m	-0.237m
0+609.09	2 595.359m	2 595.603m	-0.244m
0+609.15	2 595.364m	2 595.609m	-0.245m
0+610.93	2 595.522m	2 595.804m	-0.281m
0+612.71	2 595.678m	2 596.005m	-0.327m
0+614.49	2 595.832m	2 596.212m	-0.381m
0+616.26	2 595.983m	2 596.427m	-0.444m
0+617.01	2 596.046m	2 596.520m	-0.474m
0+617.19	2 596.061m	2 596.542m	-0.481m
0+618.04	2 596.139m	2 596.648m	-0.508m
0+619.82	2 596.301m	2 596.869m	-0.568m
0+619.82	2 596.301m	2 596.869m	-0.568m
0+622.16	2 596.512m	2 597.160m	-0.649m
0+625.00	2 596.587m	2 597.513m	-0.926m
0+625.01	2 596.587m	2 597.514m	-0.927m
0+634.29	2 597.432m	2 598.668m	-1.236m
0+635.03	2 597.646m	2 598.760m	-1.114m
0+637.03	2 597.843m	2 599.008m	-1.165m
0+638.20	2 597.930m	2 599.154m	-1.224m
0+650.00	2 599.302m	2 600.621m	-1.319m
0+650.68	2 599.381m	2 600.706m	-1.325m
0+657.55	2 600.157m	2 601.559m	-1.403m
0+658.11	2 600.222m	2 601.629m	-1.407m
0+661.27	2 600.766m	2 602.022m	-1.256m
0+668.67	2 601.673m	2 602.943m	-1.269m
0+668.67	2 601.673m	2 602.943m	-1.269m
0+669.89	2 601.823m	2 603.094m	-1.271m
0+671.10	2 601.975m	2 603.245m	-1.270m
0+672.31	2 602.128m	2 603.396m	-1.268m
0+673.53	2 602.282m	2 603.547m	-1.265m
0+673.59	2 602.290m	2 603.554m	-1.265m
0+674.27	2 602.384m	2 603.639m	-1.255m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+674.74	2 602.477m	2 603.697m	-1.220m
0+675.00	2 602.527m	2 603.730m	-1.202m
0+675.77	2 602.675m	2 603.825m	-1.150m
0+675.95	2 602.703m	2 603.848m	-1.145m
0+676.56	2 602.791m	2 603.924m	-1.133m
0+677.17	2 602.879m	2 603.999m	-1.120m
0+677.96	2 602.990m	2 604.098m	-1.108m
0+678.38	2 603.092m	2 604.150m	-1.059m
0+679.59	2 603.385m	2 604.301m	-0.916m
0+679.74	2 603.419m	2 604.319m	-0.900m
0+680.81	2 603.564m	2 604.452m	-0.888m
0+681.37	2 603.638m	2 604.521m	-0.884m
0+682.02	2 603.741m	2 604.603m	-0.862m
0+683.23	2 603.929m	2 604.754m	-0.824m
0+684.45	2 604.114m	2 604.904m	-0.791m
0+684.45	2 604.114m	2 604.904m	-0.791m
0+687.59	2 604.586m	2 605.295m	-0.709m
0+689.46	2 604.888m	2 605.528m	-0.640m
0+697.15	2 606.176m	2 606.484m	-0.309m
0+700.00	2 606.575m	2 606.838m	-0.263m
0+705.51	2 607.349m	2 607.524m	-0.175m
0+706.33	2 607.432m	2 607.625m	-0.194m
0+718.83	2 609.253m	2 609.180m	0.073m
0+719.21	2 609.295m	2 609.227m	0.068m
0+719.38	2 609.267m	2 609.248m	0.020m
0+722.75	2 609.621m	2 609.666m	-0.045m
0+725.00	2 609.811m	2 609.947m	-0.136m
0+725.02	2 609.812m	2 609.949m	-0.136m
0+725.10	2 609.821m	2 609.959m	-0.138m
0+725.10	2 609.821m	2 609.959m	-0.138m
0+727.36	2 610.070m	2 610.240m	-0.170m
0+728.22	2 610.164m	2 610.345m	-0.181m
0+731.33	2 610.504m	2 610.704m	-0.200m
0+734.45	2 610.842m	2 611.025m	-0.183m
0+735.41	2 610.944m	2 611.116m	-0.172m
0+737.36	2 611.135m	2 611.291m	-0.156m
0+737.57	2 611.156m	2 611.309m	-0.153m
0+739.13	2 611.307m	2 611.437m	-0.130m
0+740.69	2 611.458m	2 611.556m	-0.098m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+741.30	2 611.516m	2 611.600m	-0.083m
0+743.80	2 611.742m	2 611.765m	-0.022m
0+746.92	2 612.025m	2 611.937m	0.088m
0+747.36	2 612.065m	2 611.958m	0.107m
0+750.00	2 612.304m	2 612.083m	0.221m
0+750.04	2 612.308m	2 612.085m	0.223m
0+753.16	2 612.591m	2 612.233m	0.358m
0+753.16	2 612.591m	2 612.233m	0.358m
0+754.42	2 612.707m	2 612.293m	0.414m
0+762.37	2 613.326m	2 612.670m	0.656m
0+769.39	2 613.845m	2 613.003m	0.842m
0+772.43	2 613.975m	2 613.148m	0.827m
0+775.00	2 614.126m	2 613.270m	0.856m
0+775.04	2 614.128m	2 613.271m	0.856m
0+788.35	2 614.639m	2 613.903m	0.736m
0+789.51	2 614.844m	2 613.958m	0.886m
0+789.56	2 614.845m	2 613.960m	0.884m
0+789.85	2 614.876m	2 613.974m	0.902m
0+790.19	2 614.883m	2 613.991m	0.892m
0+791.34	2 614.830m	2 614.045m	0.786m
0+799.67	2 615.243m	2 614.440m	0.803m
0+800.00	2 615.249m	2 614.456m	0.793m
0+803.51	2 615.310m	2 614.622m	0.687m
0+805.00	2 615.370m	2 614.693m	0.677m
0+805.00	2 615.370m	2 614.693m	0.677m
0+805.42	2 615.387m	2 614.713m	0.674m
0+805.84	2 615.404m	2 614.733m	0.671m
0+806.26	2 615.421m	2 614.753m	0.668m
0+806.68	2 615.437m	2 614.773m	0.665m
0+807.10	2 615.454m	2 614.793m	0.662m
0+807.52	2 615.471m	2 614.812m	0.659m
0+807.93	2 615.488m	2 614.832m	0.655m
0+808.35	2 615.504m	2 614.852m	0.652m
0+808.77	2 615.521m	2 614.872m	0.649m
0+809.03	2 615.531m	2 614.884m	0.646m
0+809.19	2 615.535m	2 614.892m	0.643m
0+809.61	2 615.546m	2 614.912m	0.634m
0+810.03	2 615.557m	2 614.932m	0.626m
0+810.45	2 615.569m	2 614.952m	0.617m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+810.69	2 615.575m	2 614.963m	0.612m
0+810.87	2 615.580m	2 614.972m	0.608m
0+811.29	2 615.591m	2 614.992m	0.600m
0+811.71	2 615.603m	2 615.012m	0.590m
0+812.13	2 615.614m	2 615.033m	0.581m
0+812.55	2 615.626m	2 615.055m	0.571m
0+812.86	2 615.635m	2 615.071m	0.564m
0+812.92	2 615.646m	2 615.074m	0.573m
0+812.97	2 615.647m	2 615.076m	0.571m
0+813.39	2 615.657m	2 615.098m	0.559m
0+813.81	2 615.667m	2 615.121m	0.546m
0+814.22	2 615.677m	2 615.143m	0.534m
0+814.64	2 615.687m	2 615.166m	0.520m
0+814.65	2 615.687m	2 615.166m	0.520m
0+815.06	2 615.694m	2 615.190m	0.504m
0+815.48	2 615.701m	2 615.213m	0.488m
0+815.90	2 615.708m	2 615.238m	0.470m
0+816.32	2 615.715m	2 615.262m	0.453m
0+816.74	2 615.721m	2 615.287m	0.435m
0+817.16	2 615.728m	2 615.312m	0.416m
0+817.58	2 615.734m	2 615.337m	0.397m
0+818.00	2 615.740m	2 615.363m	0.377m
0+818.00	2 615.740m	2 615.363m	0.377m
0+818.47	2 615.747m	2 615.393m	0.354m
0+819.40	2 615.775m	2 615.452m	0.323m
0+820.81	2 615.816m	2 615.545m	0.271m
0+821.92	2 615.847m	2 615.622m	0.225m
0+822.21	2 615.857m	2 615.642m	0.215m
0+823.62	2 615.904m	2 615.743m	0.160m
0+824.35	2 615.926m	2 615.797m	0.129m
0+825.00	2 615.946m	2 615.847m	0.099m
0+825.02	2 615.946m	2 615.848m	0.098m
0+826.43	2 615.985m	2 615.957m	0.028m
0+826.66	2 615.991m	2 615.976m	0.015m
0+827.83	2 616.013m	2 616.070m	-0.057m
0+828.90	2 616.030m	2 616.159m	-0.129m
0+829.24	2 616.046m	2 616.187m	-0.141m
0+829.94	2 616.078m	2 616.246m	-0.169m
0+830.64	2 616.110m	2 616.307m	-0.198m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+830.69	2 616.112m	2 616.312m	-0.200m
0+831.52	2 616.147m	2 616.385m	-0.238m
0+832.05	2 616.201m	2 616.432m	-0.231m
0+833.30	2 616.348m	2 616.546m	-0.199m
0+833.45	2 616.353m	2 616.560m	-0.207m
0+834.80	2 616.413m	2 616.688m	-0.275m
0+834.85	2 616.420m	2 616.693m	-0.273m
0+835.61	2 616.509m	2 616.766m	-0.257m
0+836.26	2 616.590m	2 616.829m	-0.239m
0+837.66	2 616.765m	2 616.970m	-0.205m
0+839.07	2 616.938m	2 617.114m	-0.176m
0+840.47	2 617.109m	2 617.262m	-0.154m
0+841.88	2 617.277m	2 617.415m	-0.137m
0+841.88	2 617.277m	2 617.415m	-0.137m
0+842.30	2 617.327m	2 617.461m	-0.134m
0+842.72	2 617.376m	2 617.507m	-0.131m
0+843.14	2 617.425m	2 617.554m	-0.129m
0+843.56	2 617.474m	2 617.601m	-0.127m
0+843.97	2 617.523m	2 617.649m	-0.126m
0+844.32	2 617.562m	2 617.688m	-0.126m
0+844.39	2 617.569m	2 617.697m	-0.128m
0+844.81	2 617.606m	2 617.745m	-0.139m
0+845.03	2 617.625m	2 617.771m	-0.145m
0+845.23	2 617.655m	2 617.794m	-0.139m
0+845.40	2 617.680m	2 617.814m	-0.134m
0+845.51	2 617.710m	2 617.826m	-0.116m
0+845.65	2 617.707m	2 617.843m	-0.136m
0+845.74	2 617.705m	2 617.853m	-0.147m
0+846.07	2 617.744m	2 617.892m	-0.148m
0+846.49	2 617.794m	2 617.942m	-0.149m
0+846.91	2 617.843m	2 617.992m	-0.149m
0+847.33	2 617.892m	2 618.043m	-0.151m
0+847.75	2 617.941m	2 618.093m	-0.152m
0+848.17	2 617.991m	2 618.144m	-0.154m
0+848.59	2 618.040m	2 618.196m	-0.156m
0+849.01	2 618.090m	2 618.248m	-0.158m
0+849.43	2 618.139m	2 618.300m	-0.161m
0+849.85	2 618.189m	2 618.352m	-0.164m
0+850.00	2 618.207m	2 618.372m	-0.165m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+850.27	2 618.238m	2 618.405m	-0.167m
0+850.68	2 618.288m	2 618.459m	-0.170m
0+850.69	2 618.289m	2 618.460m	-0.170m
0+851.10	2 618.338m	2 618.512m	-0.174m
0+851.52	2 618.388m	2 618.565m	-0.178m
0+851.94	2 618.437m	2 618.619m	-0.181m
0+852.36	2 618.487m	2 618.672m	-0.185m
0+852.78	2 618.537m	2 618.726m	-0.189m
0+853.20	2 618.587m	2 618.779m	-0.192m
0+853.62	2 618.637m	2 618.832m	-0.196m
0+854.04	2 618.687m	2 618.886m	-0.199m
0+854.46	2 618.736m	2 618.939m	-0.203m
0+854.88	2 618.786m	2 618.993m	-0.206m
0+854.88	2 618.786m	2 618.993m	-0.206m
0+859.52	2 619.338m	2 619.584m	-0.246m
0+861.33	2 619.544m	2 619.814m	-0.269m
0+862.44	2 619.689m	2 619.955m	-0.266m
0+862.48	2 619.699m	2 619.961m	-0.262m
0+862.63	2 619.720m	2 619.980m	-0.260m
0+866.33	2 620.244m	2 620.451m	-0.206m
0+871.11	2 620.974m	2 621.060m	-0.086m
0+871.41	2 621.023m	2 621.098m	-0.076m
0+873.10	2 621.257m	2 621.314m	-0.056m
0+875.00	2 621.519m	2 621.555m	-0.036m
0+878.82	2 622.045m	2 622.041m	0.004m
0+880.23	2 622.238m	2 622.221m	0.017m
0+890.41	2 623.773m	2 623.518m	0.256m
0+895.87	2 624.575m	2 624.214m	0.361m
0+898.39	2 624.887m	2 624.535m	0.352m
0+899.10	2 624.968m	2 624.625m	0.344m
0+899.10	2 624.968m	2 624.625m	0.344m
0+899.85	2 625.056m	2 624.720m	0.335m
0+900.00	2 625.110m	2 624.739m	0.370m
0+900.41	2 625.260m	2 624.792m	0.468m
0+902.94	2 625.573m	2 625.113m	0.460m
0+906.77	2 626.059m	2 625.602m	0.457m
0+907.14	2 626.106m	2 625.648m	0.457m
0+908.57	2 626.092m	2 625.831m	0.261m
0+910.61	2 626.325m	2 626.091m	0.234m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+914.45	2 626.767m	2 626.580m	0.187m
0+917.87	2 627.162m	2 627.016m	0.146m
0+918.29	2 627.211m	2 627.068m	0.142m
0+922.12	2 627.659m	2 627.557m	0.102m
0+924.04	2 627.884m	2 627.802m	0.082m
0+925.00	2 627.995m	2 627.924m	0.072m
0+925.96	2 628.108m	2 628.046m	0.062m
0+928.34	2 628.385m	2 628.348m	0.036m
0+928.34	2 628.384m	2 628.349m	0.035m
0+929.11	2 628.493m	2 628.447m	0.046m
0+929.80	2 628.592m	2 628.535m	0.058m
0+933.64	2 629.145m	2 629.024m	0.122m
0+935.88	2 629.469m	2 629.310m	0.160m
0+937.48	2 629.719m	2 629.512m	0.207m
0+941.31	2 630.325m	2 630.001m	0.324m
0+941.68	2 630.384m	2 630.048m	0.335m
0+942.20	2 630.322m	2 630.115m	0.208m
0+945.15	2 630.698m	2 630.490m	0.208m
0+948.99	2 631.185m	2 630.979m	0.206m
0+948.99	2 631.185m	2 630.979m	0.206m
0+949.08	2 631.197m	2 630.990m	0.206m
0+950.00	2 631.324m	2 631.108m	0.216m
0+952.56	2 631.676m	2 631.433m	0.243m
0+957.70	2 632.494m	2 632.089m	0.405m
0+959.51	2 632.694m	2 632.319m	0.376m
0+960.62	2 632.739m	2 632.460m	0.279m
0+974.75	2 634.740m	2 634.260m	0.481m
0+975.00	2 634.801m	2 634.292m	0.510m
0+975.43	2 634.906m	2 634.347m	0.560m
0+976.41	2 635.035m	2 634.472m	0.563m
0+980.76	2 635.546m	2 635.025m	0.521m
0+985.83	2 636.102m	2 635.671m	0.432m
0+985.96	2 636.162m	2 635.687m	0.474m
0+993.37	2 637.068m	2 636.631m	0.437m
0+996.67	2 637.456m	2 637.051m	0.405m
0+996.67	2 637.456m	2 637.051m	0.405m
0+996.68	2 637.458m	2 637.053m	0.405m
0+997.56	2 637.793m	2 637.165m	0.628m
0+997.72	2 637.805m	2 637.186m	0.619m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
0+998.78	2 637.884m	2 637.321m	0.564m
0+999.84	2 637.968m	2 637.456m	0.513m
1+000.00	2 637.982m	2 637.476m	0.506m
1+000.88	2 638.055m	2 637.588m	0.468m
1+000.90	2 638.049m	2 637.590m	0.458m
1+001.14	2 637.984m	2 637.620m	0.364m
1+001.30	2 637.940m	2 637.641m	0.299m
1+001.96	2 638.005m	2 637.725m	0.280m
1+003.02	2 638.102m	2 637.859m	0.243m
1+004.08	2 638.192m	2 637.993m	0.199m
1+004.88	2 638.254m	2 638.094m	0.160m
1+005.14	2 638.285m	2 638.126m	0.160m
1+005.55	2 638.333m	2 638.178m	0.155m
1+006.19	2 638.401m	2 638.258m	0.143m
1+007.25	2 638.504m	2 638.390m	0.114m
1+008.31	2 638.598m	2 638.521m	0.077m
1+009.37	2 638.683m	2 638.651m	0.032m
1+009.40	2 638.685m	2 638.654m	0.030m
1+009.90	2 638.747m	2 638.716m	0.031m
1+010.43	2 638.813m	2 638.781m	0.032m
1+011.14	2 638.894m	2 638.868m	0.026m
1+011.14	2 638.894m	2 638.868m	0.026m
1+011.49	2 638.946m	2 638.911m	0.036m
1+012.55	2 639.096m	2 639.039m	0.057m
1+013.46	2 639.217m	2 639.149m	0.068m
1+013.61	2 639.233m	2 639.168m	0.066m
1+014.67	2 639.337m	2 639.295m	0.042m
1+015.72	2 639.432m	2 639.422m	0.010m
1+015.84	2 639.442m	2 639.436m	0.005m
1+016.78	2 639.499m	2 639.549m	-0.049m
1+017.84	2 639.551m	2 639.674m	-0.123m
1+017.87	2 639.552m	2 639.678m	-0.125m
1+018.90	2 639.690m	2 639.800m	-0.110m
1+019.96	2 639.824m	2 639.924m	-0.100m
1+021.02	2 639.951m	2 640.048m	-0.097m
1+021.14	2 639.965m	2 640.062m	-0.098m
1+022.08	2 640.071m	2 640.172m	-0.101m
1+022.44	2 640.109m	2 640.214m	-0.106m
1+023.14	2 640.081m	2 640.296m	-0.215m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+023.14	2 640.081m	2 640.296m	-0.215m
1+023.55	2 640.064m	2 640.344m	-0.281m
1+025.00	2 640.211m	2 640.514m	-0.302m
1+025.48	2 640.260m	2 640.569m	-0.310m
1+030.02	2 640.646m	2 641.100m	-0.455m
1+030.02	2 640.646m	2 641.100m	-0.455m
1+031.05	2 640.730m	2 641.220m	-0.490m
1+032.07	2 640.810m	2 641.340m	-0.530m
1+032.95	2 640.874m	2 641.443m	-0.569m
1+033.10	2 640.891m	2 641.459m	-0.569m
1+033.10	2 640.891m	2 641.459m	-0.569m
1+033.26	2 640.909m	2 641.478m	-0.570m
1+034.12	2 640.997m	2 641.579m	-0.582m
1+035.15	2 641.093m	2 641.699m	-0.606m
1+036.10	2 641.173m	2 641.810m	-0.637m
1+036.17	2 641.174m	2 641.818m	-0.644m
1+036.17	2 641.174m	2 641.818m	-0.644m
1+037.59	2 641.184m	2 641.984m	-0.800m
1+038.70	2 641.233m	2 642.114m	-0.881m
1+048.33	2 642.554m	2 643.239m	-0.684m
1+049.17	2 642.725m	2 643.337m	-0.611m
1+050.00	2 642.836m	2 643.434m	-0.598m
1+051.03	2 642.973m	2 643.555m	-0.581m
1+051.09	2 642.958m	2 643.561m	-0.603m
1+055.45	2 643.482m	2 644.071m	-0.588m
1+055.46	2 643.484m	2 644.072m	-0.588m
1+055.46	2 643.484m	2 644.072m	-0.588m
1+057.08	2 643.647m	2 644.262m	-0.614m
1+058.71	2 643.811m	2 644.451m	-0.640m
1+060.33	2 643.973m	2 644.641m	-0.668m
1+060.33	2 643.973m	2 644.641m	-0.668m
1+061.89	2 644.128m	2 644.823m	-0.695m
1+061.95	2 644.134m	2 644.830m	-0.697m
1+063.58	2 644.288m	2 645.020m	-0.732m
1+065.20	2 644.443m	2 645.210m	-0.766m
1+065.20	2 644.443m	2 645.210m	-0.766m
1+068.91	2 644.798m	2 645.643m	-0.845m
1+068.94	2 644.798m	2 645.647m	-0.849m
1+069.09	2 644.770m	2 645.664m	-0.894m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+075.00	2 645.530m	2 646.355m	-0.824m
1+085.36	2 646.863m	2 647.565m	-0.702m
1+088.46	2 647.272m	2 647.927m	-0.655m
1+088.46	2 647.272m	2 647.927m	-0.655m
1+089.61	2 647.425m	2 648.062m	-0.637m
1+089.68	2 647.540m	2 648.069m	-0.530m
1+092.15	2 648.023m	2 648.358m	-0.335m
1+095.84	2 648.733m	2 648.789m	-0.056m
1+097.44	2 649.036m	2 648.977m	0.059m
1+099.34	2 649.275m	2 649.198m	0.076m
1+099.53	2 649.299m	2 649.220m	0.079m
1+100.00	2 649.360m	2 649.275m	0.084m
1+103.22	2 649.775m	2 649.651m	0.124m
1+104.97	2 650.001m	2 649.856m	0.144m
1+106.91	2 650.236m	2 650.082m	0.154m
1+109.45	2 650.547m	2 650.379m	0.167m
1+110.60	2 650.683m	2 650.513m	0.170m
1+112.44	2 650.902m	2 650.729m	0.174m
1+114.29	2 651.122m	2 650.944m	0.178m
1+115.74	2 651.295m	2 651.114m	0.181m
1+117.98	2 651.580m	2 651.375m	0.205m
1+120.74	2 651.931m	2 651.698m	0.233m
1+121.67	2 652.043m	2 651.806m	0.236m
1+125.00	2 652.447m	2 652.196m	0.251m
1+125.36	2 652.490m	2 652.237m	0.253m
1+128.11	2 652.826m	2 652.559m	0.266m
1+128.58	2 652.965m	2 652.614m	0.351m
1+129.05	2 652.999m	2 652.668m	0.331m
1+132.74	2 653.275m	2 653.099m	0.175m
1+134.19	2 653.386m	2 653.269m	0.117m
1+136.43	2 653.579m	2 653.530m	0.048m
1+136.43	2 653.579m	2 653.530m	0.048m
1+146.57	2 654.456m	2 654.715m	-0.259m
1+147.08	2 654.587m	2 654.775m	-0.188m
1+148.00	2 654.674m	2 654.882m	-0.208m
1+148.00	2 654.674m	2 654.882m	-0.208m
1+149.12	2 654.781m	2 655.014m	-0.233m
1+150.00	2 654.857m	2 655.116m	-0.259m
1+150.80	2 654.927m	2 655.209m	-0.283m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+151.15	2 654.884m	2 655.250m	-0.367m
1+151.97	2 654.954m	2 655.347m	-0.393m
1+155.95	2 655.287m	2 655.811m	-0.523m
1+157.00	2 655.374m	2 655.933m	-0.559m
1+158.11	2 655.592m	2 656.064m	-0.472m
1+159.92	2 655.770m	2 656.275m	-0.505m
1+162.36	2 656.009m	2 656.560m	-0.551m
1+163.89	2 656.146m	2 656.739m	-0.593m
1+166.51	2 656.380m	2 657.045m	-0.664m
1+167.87	2 656.483m	2 657.203m	-0.720m
1+169.27	2 656.591m	2 657.368m	-0.777m
1+171.84	2 656.833m	2 657.667m	-0.834m
1+171.84	2 656.833m	2 657.667m	-0.834m
1+175.00	2 657.131m	2 658.037m	-0.906m
1+175.81	2 657.207m	2 658.131m	-0.925m
1+179.78	2 657.578m	2 658.596m	-1.018m
1+183.76	2 657.946m	2 659.060m	-1.114m
1+187.54	2 658.294m	2 659.501m	-1.208m
1+187.73	2 658.316m	2 659.524m	-1.207m
1+188.48	2 658.405m	2 659.611m	-1.206m
1+191.70	2 658.804m	2 659.988m	-1.184m
1+195.68	2 659.297m	2 660.452m	-1.156m
1+195.68	2 659.297m	2 660.452m	-1.156m
1+200.00	2 659.833m	2 660.957m	-1.124m
1+201.04	2 659.963m	2 661.079m	-1.116m
1+209.46	2 661.006m	2 662.062m	-1.056m
1+213.14	2 661.490m	2 662.492m	-1.002m
1+215.64	2 661.822m	2 662.784m	-0.962m
1+219.29	2 662.279m	2 663.211m	-0.932m
1+219.29	2 662.279m	2 663.211m	-0.932m
1+220.80	2 662.469m	2 663.388m	-0.919m
1+221.02	2 662.496m	2 663.412m	-0.916m
1+222.32	2 662.668m	2 663.564m	-0.896m
1+223.83	2 662.868m	2 663.741m	-0.873m
1+224.61	2 662.969m	2 663.832m	-0.863m
1+225.00	2 663.020m	2 663.877m	-0.857m
1+225.35	2 663.065m	2 663.916m	-0.851m
1+226.86	2 663.261m	2 664.077m	-0.816m
1+228.37	2 663.453m	2 664.220m	-0.767m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+229.89	2 663.643m	2 664.348m	-0.705m
1+230.33	2 663.697m	2 664.382m	-0.685m
1+230.60	2 663.716m	2 664.402m	-0.686m
1+231.40	2 663.765m	2 664.459m	-0.694m
1+232.11	2 663.806m	2 664.505m	-0.699m
1+232.91	2 663.882m	2 664.553m	-0.670m
1+233.61	2 663.947m	2 664.591m	-0.643m
1+234.43	2 664.022m	2 664.630m	-0.609m
1+234.43	2 664.022m	2 664.630m	-0.609m
1+234.61	2 664.037m	2 664.639m	-0.601m
1+235.25	2 664.094m	2 664.666m	-0.572m
1+235.94	2 664.172m	2 664.692m	-0.519m
1+237.45	2 664.342m	2 664.736m	-0.394m
1+238.05	2 664.408m	2 664.749m	-0.341m
1+238.57	2 664.339m	2 664.758m	-0.419m
1+238.84	2 664.288m	2 664.762m	-0.474m
1+238.97	2 664.298m	2 664.764m	-0.467m
1+240.08	2 664.373m	2 664.774m	-0.401m
1+240.48	2 664.395m	2 664.776m	-0.380m
1+240.77	2 664.411m	2 664.776m	-0.365m
1+241.34	2 664.442m	2 664.775m	-0.333m
1+242.00	2 664.464m	2 664.770m	-0.306m
1+243.51	2 664.512m	2 664.749m	-0.236m
1+244.61	2 664.545m	2 664.723m	-0.177m
1+245.02	2 664.557m	2 664.711m	-0.154m
1+246.54	2 664.599m	2 664.669m	-0.070m
1+247.79	2 664.631m	2 664.634m	-0.003m
1+248.05	2 664.640m	2 664.627m	0.013m
1+249.56	2 664.694m	2 664.585m	0.109m
1+249.56	2 664.694m	2 664.585m	0.109m
1+250.00	2 664.709m	2 664.573m	0.136m
1+251.15	2 664.750m	2 664.541m	0.209m
1+252.95	2 664.863m	2 664.491m	0.372m
1+253.80	2 664.953m	2 664.467m	0.485m
1+270.44	2 665.513m	2 664.006m	1.507m
1+271.28	2 665.544m	2 663.983m	1.561m
1+271.51	2 665.527m	2 663.976m	1.551m
1+272.04	2 665.461m	2 663.962m	1.499m
1+272.56	2 665.555m	2 663.947m	1.607m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+272.70	2 665.541m	2 663.943m	1.598m
1+273.84	2 665.481m	2 663.912m	1.570m
1+275.00	2 665.522m	2 663.879m	1.643m
1+279.99	2 665.698m	2 663.741m	1.957m
1+282.19	2 665.826m	2 663.680m	2.146m
1+282.83	2 665.837m	2 663.662m	2.175m
1+284.57	2 665.847m	2 663.614m	2.233m
1+284.68	2 665.864m	2 663.611m	2.253m
1+294.01	2 665.298m	2 663.352m	1.946m
1+300.00	2 664.906m	2 663.186m	1.721m
1+306.43	2 664.486m	2 663.007m	1.478m
1+309.86	2 664.150m	2 662.912m	1.238m
1+314.24	2 663.745m	2 662.791m	0.954m
1+320.06	2 663.133m	2 662.629m	0.504m
1+320.06	2 663.133m	2 662.629m	0.504m
1+321.62	2 662.970m	2 662.586m	0.384m
1+321.63	2 662.970m	2 662.586m	0.384m
1+321.68	2 663.023m	2 662.584m	0.439m
1+323.19	2 662.927m	2 662.542m	0.384m
1+324.76	2 662.825m	2 662.499m	0.327m
1+325.00	2 662.810m	2 662.492m	0.318m
1+325.30	2 662.790m	2 662.484m	0.306m
1+326.33	2 662.724m	2 662.457m	0.267m
1+327.89	2 662.621m	2 662.421m	0.200m
1+329.46	2 662.519m	2 662.393m	0.126m
1+331.03	2 662.416m	2 662.371m	0.045m
1+332.60	2 662.314m	2 662.356m	-0.042m
1+333.25	2 662.272m	2 662.352m	-0.080m
1+334.16	2 662.207m	2 662.348m	-0.141m
1+335.20	2 662.133m	2 662.347m	-0.213m
1+335.73	2 662.095m	2 662.347m	-0.252m
1+337.30	2 661.983m	2 662.353m	-0.370m
1+338.41	2 661.903m	2 662.361m	-0.458m
1+338.77	2 661.880m	2 662.364m	-0.485m
1+338.87	2 661.880m	2 662.365m	-0.486m
1+340.44	2 661.886m	2 662.385m	-0.499m
1+342.00	2 661.897m	2 662.411m	-0.514m
1+342.54	2 661.903m	2 662.422m	-0.519m
1+342.94	2 661.898m	2 662.431m	-0.533m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+343.57	2 661.851m	2 662.445m	-0.594m
1+344.01	2 661.820m	2 662.455m	-0.635m
1+345.14	2 661.805m	2 662.485m	-0.680m
1+345.14	2 661.805m	2 662.485m	-0.680m
1+345.30	2 661.803m	2 662.490m	-0.686m
1+345.79	2 661.798m	2 662.504m	-0.706m
1+346.71	2 661.729m	2 662.532m	-0.803m
1+348.04	2 661.628m	2 662.578m	-0.950m
1+348.27	2 661.610m	2 662.586m	-0.976m
1+348.98	2 661.557m	2 662.613m	-1.056m
1+349.84	2 661.563m	2 662.647m	-1.084m
1+350.00	2 661.565m	2 662.654m	-1.089m
1+351.41	2 661.581m	2 662.715m	-1.134m
1+352.98	2 661.605m	2 662.790m	-1.184m
1+354.54	2 661.637m	2 662.871m	-1.234m
1+356.11	2 661.676m	2 662.960m	-1.284m
1+356.63	2 661.691m	2 662.990m	-1.299m
1+356.85	2 661.735m	2 663.004m	-1.268m
1+357.11	2 661.731m	2 663.019m	-1.289m
1+357.68	2 661.742m	2 663.055m	-1.313m
1+359.25	2 661.771m	2 663.157m	-1.386m
1+360.81	2 661.799m	2 663.266m	-1.467m
1+362.38	2 661.826m	2 663.382m	-1.556m
1+363.95	2 661.851m	2 663.505m	-1.654m
1+365.30	2 661.872m	2 663.617m	-1.745m
1+365.52	2 661.875m	2 663.635m	-1.760m
1+366.32	2 661.887m	2 663.703m	-1.816m
1+366.38	2 661.887m	2 663.708m	-1.820m
1+366.46	2 661.894m	2 663.714m	-1.820m
1+366.68	2 662.070m	2 663.733m	-1.663m
1+367.08	2 662.071m	2 663.767m	-1.697m
1+368.65	2 662.078m	2 663.900m	-1.821m
1+370.22	2 662.091m	2 664.032m	-1.941m
1+370.22	2 662.091m	2 664.032m	-1.941m
1+375.00	2 662.137m	2 664.435m	-2.298m
1+375.80	2 662.145m	2 664.502m	-2.357m
1+378.14	2 662.204m	2 664.700m	-2.496m
1+380.00	2 662.252m	2 664.857m	-2.605m
1+388.33	2 662.467m	2 665.560m	-3.093m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+400.00	2 662.897m	2 666.545m	-3.648m
1+404.91	2 663.078m	2 666.960m	-3.881m
1+409.34	2 663.208m	2 667.334m	-4.125m
1+415.49	2 663.520m	2 667.852m	-4.333m
1+425.00	2 663.987m	2 668.655m	-4.669m
1+431.71	2 664.316m	2 669.221m	-4.906m
1+432.96	2 664.474m	2 669.327m	-4.853m
1+433.49	2 664.424m	2 669.372m	-4.948m
1+434.69	2 664.481m	2 669.473m	-4.991m
1+435.24	2 664.510m	2 669.520m	-5.010m
1+438.09	2 664.702m	2 669.760m	-5.058m
1+438.13	2 664.708m	2 669.764m	-5.056m
1+447.14	2 665.207m	2 670.524m	-5.317m
1+448.07	2 665.298m	2 670.602m	-5.304m
1+450.00	2 665.453m	2 670.765m	-5.313m
1+452.38	2 665.643m	2 670.966m	-5.323m
1+454.06	2 665.765m	2 671.108m	-5.343m
1+455.00	2 665.852m	2 671.187m	-5.335m
1+457.72	2 666.070m	2 671.417m	-5.347m
1+464.22	2 666.561m	2 671.965m	-5.404m
1+465.15	2 666.583m	2 672.044m	-5.461m
1+465.49	2 666.582m	2 672.072m	-5.491m
1+466.66	2 666.673m	2 672.172m	-5.499m
1+469.27	2 666.856m	2 672.391m	-5.536m
1+470.08	2 666.931m	2 672.460m	-5.529m
1+474.53	2 667.249m	2 672.835m	-5.587m
1+475.00	2 667.245m	2 672.875m	-5.631m
1+475.53	2 667.240m	2 672.920m	-5.680m
1+477.43	2 667.475m	2 673.081m	-5.605m
1+477.67	2 667.550m	2 673.101m	-5.551m
1+480.18	2 667.714m	2 673.313m	-5.599m
1+482.10	2 667.786m	2 673.475m	-5.689m
1+487.91	2 668.404m	2 673.965m	-5.561m
1+490.26	2 668.672m	2 674.163m	-5.491m
1+491.08	2 668.754m	2 674.233m	-5.479m
1+493.50	2 668.942m	2 674.436m	-5.495m
1+494.28	2 669.458m	2 674.503m	-5.045m
1+500.00	2 669.738m	2 674.985m	-5.247m
1+500.87	2 669.781m	2 675.059m	-5.278m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+506.96	2 670.320m	2 675.572m	-5.252m
1+509.20	2 670.510m	2 675.762m	-5.252m
1+509.82	2 670.592m	2 675.814m	-5.222m
1+509.97	2 670.623m	2 675.827m	-5.204m
1+525.00	2 672.122m	2 677.095m	-4.974m
1+529.21	2 672.542m	2 677.451m	-4.909m
1+530.63	2 672.640m	2 677.570m	-4.930m
1+537.92	2 673.351m	2 678.185m	-4.835m
1+544.24	2 674.044m	2 678.719m	-4.675m
1+550.00	2 674.761m	2 679.205m	-4.444m
1+552.07	2 675.019m	2 679.380m	-4.361m
1+552.10	2 674.893m	2 679.383m	-4.490m
1+553.00	2 674.943m	2 679.459m	-4.516m
1+553.67	2 674.962m	2 679.515m	-4.553m
1+557.53	2 675.321m	2 679.841m	-4.521m
1+561.40	2 675.579m	2 680.168m	-4.589m
1+561.82	2 675.760m	2 680.203m	-4.442m
1+570.01	2 676.946m	2 680.894m	-3.948m
1+571.48	2 677.014m	2 681.018m	-4.004m
1+572.24	2 677.109m	2 681.082m	-3.973m
1+575.00	2 677.487m	2 681.315m	-3.829m
1+590.60	2 679.615m	2 682.632m	-3.017m
1+592.85	2 679.915m	2 682.822m	-2.906m
1+593.87	2 680.140m	2 682.908m	-2.768m
1+598.87	2 680.941m	2 683.330m	-2.389m
1+600.00	2 681.132m	2 683.425m	-2.294m
1+614.32	2 683.545m	2 684.634m	-1.088m
1+615.51	2 683.741m	2 684.735m	-0.993m
1+617.57	2 684.041m	2 684.908m	-0.867m
1+617.74	2 684.350m	2 684.923m	-0.573m
1+618.01	2 684.376m	2 684.945m	-0.569m
1+621.94	2 684.758m	2 685.294m	-0.536m
1+623.78	2 685.018m	2 685.468m	-0.449m
1+623.78	2 685.018m	2 685.468m	-0.449m
1+625.00	2 685.192m	2 685.588m	-0.396m
1+625.52	2 685.266m	2 685.640m	-0.375m
1+627.27	2 685.510m	2 685.819m	-0.309m
1+628.01	2 685.612m	2 685.897m	-0.285m
1+628.14	2 685.631m	2 685.911m	-0.280m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+629.02	2 685.752m	2 686.005m	-0.253m
1+629.08	2 685.760m	2 686.012m	-0.251m
1+630.77	2 686.015m	2 686.197m	-0.182m
1+632.51	2 686.279m	2 686.396m	-0.117m
1+632.51	2 686.279m	2 686.396m	-0.117m
1+636.20	2 686.835m	2 686.837m	-0.002m
1+636.82	2 686.912m	2 686.914m	-0.003m
1+638.01	2 687.032m	2 687.063m	-0.031m
1+639.07	2 687.141m	2 687.199m	-0.059m
1+639.69	2 687.260m	2 687.278m	-0.018m
1+644.04	2 687.930m	2 687.832m	0.098m
1+648.48	2 688.529m	2 688.398m	0.131m
1+648.72	2 688.501m	2 688.429m	0.072m
1+650.00	2 688.701m	2 688.592m	0.109m
1+650.00	2 688.701m	2 688.592m	0.109m
1+651.71	2 688.944m	2 688.810m	0.134m
1+655.53	2 689.333m	2 689.297m	0.036m
1+670.27	2 690.730m	2 691.175m	-0.444m
1+670.28	2 690.731m	2 691.176m	-0.446m
1+670.34	2 690.734m	2 691.184m	-0.450m
1+670.49	2 690.751m	2 691.203m	-0.453m
1+673.00	2 690.980m	2 691.522m	-0.543m
1+673.45	2 691.081m	2 691.580m	-0.500m
1+675.00	2 691.242m	2 691.778m	-0.536m
1+677.60	2 691.511m	2 692.109m	-0.597m
1+678.44	2 691.513m	2 692.216m	-0.702m
1+680.05	2 691.721m	2 692.421m	-0.700m
1+680.05	2 691.721m	2 692.421m	-0.700m
1+681.17	2 691.863m	2 692.564m	-0.701m
1+682.29	2 691.999m	2 692.706m	-0.707m
1+682.65	2 692.041m	2 692.752m	-0.711m
1+682.72	2 692.056m	2 692.761m	-0.705m
1+683.41	2 692.193m	2 692.849m	-0.657m
1+684.53	2 692.410m	2 692.992m	-0.582m
1+685.65	2 692.623m	2 693.135m	-0.512m
1+686.77	2 692.830m	2 693.277m	-0.447m
1+687.89	2 693.030m	2 693.420m	-0.390m
1+689.01	2 693.223m	2 693.563m	-0.340m
1+689.10	2 693.238m	2 693.575m	-0.337m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+690.13	2 693.390m	2 693.706m	-0.316m
1+691.25	2 693.558m	2 693.848m	-0.290m
1+692.37	2 693.728m	2 693.991m	-0.263m
1+692.37	2 693.728m	2 693.991m	-0.263m
1+693.21	2 693.857m	2 694.099m	-0.242m
1+693.41	2 693.887m	2 694.123m	-0.236m
1+693.49	2 693.903m	2 694.134m	-0.231m
1+694.61	2 694.109m	2 694.276m	-0.168m
1+695.73	2 694.309m	2 694.419m	-0.110m
1+696.85	2 694.503m	2 694.562m	-0.059m
1+697.97	2 694.689m	2 694.705m	-0.016m
1+698.38	2 694.755m	2 694.757m	-0.003m
1+699.09	2 694.842m	2 694.847m	-0.005m
1+700.00	2 694.957m	2 694.963m	-0.006m
1+700.21	2 694.984m	2 694.990m	-0.006m
1+701.33	2 695.128m	2 695.133m	-0.005m
1+702.45	2 695.274m	2 695.276m	-0.002m
1+703.57	2 695.421m	2 695.418m	0.003m
1+704.69	2 695.569m	2 695.561m	0.008m
1+704.69	2 695.569m	2 695.561m	0.008m
1+706.02	2 695.745m	2 695.731m	0.014m
1+706.52	2 695.797m	2 695.794m	0.003m
1+706.74	2 695.820m	2 695.822m	-0.002m
1+707.06	2 695.873m	2 695.863m	0.009m
1+708.07	2 696.010m	2 695.992m	0.017m
1+717.74	2 697.309m	2 697.224m	0.086m
1+719.33	2 697.493m	2 697.427m	0.066m
1+725.00	2 698.128m	2 698.149m	-0.021m
1+736.67	2 699.434m	2 699.636m	-0.202m
1+736.67	2 699.434m	2 699.636m	-0.202m
1+737.79	2 699.561m	2 699.779m	-0.218m
1+738.08	2 699.594m	2 699.816m	-0.222m
1+738.39	2 699.709m	2 699.855m	-0.146m
1+738.52	2 699.754m	2 699.872m	-0.118m
1+738.92	2 699.780m	2 699.923m	-0.142m
1+740.04	2 699.854m	2 700.066m	-0.212m
1+740.06	2 699.855m	2 700.069m	-0.213m
1+740.17	2 699.860m	2 700.082m	-0.222m
1+741.17	2 699.904m	2 700.208m	-0.304m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+741.47	2 699.917m	2 700.245m	-0.329m
1+742.29	2 700.034m	2 700.347m	-0.313m
1+743.42	2 700.197m	2 700.482m	-0.285m
1+744.54	2 700.362m	2 700.613m	-0.251m
1+744.99	2 700.428m	2 700.665m	-0.236m
1+745.67	2 700.579m	2 700.742m	-0.162m
1+746.64	2 700.791m	2 700.850m	-0.058m
1+746.79	2 700.807m	2 700.866m	-0.059m
1+747.92	2 700.938m	2 700.987m	-0.049m
1+747.96	2 700.944m	2 700.992m	-0.048m
1+748.35	2 701.118m	2 701.033m	0.085m
1+749.04	2 701.210m	2 701.105m	0.105m
1+750.00	2 701.333m	2 701.203m	0.131m
1+750.03	2 701.337m	2 701.206m	0.131m
1+750.17	2 701.357m	2 701.220m	0.137m
1+750.17	2 701.357m	2 701.220m	0.137m
1+750.73	2 701.434m	2 701.275m	0.159m
1+751.30	2 701.512m	2 701.330m	0.182m
1+752.42	2 701.665m	2 701.438m	0.227m
1+752.66	2 701.696m	2 701.460m	0.236m
1+753.25	2 701.729m	2 701.515m	0.214m
1+753.55	2 701.766m	2 701.542m	0.224m
1+754.67	2 701.904m	2 701.642m	0.262m
1+755.80	2 702.043m	2 701.739m	0.304m
1+756.92	2 702.180m	2 701.833m	0.347m
1+758.05	2 702.315m	2 701.923m	0.392m
1+759.17	2 702.447m	2 702.009m	0.438m
1+760.05	2 702.548m	2 702.074m	0.474m
1+760.17	2 702.559m	2 702.083m	0.476m
1+760.30	2 702.571m	2 702.092m	0.478m
1+761.42	2 702.662m	2 702.174m	0.488m
1+761.86	2 702.693m	2 702.205m	0.487m
1+762.55	2 702.773m	2 702.256m	0.518m
1+763.67	2 702.894m	2 702.337m	0.557m
1+763.82	2 702.908m	2 702.348m	0.560m
1+764.80	2 702.994m	2 702.419m	0.575m
1+764.80	2 702.994m	2 702.419m	0.575m
1+765.74	2 703.073m	2 702.487m	0.586m
1+766.45	2 703.122m	2 702.539m	0.583m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+767.73	2 703.244m	2 702.632m	0.611m
1+775.00	2 703.953m	2 703.160m	0.793m
1+776.39	2 704.088m	2 703.261m	0.827m
1+778.21	2 704.311m	2 703.393m	0.917m
1+778.95	2 704.372m	2 703.447m	0.925m
1+786.11	2 704.990m	2 703.967m	1.023m
1+788.97	2 705.207m	2 704.175m	1.032m
1+799.04	2 705.993m	2 704.906m	1.087m
1+799.24	2 706.035m	2 704.921m	1.114m
1+800.00	2 706.198m	2 704.976m	1.222m
1+800.20	2 706.240m	2 704.990m	1.249m
1+800.56	2 706.278m	2 705.017m	1.261m
1+802.53	2 706.442m	2 705.160m	1.282m
1+803.58	2 706.527m	2 705.236m	1.290m
1+811.29	2 707.071m	2 705.796m	1.275m
1+821.35	2 707.867m	2 706.527m	1.339m
1+823.73	2 708.068m	2 706.700m	1.368m
1+824.66	2 708.117m	2 706.768m	1.349m
1+825.00	2 708.120m	2 706.792m	1.328m
1+825.94	2 708.130m	2 706.861m	1.269m
1+826.32	2 708.159m	2 706.888m	1.271m
1+831.62	2 708.524m	2 707.273m	1.251m
1+832.60	2 708.411m	2 707.344m	1.067m
1+836.21	2 708.597m	2 707.606m	0.991m
1+838.12	2 708.647m	2 707.745m	0.902m
1+840.26	2 708.679m	2 707.901m	0.779m
1+840.62	2 708.704m	2 707.926m	0.777m
1+841.58	2 708.727m	2 707.996m	0.731m
1+841.58	2 708.727m	2 707.996m	0.731m
1+842.87	2 708.758m	2 708.090m	0.668m
1+843.07	2 708.762m	2 708.105m	0.658m
1+843.70	2 708.767m	2 708.150m	0.617m
1+844.02	2 708.770m	2 708.173m	0.596m
1+845.83	2 708.783m	2 708.305m	0.478m
1+846.26	2 708.787m	2 708.336m	0.451m
1+846.88	2 708.791m	2 708.381m	0.411m
1+847.95	2 708.807m	2 708.457m	0.350m
1+850.00	2 708.837m	2 708.596m	0.241m
1+850.08	2 708.838m	2 708.602m	0.236m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+852.21	2 708.870m	2 708.739m	0.131m
1+852.55	2 708.875m	2 708.760m	0.114m
1+854.33	2 708.904m	2 708.869m	0.035m
1+856.26	2 708.936m	2 708.981m	-0.045m
1+856.46	2 708.939m	2 708.992m	-0.053m
1+856.46	2 708.939m	2 708.992m	-0.053m
1+858.58	2 708.973m	2 709.107m	-0.134m
1+858.77	2 708.976m	2 709.117m	-0.141m
1+860.71	2 709.045m	2 709.215m	-0.170m
1+862.43	2 709.106m	2 709.296m	-0.191m
1+862.84	2 709.116m	2 709.315m	-0.200m
1+864.96	2 709.163m	2 709.408m	-0.246m
1+866.26	2 709.188m	2 709.461m	-0.273m
1+867.09	2 709.204m	2 709.494m	-0.290m
1+869.21	2 709.241m	2 709.579m	-0.338m
1+869.90	2 709.251m	2 709.607m	-0.355m
1+869.97	2 709.233m	2 709.609m	-0.376m
1+871.34	2 709.241m	2 709.664m	-0.423m
1+871.34	2 709.241m	2 709.664m	-0.423m
1+872.60	2 709.248m	2 709.714m	-0.466m
1+875.00	2 709.303m	2 709.810m	-0.507m
1+880.88	2 709.439m	2 710.044m	-0.605m
1+880.88	2 709.439m	2 710.044m	-0.605m
1+881.54	2 709.454m	2 710.071m	-0.617m
1+881.74	2 709.459m	2 710.078m	-0.619m
1+882.11	2 709.472m	2 710.093m	-0.622m
1+882.90	2 709.496m	2 710.125m	-0.629m
1+884.92	2 709.557m	2 710.205m	-0.648m
1+886.94	2 709.616m	2 710.286m	-0.670m
1+888.96	2 709.673m	2 710.366m	-0.694m
1+889.62	2 709.691m	2 710.393m	-0.702m
1+890.98	2 709.726m	2 710.447m	-0.721m
1+892.39	2 709.761m	2 710.503m	-0.742m
1+893.00	2 709.783m	2 710.528m	-0.744m
1+895.02	2 709.855m	2 710.608m	-0.753m
1+897.04	2 709.925m	2 710.689m	-0.764m
1+899.06	2 709.993m	2 710.769m	-0.776m
1+899.06	2 709.993m	2 710.769m	-0.776m
1+900.00	2 710.024m	2 710.807m	-0.783m

ABSCISA	COTA TERRENO	COTA RASANTE	Diferencia de elevación
1+901.08	2 710.059m	2 710.850m	-0.790m
1+903.10	2 710.123m	2 710.930m	-0.807m
1+903.39	2 710.132m	2 710.942m	-0.809m
1+904.57	2 710.183m	2 710.989m	-0.806m
1+904.62	2 710.174m	2 710.991m	-0.817m
1+905.12	2 710.212m	2 711.011m	-0.799m
1+905.14	2 710.214m	2 711.012m	-0.798m
1+907.14	2 710.330m	2 711.091m	-0.761m
1+909.16	2 710.451m	2 711.172m	-0.721m
1+911.18	2 710.576m	2 711.252m	-0.677m
1+913.20	2 710.704m	2 711.333m	-0.629m
1+915.18	2 710.832m	2 711.412m	-0.580m
1+915.22	2 710.835m	2 711.414m	-0.578m
1+917.24	2 711.008m	2 711.494m	-0.486m
1+917.24	2 711.008m	2 711.494m	-0.486m
1+925.00	2 711.677m	2 711.804m	-0.126m
1+927.71	2 711.911m	2 711.912m	-0.001m
1+927.72	2 711.912m	2 711.912m	0.000m

Tabla 5-9 *Cotas Diseño vertical.*

5.5. Diseño Sección Transversal

5.5.1 Secciones Típicas

Es un corte vertical normal al alineamiento horizontal, el cual permite definir la disposición y dimensiones de los elementos que forman la carretera en el punto correspondiente a cada sección y su relación con el terreno natural. La figura ilustra la sección transversal típica para una vía de doble calzada, cabe anotar que esta sección puede cambiar un poco según el tipo de proyecto, además las figuras presentadas a continuación son casos típicos en recta por lo cual no se contempló el sobreancho en ellas.

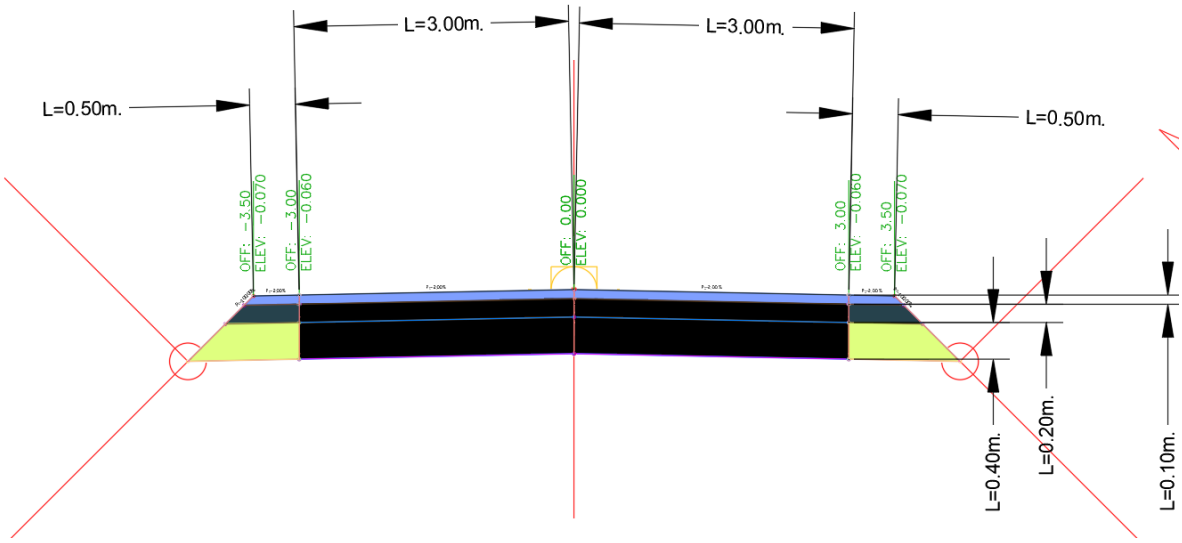


ILUSTRACIÓN 4 SECCIÓN TÍPICA

5.5.2 Cartera de la Rasante

La cartera de rasante de la sección transversal está constituida por el cálculo de las cotas de diseño de los bordes de calzada, bordes de berma, bordes de cuneta; teniendo en cuenta los elementos constitutivos de la sección correspondiente. Para este cálculo se deben contemplar: el peralte, el sobreancho, las dimensiones y pendientes transversales de la calzada, de las bermas y la forma y dimensiones de la cuneta.

	BORDE IZQUIERDO			EJE			BORDE DERECHO		
ABSCISA	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**
0+000.00	1,031,463.19	1,082,853.01	2,550.44	1031463.262	1082857.41	2 550.480m	1,031,463.34	1,082,861.91	2,550.82
0+020.00	1,031,443.19	1,082,853.46	2,550.68	1031443.265	1082857.742	2 551.207m	1,031,443.34	1,082,862.08	2,550.93
0+040.00	1,031,423.20	1,082,853.75	2,551.05	1031423.267	1082858.074	2 551.934m	1,031,423.34	1,082,862.34	2,551.34
0+060.00	1,031,403.20	1,082,854.06	2,551.74	1031403.27	1082858.407	2 552.661m	1,031,403.34	1,082,862.66	2,552.03
0+080.00	1,031,383.20	1,082,854.52	2,552.62	1031383.273	1082858.739	2 553.389m	1,031,383.34	1,082,863.01	2,553.02
0+100.00	1,031,363.73	1,082,853.75	2,553.83	1031363.298	1082858.061	2 554.165m	1,031,362.87	1,082,862.37	2,554.11
0+120.00	1,031,344.78	1,082,849.59	2,553.46	1031343.592	1082854.733	2 555.288m	1,031,342.62	1,082,858.96	2,555.22
0+140.00	1,031,325.54	1,082,844.04	2,553.69	1031324.105	1082850.23	2 556.478m	1,031,323.10	1,082,854.58	2,556.41
0+160.00	1,031,304.45	1,082,842.56	2,556.58	1031304.382	1082847.233	2 557.635m	1,031,304.31	1,082,851.78	2,557.68
0+180.00	1,031,283.59	1,082,845.71	2,557.89	1031284.619	1082849.831	2 558.511m	1,031,285.71	1,082,854.17	2,558.38
0+200.00	1,031,264.16	1,082,850.48	2,559.05	1031265.219	1082854.692	2 559.323m	1,031,266.28	1,082,858.93	2,559.15
0+220.00	1,031,244.76	1,082,855.32	2,559.93	1031245.819	1082859.554	2 560.135m	1,031,246.89	1,082,863.84	2,560.15
0+240.00	1,031,225.36	1,082,860.18	2,560.75	1031226.419	1082864.416	2 560.946m	1,031,227.49	1,082,868.70	2,560.96
0+260.00	1,031,205.95	1,082,865.03	2,561.67	1031207.018	1082869.277	2 561.758m	1,031,208.12	1,082,873.65	2,561.78
0+280.00	1,031,186.04	1,082,872.28	2,563.03	1031188.339	1082876.167	2 562.570m	1,031,190.65	1,082,880.09	2,562.49
0+300.00	1,031,169.84	1,082,886.58	2,564.41	1031173.46	1082889.348	2 563.779m	1,031,177.13	1,082,892.16	2,564.00
0+320.00	1,031,160.37	1,082,905.97	2,565.71	1031164.594	1082907.139	2 565.784m	1,031,168.99	1,082,908.36	2,565.74
0+340.00	1,031,156.70	1,082,926.06	2,567.73	1031160.928	1082926.793	2 568.186m	1,031,165.32	1,082,927.55	2,568.27
0+360.00	1,031,153.32	1,082,945.77	2,569.97	1031157.512	1082946.499	2 570.588m	1,031,161.73	1,082,947.23	2,570.16
0+380.00	1,031,149.75	1,082,964.99	2,572.05	1031153.901	1082966.164	2 572.990m	1,031,158.33	1,082,967.42	2,572.01
0+400.00	1,031,140.55	1,082,979.77	2,574.22	1031143.666	1082983.066	2 575.392m	1,031,146.87	1,082,986.46	2,574.37
0+420.00	1,031,124.63	1,082,989.96	2,576.63	1031126.933	1082993.926	2 577.794m	1,031,129.13	1,082,997.70	2,576.93

	BORDE IZQUIERDO			EJE			BORDE DERECHO		
ABSCISA	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**
0+440.00	1,031,107.32	1,082,999.99	2,579.09	1031109.639	1083003.973	2 580.196m	1,031,111.87	1,083,007.81	2,580.17
0+460.00	1,031,089.64	1,083,011.32	2,581.61	1031092.813	1083014.7	2 582.598m	1,031,095.87	1,083,017.95	2,582.43
0+480.00	1,031,078.91	1,083,031.09	2,584.05	1031083.33	1083031.937	2 584.902m	1,031,087.74	1,083,032.78	2,584.86
0+500.00	1,031,081.85	1,083,053.29	2,586.34	1031085.774	1083051.458	2 586.618m	1,031,089.98	1,083,049.48	2,587.21
0+520.00	1,031,095.35	1,083,069.91	2,588.46	1031098.473	1083066.73	2 588.236m	1,031,101.60	1,083,063.55	2,588.30
0+540.00	1,031,109.57	1,083,083.98	2,590.35	1031112.744	1083080.742	2 589.855m	1,031,115.80	1,083,077.63	2,589.64
0+560.00	1,031,123.93	1,083,097.90	2,591.47	1031127.015	1083094.754	2 591.473m	1,031,129.97	1,083,091.74	2,590.72
0+580.00	1,031,138.26	1,083,111.85	2,592.73	1031141.287	1083108.766	2 593.091m	1,031,144.27	1,083,105.73	2,592.30
0+600.00	1,031,152.19	1,083,125.76	2,594.57	1031155.473	1083122.86	2 594.719m	1,031,158.62	1,083,120.09	2,594.21
0+620.00	1,031,160.99	1,083,141.45	2,596.36	1031165.088	1083140.218	2 596.891m	1,031,169.41	1,083,138.91	2,595.96
0+640.00	1,031,166.32	1,083,160.73	2,598.07	1031170.857	1083159.368	2 599.378m	1,031,175.61	1,083,157.94	2,597.85
0+660.00	1,031,172.39	1,083,179.79	2,600.88	1031176.626	1083178.518	2 601.865m	1,031,181.53	1,083,177.04	2,600.30
0+680.00	1,031,175.06	1,083,196.83	2,603.36	1031179.232	1083197.998	2 604.351m	1,031,183.56	1,083,199.21	2,603.51
0+700.00	1,031,166.33	1,083,213.72	2,606.60	1031170.161	1083215.788	2 606.838m	1,031,173.95	1,083,217.84	2,606.68
0+720.00	1,031,156.75	1,083,231.27	2,609.40	1031160.639	1083233.376	2 609.325m	1,031,164.69	1,083,235.57	2,609.00
0+740.00	1,031,147.71	1,083,249.64	2,611.76	1031151.846	1083251.325	2 611.505m	1,031,156.30	1,083,253.14	2,611.24
0+760.00	1,031,141.03	1,083,268.94	2,613.66	1031145.515	1083270.286	2 612.558m	1,031,150.07	1,083,271.65	2,612.98
0+780.00	1,031,135.31	1,083,288.11	2,614.52	1031139.784	1083289.447	2 613.507m	1,031,144.22	1,083,290.77	2,614.37
0+800.00	1,031,129.66	1,083,307.30	2,615.14	1031134.054	1083308.609	2 614.456m	1,031,138.40	1,083,309.91	2,615.16
0+820.00	1,031,123.12	1,083,324.47	2,615.72	1031126.733	1083327.109	2 615.491m	1,031,130.28	1,083,329.70	2,615.85
0+840.00	1,031,109.41	1,083,332.72	2,617.32	1031110.035	1083337.123	2 617.212m	1,031,110.63	1,083,341.37	2,617.17
0+860.00	1,031,091.10	1,083,330.63	2,619.48	1031090.257	1083334.921	2 619.645m	1,031,089.41	1,083,339.23	2,619.73
0+880.00	1,031,071.49	1,083,326.70	2,622.25	1031070.636	1083331.047	2 622.192m	1,031,069.75	1,083,335.54	2,622.87
0+900.00	1,031,051.87	1,083,322.74	2,625.15	1031051.014	1083327.174	2 624.739m	1,031,050.09	1,083,331.95	2,625.85
0+920.00	1,031,031.66	1,083,319.89	2,627.38	1031031.229	1083324.3	2 627.287m	1,031,030.76	1,083,329.13	2,628.36
0+940.00	1,031,011.28	1,083,318.88	2,629.79	1031011.263	1083323.276	2 629.834m	1,031,011.24	1,083,328.02	2,630.49

	BORDE IZQUIERDO			EJE			BORDE DERECHO		
ABSCISA	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**	**ESTE**	**NORTE**	**COTA**
0+960.00	1,030,991.11	1,083,319.44	2,632.30	1030991.272	1083323.829	2 632.381m	1,030,991.45	1,083,328.57	2,633.48
0+980.00	1,030,971.12	1,083,320.15	2,634.99	1030971.286	1083324.571	2 634.928m	1,030,971.46	1,083,329.23	2,635.89
1+000.00	1,030,950.21	1,083,321.43	2,637.50	1030951.341	1083325.68	2 637.476m	1,030,952.55	1,083,330.22	2,638.25
1+020.00	1,030,935.77	1,083,340.60	2,640.03	1030940.192	1083340.507	2 639.929m	1,030,944.56	1,083,340.41	2,639.59
1+040.00	1,030,937.49	1,083,359.44	2,641.35	1030941.641	1083360.188	2 642.266m	1,030,945.82	1,083,360.94	2,642.08
1+060.00	1,030,933.80	1,083,378.60	2,643.78	1030937.834	1083379.814	2 644.602m	1,030,942.29	1,083,381.15	2,643.58
1+080.00	1,030,925.99	1,083,396.40	2,646.68	1030929.951	1083398.182	2 646.939m	1,030,933.79	1,083,399.91	2,646.28
1+100.00	1,030,917.94	1,083,415.01	2,649.40	1030922.094	1083416.569	2 649.275m	1,030,926.23	1,083,418.12	2,649.13
1+120.00	1,030,911.80	1,083,434.55	2,651.84	1030916.126	1083435.647	2 651.612m	1,030,920.52	1,083,436.76	2,651.94
1+140.00	1,030,907.90	1,083,454.57	2,654.00	1030912.265	1083455.262	2 653.948m	1,030,916.68	1,083,455.96	2,654.05
1+160.00	1,030,904.65	1,083,474.04	2,655.56	1030908.782	1083474.953	2 656.284m	1,030,912.92	1,083,475.87	2,655.67
1+180.00	1,030,898.96	1,083,492.74	2,657.26	1030903.505	1083494.235	2 658.621m	1,030,907.53	1,083,495.56	2,657.94
1+200.00	1,030,891.66	1,083,510.95	2,659.31	1030896.373	1083512.913	2 660.957m	1,030,900.49	1,083,514.63	2,659.92
1+220.00	1,030,884.03	1,083,529.57	2,661.92	1030888.677	1083531.373	2 663.294m	1,030,892.84	1,083,532.99	2,662.45
1+240.00	1,030,884.14	1,083,552.33	2,664.33	1030888.206	1083550.969	2 664.774m	1,030,892.59	1,083,549.50	2,664.47
1+260.00	1,030,895.40	1,083,570.44	2,664.97	1030899.031	1083567.653	2 664.296m	1,030,902.78	1,083,564.78	2,665.31
1+280.00	1,030,907.35	1,083,586.48	2,665.55	1030911.208	1083583.518	2 663.741m	1,030,915.07	1,083,580.55	2,665.57
1+300.00	1,030,919.52	1,083,602.35	2,665.05	1030923.386	1083599.383	2 663.186m	1,030,927.17	1,083,596.48	2,664.66
1+320.00	1,030,931.99	1,083,617.99	2,662.99	1030935.563	1083615.249	2 662.631m	1,030,938.98	1,083,612.63	2,662.54
1+340.00	1,030,937.72	1,083,633.87	2,661.92	1030942.024	1083633.814	2 662.379m	1,030,946.42	1,083,633.76	2,661.63
1+360.00	1,030,932.53	1,083,649.97	2,662.20	1030936.06	1083652.545	2 663.209m	1,030,940.03	1,083,655.44	2,661.94
1+380.00	1,030,917.66	1,083,660.83	2,662.83	1030920.801	1083665.298	2 664.857m	1,030,924.29	1,083,670.27	2,662.32
1+400.00	1,030,900.57	1,083,671.30	2,663.26	1030904.435	1083676.794	2 666.545m	1,030,908.44	1,083,682.50	2,663.00
1+420.00	1,030,883.70	1,083,682.07	2,664.06	1030888.07	1083688.29	2 668.233m	1,030,892.30	1,083,694.32	2,664.30
1+440.00	1,030,866.94	1,083,693.00	2,665.06	1030871.704	1083699.787	2 669.921m	1,030,892.30	1,083,694.32	2,664.30
1+460.00	1,030,850.44	1,083,704.31	2,666.52	1030855.339	1083711.283	2 671.609m	1,030,892.30	1,083,694.32	2,664.30

	BORDE IZQUIERDO			EJE			BORDE DERECHO		
ABSCISA	ESTE	NORTE	COTA	ESTE	NORTE	COTA	ESTE	NORTE	COTA
1+480.00	1,030,834.45	1,083,716.35	2,668.87	1030838.973	1083722.779	2 673.297m	1,030,892.30	1,083,694.32	2,664.30
1+500.00	1,030,817.97	1,083,727.68	2,670.35	1030822.607	1083734.276	2 674.985m	1,030,892.30	1,083,694.32	2,664.30
1+520.00	1,030,801.72	1,083,739.33	2,672.23	1030806.242	1083745.772	2 676.673m	1,030,810.94	1,083,752.46	2,671.93
1+540.00	1,030,785.71	1,083,751.34	2,674.55	1030789.876	1083757.269	2 678.361m	1,030,794.31	1,083,763.58	2,674.08
1+560.00	1,030,769.75	1,083,763.42	2,676.95	1030773.51	1083768.765	2 680.049m	1,030,777.51	1,083,774.46	2,676.52
1+580.00	1,030,753.31	1,083,774.81	2,678.51	1030757.145	1083780.261	2 681.737m	1,030,760.74	1,083,785.38	2,678.91
1+600.00	1,030,737.60	1,083,787.23	2,681.32	1030740.779	1083791.758	2 683.425m	1,030,743.73	1,083,795.96	2,681.72
1+620.00	1,030,721.92	1,083,799.70	2,684.85	1030724.414	1083803.254	2 685.118m	1,030,726.91	1,083,806.81	2,685.12
1+640.00	1,030,705.13	1,083,809.14	2,687.45	1030707.075	1083813.136	2 687.318m	1,030,709.01	1,083,817.12	2,687.58
1+660.00	1,030,687.14	1,083,817.88	2,690.06	1030689.094	1083821.894	2 689.866m	1,030,691.08	1,083,825.96	2,690.39
1+680.00	1,030,669.22	1,083,826.77	2,692.05	1030671.114	1083830.652	2 692.415m	1,030,673.07	1,083,834.67	2,691.56
1+700.00	1,030,655.49	1,083,824.70	2,694.64	1030652.523	1083827.855	2 694.963m	1,030,649.56	1,083,831.01	2,695.08
1+720.00	1,030,645.57	1,083,808.81	2,697.21	1030641.839	1083811.009	2 697.512m	1,030,638.03	1,083,813.25	2,697.69
1+740.00	1,030,634.60	1,083,791.10	2,699.60	1030631.416	1083793.963	2 700.061m	1,030,627.80	1,083,797.22	2,700.03
1+760.00	1,030,611.47	1,083,785.36	2,702.73	1030613.121	1083789.609	2 702.071m	1,030,614.89	1,083,794.18	2,702.14
1+780.00	1,030,594.10	1,083,797.61	2,704.52	1030596.95	1083801.284	2 703.523m	1,030,599.72	1,083,804.85	2,703.94
1+800.00	1,030,578.29	1,083,809.87	2,705.96	1030581.15	1083813.546	2 704.976m	1,030,583.99	1,083,817.20	2,705.84
1+820.00	1,030,562.52	1,083,822.16	2,707.24	1030565.35	1083825.808	2 706.429m	1,030,568.23	1,083,829.52	2,707.55
1+840.00	1,030,546.73	1,083,834.44	2,708.62	1030549.55	1083838.07	2 707.882m	1,030,552.29	1,083,841.60	2,708.37
1+860.00	1,030,530.75	1,083,844.09	2,708.96	1030532.357	1083848.14	2 709.180m	1,030,533.92	1,083,852.07	2,708.81
1+880.00	1,030,512.17	1,083,848.98	2,709.35	1030513.025	1083853.135	2 710.009m	1,030,513.92	1,083,857.49	2,709.75
1+900.00	1,030,492.23	1,083,856.52	2,710.14	1030494.426	1083860.209	2 710.807m	1,030,496.69	1,083,864.01	2,710.26
1+920.00	1,030,476.09	1,083,870.28	2,711.40	1030479.326	1083873.183	2 711.604m	1,030,482.63	1,083,876.15	2,711.48
1+927.72	1,030,470.89	1,083,875.98	2,711.91	1030474.173	1083878.929	2 711.912m	1,030,477.44	1,083,881.86	2,711.84

Tabla 5-10 *Cartera de la rasante*

5.5.3 Cartera Chaflanes

Se utiliza en las operaciones de campo para marcar los puntos a partir de los cuales se debe iniciar las operaciones de obra para el movimiento de tierra, ya sean cortes o relleno en una obra de ingeniería. La cartera de chaflanes se utiliza para el registro de datos transversales de obras longitudinales como carreteras y canales que para su construcción sea necesario realizar explanaciones y movimientos de tierra. Están marcados para registrar la abscisa, coordenadas y cota.

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
0+000.00	-4.402	1 031 463.19	1 082 853.01	2 550.44	4.496	1 031 463.34	1 082 861.91	2 550.82
0+010.00	-4.352	1 031 453.19	1 082 853.23	2 550.61	4.42	1 031 453.34	1 082 862.00	2 550.88
0+020.00	-4.281	1 031 443.19	1 082 853.46	2 550.68	4.343	1 031 443.34	1 082 862.09	2 550.93
0+030.00	-4.218	1 031 433.20	1 082 853.69	2 550.80	4.284	1 031 433.34	1 082 862.19	2 551.06
0+040.00	-4.32	1 031 423.20	1 082 853.76	2 551.05	4.262	1 031 423.34	1 082 862.34	2 551.34
0+050.00	-4.375	1 031 413.20	1 082 853.87	2 551.35	4.241	1 031 413.34	1 082 862.48	2 551.62
0+060.00	-4.349	1 031 403.20	1 082 854.06	2 551.74	4.255	1 031 403.34	1 082 862.66	2 552.03
0+070.00	-4.331	1 031 393.20	1 082 854.24	2 552.13	4.258	1 031 393.34	1 082 862.83	2 552.46
0+080.00	-4.219	1 031 383.20	1 082 854.52	2 552.62	4.271	1 031 383.34	1 082 863.01	2 553.02
0+090.00	-4.31	1 031 373.42	1 082 854.42	2 553.35	4.305	1 031 373.13	1 082 863.03	2 553.61
0+100.00	-4.328	1 031 363.73	1 082 853.75	2 553.83	4.327	1 031 362.87	1 082 862.37	2 554.11
0+110.00	-4.834	1 031 354.20	1 082 851.96	2 553.29	4.328	1 031 352.67	1 082 860.99	2 554.64
0+120.00	-5.277	1 031 344.78	1 082 849.59	2 553.46	4.335	1 031 342.62	1 082 858.96	2 555.22
0+130.00	-6.018	1 031 335.20	1 082 846.62	2 553.37	4.364	1 031 332.87	1 082 856.73	2 555.72
0+140.00	-6.352	1 031 325.54	1 082 844.04	2 553.69	4.462	1 031 323.10	1 082 854.58	2 556.41
0+150.00	-4.286	1 031 315.03	1 082 843.89	2 556.62	4.551	1 031 313.60	1 082 852.61	2 557.14
0+160.00	-4.673	1 031 304.45	1 082 842.56	2 556.58	4.548	1 031 304.31	1 082 851.78	2 557.68
0+170.00	-4.673	1 031 293.79	1 082 843.19	2 556.52	4.521	1 031 295.01	1 082 852.30	2 558.04
0+180.00	-4.247	1 031 283.59	1 082 845.71	2 557.89	4.47	1 031 285.71	1 082 854.17	2 558.38
0+190.00	-4.356	1 031 273.86	1 082 848.04	2 558.71	4.401	1 031 275.99	1 082 856.53	2 558.71
0+200.00	-4.343	1 031 264.16	1 082 850.48	2 559.05	4.369	1 031 266.28	1 082 858.93	2 559.15
0+210.00	-4.341	1 031 254.46	1 082 852.91	2 559.45	4.402	1 031 256.59	1 082 861.39	2 559.69
0+220.00	-4.36	1 031 244.76	1 082 855.33	2 559.93	4.416	1 031 246.89	1 082 863.84	2 560.15
0+230.00	-4.371	1 031 235.06	1 082 857.75	2 560.38	4.423	1 031 237.19	1 082 866.28	2 560.59
0+240.00	-4.362	1 031 225.36	1 082 860.19	2 560.75	4.416	1 031 227.49	1 082 868.70	2 560.96
0+250.00	-4.365	1 031 215.66	1 082 862.61	2 561.18	4.42	1 031 217.79	1 082 871.13	2 561.30
0+260.00	-4.381	1 031 205.95	1 082 865.03	2 561.67	4.512	1 031 208.12	1 082 873.65	2 561.78
0+270.00	-4.431	1 031 195.90	1 082 867.76	2 562.30	4.595	1 031 198.92	1 082 876.27	2 562.26
0+280.00	-4.514	1 031 186.04	1 082 872.28	2 563.03	4.551	1 031 190.65	1 082 880.09	2 562.49
0+290.00	-4.589	1 031 177.22	1 082 878.61	2 563.84	4.561	1 031 183.29	1 082 885.46	2 563.03
0+300.00	-4.555	1 031 169.85	1 082 886.58	2 564.41	4.626	1 031 177.13	1 082 892.16	2 564.00

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
0+310.00	-4.455	1 031 164.18	1 082 895.83	2 564.91	4.642	1 031 172.33	1 082 899.89	2 564.96
0+320.00	-4.381	1 031 160.37	1 082 905.97	2 565.71	4.562	1 031 168.99	1 082 908.36	2 565.74
0+330.00	-4.236	1 031 158.46	1 082 916.22	2 566.30	4.556	1 031 167.13	1 082 917.72	2 567.18
0+340.00	-4.294	1 031 156.70	1 082 926.06	2 567.73	4.456	1 031 165.32	1 082 927.55	2 568.27
0+350.00	-4.254	1 031 155.03	1 082 935.92	2 568.76	4.381	1 031 163.54	1 082 937.39	2 569.26
0+360.00	-4.257	1 031 153.32	1 082 945.77	2 569.97	4.283	1 031 161.73	1 082 947.23	2 570.16
0+370.00	-4.259	1 031 151.61	1 082 955.63	2 570.96	4.305	1 031 160.05	1 082 957.09	2 571.03
0+380.00	-4.316	1 031 149.75	1 082 964.99	2 572.05	4.604	1 031 158.33	1 082 967.42	2 572.01
0+390.00	-4.388	1 031 146.18	1 082 973.04	2 573.17	4.636	1 031 153.89	1 082 977.71	2 573.20
0+400.00	-4.532	1 031 140.55	1 082 979.77	2 574.22	4.663	1 031 146.87	1 082 986.46	2 574.37
0+410.00	-4.576	1 031 133.28	1 082 984.95	2 575.43	4.578	1 031 137.88	1 082 992.86	2 575.60
0+420.00	-4.592	1 031 124.63	1 082 989.96	2 576.63	4.37	1 031 129.13	1 082 997.71	2 576.93
0+430.00	-4.51	1 031 116.02	1 082 995.05	2 577.92	4.309	1 031 120.45	1 083 002.68	2 578.54
0+440.00	-4.609	1 031 107.32	1 082 999.99	2 579.09	4.433	1 031 111.87	1 083 007.81	2 580.17
0+450.00	-4.633	1 031 098.67	1 083 004.99	2 580.35	4.479	1 031 103.24	1 083 012.87	2 581.46
0+460.00	-4.636	1 031 089.64	1 083 011.32	2 581.61	4.459	1 031 095.87	1 083 017.95	2 582.43
0+470.00	-4.51	1 031 082.76	1 083 020.39	2 582.94	4.458	1 031 090.61	1 083 024.72	2 583.63
0+480.00	-4.498	1 031 078.91	1 083 031.09	2 584.05	4.491	1 031 087.74	1 083 032.78	2 584.86
0+490.00	-4.439	1 031 078.60	1 083 042.44	2 585.02	4.574	1 031 087.55	1 083 041.32	2 586.10
0+500.00	-4.328	1 031 081.86	1 083 053.30	2 586.35	4.65	1 031 089.98	1 083 049.48	2 587.21
0+510.00	-4.426	1 031 088.13	1 083 062.73	2 587.54	4.597	1 031 094.72	1 083 056.56	2 587.88
0+520.00	-4.46	1 031 095.35	1 083 069.91	2 588.46	4.463	1 031 101.60	1 083 063.55	2 588.30
0+530.00	-4.499	1 031 102.46	1 083 076.95	2 589.41	4.401	1 031 108.69	1 083 070.60	2 588.93
0+540.00	-4.535	1 031 109.57	1 083 083.98	2 590.35	4.359	1 031 115.80	1 083 077.63	2 589.64
0+550.00	-4.472	1 031 116.75	1 083 090.94	2 590.91	4.279	1 031 122.88	1 083 084.70	2 590.13
0+560.00	-4.41	1 031 123.93	1 083 097.90	2 591.47	4.224	1 031 129.98	1 083 091.74	2 590.72
0+570.00	-4.309	1 031 131.13	1 083 104.83	2 591.87	4.4	1 031 137.23	1 083 098.62	2 591.31
0+580.00	-4.322	1 031 138.26	1 083 111.85	2 592.73	4.253	1 031 144.27	1 083 105.73	2 592.30
0+590.00	-4.367	1 031 145.36	1 083 118.89	2 593.72	4.201	1 031 151.37	1 083 112.77	2 593.28
0+600.00	-4.378	1 031 152.19	1 083 125.76	2 594.57	4.192	1 031 158.62	1 083 120.09	2 594.21
0+610.00	-4.358	1 031 157.41	1 083 133.13	2 595.47	4.439	1 031 165.11	1 083 128.86	2 594.89
0+620.00	-4.28	1 031 160.99	1 083 141.45	2 596.36	4.517	1 031 169.41	1 083 138.92	2 595.96
0+630.00	-4.479	1 031 163.68	1 083 151.09	2 597.09	4.777	1 031 172.55	1 083 148.42	2 596.87
0+640.00	-4.738	1 031 166.32	1 083 160.73	2 598.07	4.959	1 031 175.61	1 083 157.94	2 597.86
0+650.00	-4.576	1 031 169.36	1 083 170.26	2 599.48	5.068	1 031 178.59	1 083 167.48	2 599.03
0+660.00	-4.42	1 031 172.39	1 083 179.79	2 600.88	5.125	1 031 181.53	1 083 177.04	2 600.30
0+670.00	-4.372	1 031 175.21	1 083 189.09	2 602.11	5	1 031 184.34	1 083 186.98	2 601.74
0+680.00	-4.329	1 031 175.06	1 083 196.83	2 603.36	4.498	1 031 183.56	1 083 199.21	2 603.51

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
0+690.00	-4.277	1 031 171.16	1 083 204.96	2 605.05	4.192	1 031 178.61	1 083 208.99	2 605.08
0+700.00	-4.352	1 031 166.33	1 083 213.72	2 606.60	4.305	1 031 173.95	1 083 217.84	2 606.68
0+710.00	-4.409	1 031 161.52	1 083 222.48	2 608.09	4.316	1 031 169.20	1 083 226.64	2 607.87
0+720.00	-4.424	1 031 156.75	1 083 231.27	2 609.40	4.605	1 031 164.69	1 083 235.57	2 609.00
0+730.00	-4.41	1 031 152.01	1 083 240.25	2 610.59	4.8	1 031 160.26	1 083 244.34	2 610.25
0+740.00	-4.465	1 031 147.71	1 083 249.64	2 611.76	4.811	1 031 156.30	1 083 253.14	2 611.24
0+750.00	-4.586	1 031 144.05	1 083 259.30	2 612.82	4.881	1 031 153.06	1 083 262.22	2 612.10
0+760.00	-4.683	1 031 141.03	1 083 268.94	2 613.66	4.755	1 031 150.07	1 083 271.65	2 612.98
0+770.00	-4.69	1 031 138.16	1 083 278.52	2 614.15	4.608	1 031 147.06	1 083 281.19	2 613.82
0+780.00	-4.665	1 031 135.32	1 083 288.11	2 614.52	4.627	1 031 144.22	1 083 290.77	2 614.37
0+790.00	-4.635	1 031 132.48	1 083 297.70	2 614.88	4.621	1 031 141.35	1 083 300.35	2 614.85
0+800.00	-4.583	1 031 129.66	1 083 307.30	2 615.14	4.541	1 031 138.40	1 083 309.91	2 615.16
0+810.00	-4.562	1 031 126.81	1 083 316.70	2 615.53	4.457	1 031 135.35	1 083 319.61	2 615.45
0+820.00	-4.475	1 031 123.12	1 083 324.47	2 615.72	4.389	1 031 130.28	1 083 329.70	2 615.85
0+830.00	-4.594	1 031 117.04	1 083 329.87	2 616.96	4.329	1 031 121.63	1 083 337.52	2 616.37
0+840.00	-4.444	1 031 109.41	1 083 332.72	2 617.32	4.289	1 031 110.63	1 083 341.37	2 617.18
0+850.00	-4.367	1 031 100.77	1 083 332.49	2 618.19	4.273	1 031 099.41	1 083 341.02	2 618.15
0+860.00	-4.371	1 031 091.10	1 083 330.63	2 619.48	4.388	1 031 089.41	1 083 339.23	2 619.73
0+870.00	-4.413	1 031 081.30	1 083 328.65	2 620.93	4.5	1 031 079.58	1 083 337.40	2 621.31
0+880.00	-4.425	1 031 071.49	1 083 326.71	2 622.25	4.581	1 031 069.75	1 083 335.54	2 622.87
0+890.00	-4.526	1 031 061.70	1 083 324.67	2 623.92	4.726	1 031 059.91	1 083 333.75	2 624.43
0+900.00	-4.513	1 031 051.87	1 083 322.74	2 625.15	4.86	1 031 050.09	1 083 331.95	2 625.85
0+910.00	-4.471	1 031 041.80	1 083 321.08	2 626.25	4.851	1 031 040.46	1 083 330.31	2 627.08
0+920.00	-4.436	1 031 031.66	1 083 319.89	2 627.38	4.85	1 031 030.76	1 083 329.13	2 628.36
0+930.00	-4.38	1 031 021.48	1 083 319.18	2 628.43	4.858	1 031 021.01	1 083 328.41	2 629.66
0+940.00	-4.4	1 031 011.28	1 083 318.88	2 629.79	4.748	1 031 011.24	1 083 328.02	2 630.49
0+950.00	-4.378	1 031 001.10	1 083 319.08	2 630.97	4.758	1 031 001.44	1 083 328.21	2 631.85
0+960.00	-4.392	1 030 991.11	1 083 319.44	2 632.30	4.739	1 030 991.45	1 083 328.57	2 633.48
0+970.00	-4.423	1 030 981.12	1 083 319.78	2 633.70	4.655	1 030 981.45	1 083 328.85	2 634.63
0+980.00	-4.422	1 030 971.12	1 083 320.15	2 634.99	4.659	1 030 971.46	1 083 329.23	2 635.89
0+990.00	-4.394	1 030 961.13	1 083 320.55	2 636.18	4.801	1 030 961.47	1 083 329.74	2 637.63
1+000.00	-4.402	1 030 950.21	1 083 321.43	2 637.50	4.697	1 030 952.55	1 083 330.22	2 638.25
1+010.00	-4.483	1 030 939.62	1 083 328.47	2 639.09	4.566	1 030 946.85	1 083 333.91	2 638.90
1+020.00	-4.427	1 030 935.77	1 083 340.60	2 640.03	4.37	1 030 944.56	1 083 340.41	2 639.59
1+030.00	-4.211	1 030 938.06	1 083 351.26	2 640.26	4.358	1 030 946.40	1 083 349.30	2 640.48
1+040.00	-4.214	1 030 937.49	1 083 359.44	2 641.35	4.251	1 030 945.83	1 083 360.94	2 642.08
1+050.00	-4.244	1 030 935.69	1 083 369.27	2 642.74	4.377	1 030 944.17	1 083 370.81	2 642.73
1+060.00	-4.209	1 030 933.80	1 083 378.60	2 643.78	4.654	1 030 942.29	1 083 381.16	2 643.58

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
1+070.00	-4.223	1 030 930.20	1 083 387.33	2 645.02	4.519	1 030 938.17	1 083 390.91	2 644.83
1+080.00	-4.342	1 030 925.99	1 083 396.40	2 646.68	4.214	1 030 933.80	1 083 399.91	2 646.28
1+090.00	-4.416	1 030 921.82	1 083 405.53	2 648.16	4.345	1 030 929.84	1 083 409.05	2 647.70
1+100.00	-4.434	1 030 917.94	1 083 415.01	2 649.40	4.413	1 030 926.23	1 083 418.12	2 649.13
1+110.00	-4.445	1 030 914.60	1 083 424.70	2 650.62	4.474	1 030 923.12	1 083 427.36	2 650.54
1+120.00	-4.458	1 030 911.80	1 083 434.55	2 651.84	4.533	1 030 920.52	1 083 436.76	2 651.95
1+130.00	-4.475	1 030 909.55	1 083 444.55	2 653.07	4.621	1 030 918.48	1 083 446.29	2 653.47
1+140.00	-4.418	1 030 907.90	1 083 454.57	2 654.00	4.47	1 030 916.68	1 083 455.96	2 654.05
1+150.00	-4.325	1 030 906.43	1 083 464.42	2 654.77	4.267	1 030 914.90	1 083 465.85	2 654.55
1+160.00	-4.23	1 030 904.65	1 083 474.04	2 655.56	4.239	1 030 912.92	1 083 475.87	2 655.67
1+170.00	-4.509	1 030 902.04	1 083 483.47	2 656.38	4.31	1 030 910.54	1 083 485.80	2 656.57
1+180.00	-4.787	1 030 898.96	1 083 492.74	2 657.26	4.24	1 030 907.53	1 083 495.56	2 657.94
1+190.00	-4.992	1 030 895.49	1 083 501.86	2 658.23	4.336	1 030 904.20	1 083 505.21	2 658.88
1+200.00	-5.103	1 030 891.66	1 083 510.95	2 659.31	4.465	1 030 900.49	1 083 514.63	2 659.92
1+210.00	-5.243	1 030 887.68	1 083 520.12	2 660.42	4.614	1 030 896.78	1 083 523.92	2 661.02
1+220.00	-4.981	1 030 884.04	1 083 529.57	2 661.93	4.463	1 030 892.84	1 083 532.99	2 662.45
1+230.00	-4.25	1 030 882.48	1 083 541.03	2 663.77	4.536	1 030 891.26	1 083 541.24	2 663.72
1+240.00	-4.286	1 030 884.14	1 083 552.33	2 664.33	4.619	1 030 892.59	1 083 549.50	2 664.48
1+250.00	-4.431	1 030 889.43	1 083 562.42	2 664.70	4.782	1 030 896.74	1 083 556.81	2 665.06
1+260.00	-4.574	1 030 895.40	1 083 570.44	2 664.97	4.725	1 030 902.78	1 083 564.78	2 665.31
1+270.00	-4.731	1 030 901.37	1 083 578.47	2 665.30	4.647	1 030 908.81	1 083 572.76	2 664.96
1+280.00	-4.864	1 030 907.35	1 083 586.48	2 665.55	4.87	1 030 915.07	1 083 580.55	2 665.57
1+290.00	-4.933	1 030 913.38	1 083 594.45	2 665.55	4.858	1 030 921.15	1 083 588.49	2 665.25
1+300.00	-4.877	1 030 919.52	1 083 602.35	2 665.05	4.77	1 030 927.17	1 083 596.48	2 664.66
1+310.00	-4.79	1 030 925.67	1 083 610.23	2 664.42	4.604	1 030 933.13	1 083 604.51	2 663.87
1+320.00	-4.504	1 030 931.99	1 083 617.99	2 662.99	4.302	1 030 938.98	1 083 612.63	2 662.54
1+330.00	-4.402	1 030 936.14	1 083 625.45	2 662.33	4.186	1 030 944.25	1 083 622.63	2 661.85
1+340.00	-4.303	1 030 937.72	1 083 633.87	2 661.92	4.398	1 030 946.42	1 083 633.76	2 661.63
1+350.00	-4.276	1 030 936.49	1 083 642.37	2 662.09	4.791	1 030 945.13	1 083 645.12	2 661.51
1+360.00	-4.364	1 030 932.53	1 083 649.97	2 662.20	4.913	1 030 940.03	1 083 655.44	2 661.94
1+370.00	-4.862	1 030 926.16	1 083 655.59	2 662.55	5.531	1 030 932.20	1 083 664.05	2 662.09
1+380.00	-5.458	1 030 917.66	1 083 660.83	2 662.83	6.071	1 030 924.29	1 083 670.27	2 662.32
1+390.00	-6.032	1 030 909.15	1 083 666.11	2 663.10	6.542	1 030 916.38	1 083 676.40	2 662.61
1+400.00	-6.718	1 030 900.57	1 083 671.30	2 663.26	6.972	1 030 908.44	1 083 682.50	2 663.00
1+410.00	-7.283	1 030 892.07	1 083 676.58	2 663.54	7.234	1 030 900.41	1 083 688.46	2 663.59
1+420.00	-7.605	1 030 883.70	1 083 682.07	2 664.06	7.364	1 030 892.30	1 083 694.32	2 664.30
1+430.00	-8.019	1 030 875.28	1 083 687.48	2 664.49	7.487	1 030 884.19	1 083 700.17	2 665.02
1+440.00	-8.291	1 030 866.94	1 083 693.00	2 665.06	7.487	1 030 876.01	1 083 705.91	

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
1+450.00	-8.578	1 030 858.59	1 083 698.52	2 665.62	7.487	1 030 867.83	1 083 711.66	
1+460.00	-8.525	1 030 850.44	1 083 704.31	2 666.52	7.487	1 030 859.64	1 083 717.41	
1+470.00	-8.531	1 030 842.25	1 083 710.05	2 667.35	7.487	1 030 851.46	1 083 723.16	
1+480.00	-7.861	1 030 834.45	1 083 716.35	2 668.87	7.487	1 030 843.28	1 083 728.91	
1+490.00	-7.696	1 030 826.37	1 083 722.23	2 669.88	7.487	1 030 835.09	1 083 734.65	
1+500.00	-8.067	1 030 817.97	1 083 727.68	2 670.35	7.487	1 030 826.91	1 083 740.40	
1+510.00	-8.024	1 030 809.81	1 083 733.46	2 671.24	7.487	1 030 818.73	1 083 746.15	2 670.82
1+520.00	-7.871	1 030 801.72	1 083 739.33	2 672.23	8.175	1 030 810.94	1 083 752.46	2 671.93
1+530.00	-7.599	1 030 793.69	1 083 745.30	2 673.35	7.968	1 030 802.64	1 083 758.04	2 672.98
1+540.00	-7.243	1 030 785.71	1 083 751.34	2 674.55	7.716	1 030 794.31	1 083 763.58	2 674.08
1+550.00	-6.812	1 030 777.78	1 083 757.44	2 675.82	7.314	1 030 785.90	1 083 769.00	2 675.32
1+560.00	-6.534	1 030 769.75	1 083 763.42	2 676.95	6.961	1 030 777.51	1 083 774.46	2 676.52
1+570.00	-6.741	1 030 761.45	1 083 769.00	2 677.58	6.609	1 030 769.13	1 083 779.92	2 677.72
1+580.00	-6.663	1 030 753.32	1 083 774.81	2 678.51	6.256	1 030 760.74	1 083 785.38	2 678.91
1+590.00	-6.191	1 030 745.40	1 083 780.94	2 679.82	5.904	1 030 752.36	1 083 790.84	2 680.11
1+600.00	-5.537	1 030 737.60	1 083 787.23	2 681.32	5.132	1 030 743.73	1 083 795.96	2 681.73
1+610.00	-4.507	1 030 730.01	1 083 793.82	2 683.19	4.208	1 030 735.02	1 083 800.95	2 683.56
1+620.00	-4.343	1 030 721.92	1 083 799.70	2 684.85	4.347	1 030 726.91	1 083 806.81	2 685.12
1+630.00	-4.398	1 030 713.93	1 083 804.84	2 686.05	4.325	1 030 718.11	1 083 812.50	2 686.13
1+640.00	-4.445	1 030 705.13	1 083 809.14	2 687.45	4.428	1 030 709.01	1 083 817.12	2 687.59
1+650.00	-4.511	1 030 696.11	1 083 813.46	2 688.99	4.584	1 030 700.09	1 083 821.64	2 689.33
1+660.00	-4.461	1 030 687.14	1 083 817.88	2 690.06	4.526	1 030 691.08	1 083 825.96	2 690.39
1+670.00	-4.379	1 030 678.19	1 083 822.34	2 691.01	4.313	1 030 681.99	1 083 830.15	2 690.93
1+680.00	-4.323	1 030 669.22	1 083 826.77	2 692.05	4.47	1 030 673.07	1 083 834.67	2 691.56
1+690.00	-4.297	1 030 662.02	1 083 827.91	2 693.20	4.238	1 030 660.75	1 083 836.35	2 693.48
1+700.00	-4.336	1 030 655.49	1 083 824.70	2 694.64	4.327	1 030 649.56	1 083 831.01	2 695.08
1+710.00	-4.34	1 030 650.65	1 083 817.43	2 695.95	4.329	1 030 643.18	1 083 821.82	2 696.21
1+720.00	-4.331	1 030 645.57	1 083 808.81	2 697.21	4.418	1 030 638.03	1 083 813.25	2 697.69
1+730.00	-4.29	1 030 640.46	1 083 800.22	2 698.34	4.621	1 030 632.78	1 083 804.74	2 698.87
1+740.00	-4.282	1 030 634.60	1 083 791.10	2 699.60	4.868	1 030 627.80	1 083 797.22	2 700.03
1+750.00	-4.296	1 030 623.94	1 083 784.76	2 700.81	4.874	1 030 621.82	1 083 793.68	2 701.13
1+760.00	-4.56	1 030 611.47	1 083 785.36	2 702.73	4.901	1 030 614.89	1 083 794.18	2 702.14
1+770.00	-4.625	1 030 602.01	1 083 791.50	2 703.70	4.699	1 030 607.73	1 083 798.87	2 702.95
1+780.00	-4.656	1 030 594.10	1 083 797.61	2 704.52	4.514	1 030 599.72	1 083 804.85	2 703.94
1+790.00	-4.675	1 030 586.18	1 083 803.72	2 705.31	4.576	1 030 591.86	1 083 811.03	2 704.91
1+800.00	-4.657	1 030 578.30	1 083 809.87	2 705.96	4.628	1 030 583.99	1 083 817.20	2 705.84
1+810.00	-4.615	1 030 570.42	1 083 816.03	2 706.52	4.667	1 030 576.11	1 083 823.36	2 706.72
1+820.00	-4.613	1 030 562.52	1 083 822.16	2 707.24	4.693	1 030 568.23	1 083 829.52	2 707.56

ABSCISA	BORDE IZQUIERDO				BORDE DERECHO			
	Desfase	ESTE	NORTE	COTA	Desfase	ESTE	NORTE	COTA
1+830.00	-4.612	1 030 554.62	1 083 828.30	2 707.96	4.641	1 030 560.30	1 083 835.61	2 708.20
1+840.00	-4.597	1 030 546.73	1 083 834.44	2 708.62	4.464	1 030 552.29	1 083 841.60	2 708.37
1+850.00	-4.477	1 030 539.07	1 083 839.90	2 708.85	4.227	1 030 543.48	1 083 847.40	2 708.23
1+860.00	-4.361	1 030 530.75	1 083 844.09	2 708.97	4.227	1 030 533.92	1 083 852.07	2 708.81
1+870.00	-4.311	1 030 521.86	1 083 846.90	2 709.21	4.357	1 030 523.78	1 083 855.35	2 709.56
1+880.00	-4.239	1 030 512.17	1 083 848.98	2 709.35	4.452	1 030 513.93	1 083 857.49	2 709.75
1+890.00	-4.365	1 030 501.87	1 083 851.78	2 709.67	4.436	1 030 504.99	1 083 860.01	2 709.92
1+900.00	-4.291	1 030 492.23	1 083 856.53	2 710.14	4.421	1 030 496.69	1 083 864.01	2 710.26
1+910.00	-4.268	1 030 483.54	1 083 862.83	2 710.68	4.447	1 030 489.24	1 083 869.42	2 710.76
1+920.00	-4.352	1 030 476.09	1 083 870.28	2 711.40	4.439	1 030 482.63	1 083 876.15	2 711.49
1+927.72	-4.411	1 030 470.89	1 083 875.99	2 711.91	4.392	1 030 477.44	1 083 881.86	2 711.84

Tabla 5-11 *Cartera chaflanes*

5.5.4 Cartera Volúmenes

Una de las actividades constructivas más frecuentes en las construcciones civiles son los movimientos de tierra necesarios para construir obras de ingeniería, explanadas para ubicar obras socioeconómicas, campos deportivos y otras, siendo de gran importancia el realizar con adecuada precisión los volúmenes de tierra a mover. En esta se verifica los volúmenes del presente proyecto vial.

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
0+000.000	6.74	0	0	0	0	0
0+010.000	4.74	57.41	0	0	57.41	0
0+020.000	2.1	34.2	0	0	91.62	0
0+030.000	0.4	12.49	0.01	0.07	104.1	0.07
0+040.000	0.11	2.55	0.93	4.74	106.65	4.81
0+050.000	0.03	0.72	1.36	11.47	107.37	16.28
0+060.000	0.08	0.58	1.08	12.23	107.94	28.51
0+070.000	0.12	1.03	0.57	8.3	108.98	36.81
0+080.000	1.17	6.49	0	2.87	115.47	39.68
0+090.000	3.6	23.85	0	0.01	139.32	39.69
0+100.000	4.44	40.19	0.34	1.69	179.51	41.39
0+110.000	2.04	32.51	0.52	4.22	212.02	45.6
0+120.000	1.26	16.67	0.97	7.28	228.7	52.88

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
0+130.000	0.71	9.85	6.15	35.63	238.54	88.51
0+140.000	2.56	16.33	5.79	59.75	254.88	148.25
0+150.000	5.52	40.12	0	29.71	295	177.97
0+160.000	5.99	56.91	0.18	0.95	351.91	178.91
0+170.000	5.43	56.38	0.22	2.09	408.29	181
0+180.000	5.18	52.68	0	1.13	460.98	182.13
0+190.000	4.85	50.14	0	0	511.12	182.13
0+200.000	4.6	47.22	0	0	558.33	182.13
0+210.000	4.73	46.64	0	0	604.98	182.13
0+220.000	4.91	48.2	0	0	653.18	182.13
0+230.000	5.27	50.91	0	0	704.08	182.13
0+240.000	5.17	52.2	0	0	756.28	182.13
0+250.000	5.07	51.2	0	0	807.48	182.13
0+260.000	5.63	53.5	0	0	860.99	182.13
0+270.000	6.66	61.3	0	0	922.29	182.13
0+280.000	8.62	76.43	0	0	998.71	182.13
0+290.000	11.37	100.53	0	0	1099.25	182.13
0+300.000	10.27	108.69	0	0	1207.94	182.13
0+310.000	7.98	91.08	0	0	1299.01	182.13
0+320.000	5.49	66.88	0	0	1365.89	182.13
0+330.000	4.35	48.81	0	0	1414.71	182.13
0+340.000	5.3	48.26	0	0	1462.97	182.13
0+350.000	3.43	43.64	0	0	1506.6	182.13
0+360.000	1.39	24.08	0	0	1530.68	182.13
0+370.000	0	6.95	1.39	6.96	1537.63	189.09
0+380.000	0	0	3.33	23.69	1537.63	212.78
0+390.000	0	0	3.47	34.57	1537.63	247.36
0+400.000	0	0	4.56	40.5	1537.63	287.85
0+410.000	0	0	4.06	43.1	1537.63	330.95
0+420.000	0	0	2.97	35.17	1537.63	366.12
0+430.000	0.55	2.75	1.75	23.64	1540.38	389.76
0+440.000	0.51	5.33	2.22	19.86	1545.71	409.62
0+450.000	0.61	5.6	2.11	21.66	1551.31	431.27
0+460.000	0.41	4.65	2.13	21.73	1555.96	453
0+470.000	1.47	8.52	1.31	17.98	1564.48	470.98
0+480.000	1.71	14.4	1.86	16.83	1578.88	487.81
0+490.000	2.4	18.58	1.15	15.99	1597.46	503.8

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
0+500.000	5.31	36.03	0	6.17	1633.49	509.97
0+510.000	6.56	57.32	0	0	1690.81	509.97
0+520.000	6.8	66.71	0	0	1757.53	509.97
0+530.000	5.76	62.78	0	0	1820.31	509.97
0+540.000	4.65	52.06	0	0	1872.37	509.97
0+550.000	3.48	40.69	0	0	1913.06	509.97
0+560.000	0.82	21.55	0.11	0.56	1934.61	510.54
0+570.000	0.48	6.5	0.16	1.37	1941.11	511.9
0+580.000	1.05	7.65	0	0.84	1948.76	512.74
0+590.000	1.76	14.09	0	0.04	1962.85	512.78
0+600.000	2.8	22.69	0	0	1985.54	512.78
0+610.000	2.42	25.43	0.16	0.87	2010.97	513.66
0+620.000	0.69	15.05	0.57	3.91	2026.02	517.57
0+630.000	0	3.47	3.33	19.5	2029.49	537.07
0+640.000	0	0	4.99	41.6	2029.49	578.67
0+650.000	0	0	5.22	51.02	2029.49	629.69
0+660.000	0	0	5.29	52.51	2029.49	682.2
0+670.000	0	0	5.04	51.92	2029.49	734.12
0+680.000	0	0	1.78	35.46	2029.49	769.59
0+690.000	1.2	5.94	0	9	2035.44	778.59
0+700.000	4.3	27.52	0	0	2062.96	778.59
0+710.000	5.97	51.37	0	0	2114.33	778.59
0+720.000	6.42	61.94	0	0	2176.27	778.59
0+730.000	5.18	57.92	0	0	2234.19	778.59
0+740.000	5.78	54.7	0	0	2288.9	778.59
0+750.000	9.27	75.31	0	0	2364.21	778.59
0+760.000	12.67	109.77	0	0	2473.98	778.59
0+770.000	14.33	135	0	0	2608.98	778.59
0+780.000	14.01	141.68	0	0	2750.66	778.59
0+790.000	14.03	140.19	0	0	2890.85	778.59
0+800.000	12.75	133.89	0	0	3024.74	778.59
0+810.000	11.14	119.38	0	0	3144.11	778.59
0+820.000	8.64	98.33	0	0	3242.45	778.59
0+830.000	7.13	77.18	0	0	3319.63	778.59
0+840.000	5.22	59.79	0	0	3379.41	778.59
0+850.000	4.3	46.88	0	0	3426.3	778.59
0+860.000	4.5	43.95	0	0	3470.25	778.59

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
0+870.000	6.3	54	0	0	3524.26	778.59
0+880.000	7.9	71.01	0	0	3595.26	778.59
0+890.000	10.14	90.18	0	0	3685.45	778.59
0+900.000	12.04	110.9	0	0	3796.34	778.59
0+910.000	11.28	116.3	0	0	3912.64	778.59
0+920.000	10.11	106.58	0	0	4019.23	778.59
0+930.000	8.98	95.05	0	0	4114.27	778.59
0+940.000	9.17	90.46	0	0	4204.73	778.59
0+950.000	9.53	93.27	0	0	4298	778.59
0+960.000	10.04	97.86	0	0	4395.86	778.59
0+970.000	10.37	102.06	0	0	4497.93	778.59
0+980.000	10.59	104.81	0	0	4602.74	778.59
0+990.000	11.19	108.89	0	0	4711.63	778.59
1+000.000	10.34	105.5	0	0	4817.12	778.59
1+010.000	7.15	84.69	0	0	4901.81	778.59
1+020.000	5.35	63.65	0	0	4965.46	778.59
1+030.000	1.23	33.34	0.1	0.46	4998.8	779.05
1+040.000	0.3	7.79	1.09	5.7	5006.59	784.75
1+050.000	0.57	4.39	0.17	6.31	5010.98	791.05
1+060.000	0.06	3.17	0.85	5.22	5014.16	796.27
1+070.000	0	0.32	1.52	12.08	5014.47	808.35
1+080.000	0.59	2.95	0.29	9.09	5017.43	817.44
1+090.000	2.82	17.06	0	1.47	5034.48	818.91
1+100.000	6.17	45.08	0	0	5079.57	818.91
1+110.000	7.41	67.92	0	0	5147.49	818.91
1+120.000	7.9	76.54	0	0	5224.03	818.91
1+130.000	9.41	86.44	0	0	5310.47	818.91
1+140.000	6.22	78.07	0	0	5388.54	818.91
1+150.000	3.32	47.73	0	0	5436.27	818.91
1+160.000	1.02	21.78	0.12	0.59	5458.05	819.5
1+170.000	0.03	5.33	0.81	4.59	5463.39	824.09
1+180.000	0.05	0.41	2.2	14.9	5463.8	838.99
1+190.000	0	0.23	4.02	30.92	5464.03	869.92
1+200.000	0	0	4.14	40.73	5464.03	910.65
1+210.000	0	0	4.25	41.99	5464.03	952.64
1+220.000	0.03	0.13	2.85	35.64	5464.16	988.29
1+230.000	0.27	1.3	0.07	15.55	5465.46	1003.84

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
1+240.000	2.86	14.9	0	0.32	5480.36	1004.16
1+250.000	7.8	52.19	0	0	5532.56	1004.16
1+260.000	14.12	109.58	0	0	5642.14	1004.16
1+270.000	18.29	162.05	0	0	5804.19	1004.16
1+280.000	24.16	212.28	0	0	6016.46	1004.16
1+290.000	25.55	248.55	0	0	6265.02	1004.16
1+300.000	22.62	240.86	0	0	6505.87	1004.16
1+310.000	17.62	201.19	0	0	6707.07	1004.16
1+320.000	9.29	134.53	0	0	6841.6	1004.16
1+330.000	5.48	72.37	0	0	6913.97	1004.16
1+340.000	1.3	32.75	0.13	0.76	6946.72	1004.92
1+350.000	0.33	7.61	2.95	16.37	6954.33	1021.29
1+360.000	0	1.45	5.63	44.55	6955.78	1065.85
1+370.000	0	0	10.64	83.37	6955.78	1149.22
1+380.000	0	0	16.66	136.47	6955.78	1285.68
1+390.000	0	0	23.72	201.88	6955.78	1487.57
1+400.000	0	0	31.35	275.34	6955.78	1762.91
1+410.000	0	0	38.65	350	6955.78	2112.91
1+420.000	0	0	42.96	408.07	6955.78	2520.98
1+430.000	0	0	47.54	452.52	6955.78	2973.5
1+440.000	0	0	45.04	462.93	6955.78	3436.43
1+450.000	0	0	48.29	466.68	6955.78	3903.11
1+460.000	0	0	48.89	485.93	6955.78	4389.04
1+470.000	0	0	50.4	496.5	6955.78	4885.53
1+480.000	0	0	48.58	494.91	6955.78	5380.45
1+490.000	0	0	45.11	468.45	6955.78	5848.9
1+500.000	0	0	44.55	448.32	6955.78	6297.21
1+510.000	0	0	45.17	448.62	6955.78	6745.83
1+520.000	0	0	51.27	482.22	6955.78	7228.05
1+530.000	0	0	48.75	500.12	6955.78	7728.17
1+540.000	0	0	43.11	459.3	6955.78	8187.47
1+550.000	0	0	38.61	408.57	6955.78	8596.04
1+560.000	0	0	37.61	381.07	6955.78	8977.11
1+570.000	0	0	33.24	354.25	6955.78	9331.36
1+580.000	0	0	28.83	310.39	6955.78	9641.75
1+590.000	0	0	23.11	259.7	6955.78	9901.44
1+600.000	0	0	12.99	180.5	6955.78	10081.95

ABSCISA	Área de corte (metros cuadrados)	Volumen de corte (metros cúbicos)	Área de relleno (metros cuadrados)	Volumen de relleno (metros cúbicos)	Vol. Corte acumul. (metros cúbicos)	Vol. relleno acumul. (metros cúbicos)
1+610.000	0.1	0.49	3.51	82.51	6956.27	10164.46
1+620.000	2.64	13.7	0	17.54	6969.97	10182
1+630.000	4.74	36.94	0	0	7006.91	10182
1+640.000	6.77	57.53	0	0	7064.44	10182
1+650.000	9.68	82.29	0	0	7146.73	10182
1+660.000	6.75	82.2	0	0	7228.93	10182
1+670.000	2.83	47.94	0	0	7276.87	10182
1+680.000	0.75	17.9	0.38	1.9	7294.76	10183.89
1+690.000	2.55	15.61	0	2.29	7310.38	10186.19
1+700.000	4.99	37.44	0	0	7347.82	10186.19
1+710.000	5.61	52.92	0	0	7400.74	10186.19
1+720.000	5.94	57.76	0	0	7458.5	10186.19
1+730.000	5.11	55.29	0	0	7513.79	10186.19
1+740.000	4.35	46.35	0	0	7560.15	10186.19
1+750.000	6.79	52.36	0	0.01	7612.5	10186.2
1+760.000	10.22	83.69	0	0.01	7696.19	10186.21
1+770.000	12.13	112.35	0	0	7808.54	10186.21
1+780.000	13.79	129.61	0	0	7938.15	10186.21
1+790.000	15.26	145.28	0	0	8083.43	10186.21
1+800.000	16.52	158.89	0	0	8242.31	10186.21
1+810.000	17.31	169.11	0	0	8411.43	10186.21
1+820.000	17.92	176.15	0	0	8587.57	10186.21
1+830.000	16.85	173.88	0	0	8761.45	10186.21
1+840.000	13.15	150.03	0	0	8911.48	10186.21
1+850.000	7.38	102.31	0	0	9013.79	10186.21
1+860.000	4.13	57.1	0	0	9070.9	10186.21
1+870.000	3.36	37.42	0	0	9108.31	10186.21
1+880.000	1.37	23.72	0	0	9132.04	10186.21
1+890.000	0.32	8.18	0.31	1.59	9140.21	10187.8
1+900.000	0.46	3.64	0.46	3.98	9143.85	10191.78
1+910.000	0.66	5.34	0.11	2.93	9149.19	10194.7
1+920.000	3.65	21.38	0	0.54	9170.58	10195.24
1+927.719	6.55	39.35	0	0	9209.92	10195.24

***Tabla 5-12**. Calculo de volúmenes.*

5.5.5 Calculo de materiales

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+000.000				
	Pavement	0.71	0	0
	Base	1.2	0	0
	SubBase	2.4	0	0
P.K.: 0+010.000				
	Pavement	0.71	7.1	7.1
	Base	1.2	12	12
	SubBase	2.4	24	24
P.K.: 0+020.000				
	Pavement	0.71	7.1	14.2
	Base	1.2	12	24
	SubBase	2.4	24	48
P.K.: 0+030.000				
	Pavement	0.71	7.1	21.31
	Base	1.2	12	36
	SubBase	2.4	24	72
P.K.: 0+040.000				
	Pavement	0.71	7.1	28.41
	Base	1.2	12	48
	SubBase	2.4	24	96
P.K.: 0+050.000				
	Pavement	0.71	7.1	35.51
	Base	1.2	12	60
	SubBase	2.4	24	120
P.K.: 0+060.000				
	Pavement	0.71	7.1	42.61
	Base	1.2	12	72
	SubBase	2.4	24	144
P.K.: 0+070.000				
	Pavement	0.71	7.1	49.71

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
	Base	1.2	12	84
	SubBase	2.4	24	168
P.K.: 0+080.000				
	Pavement	0.71	7.1	56.82
	Base	1.2	12	96
	SubBase	2.4	24	192
P.K.: 0+090.000				
	Pavement	0.71	7.1	63.92
	Base	1.2	12	108
	SubBase	2.4	24	216
P.K.: 0+100.000				
	Pavement	0.71	7.1	71.02
	Base	1.2	12	120
	SubBase	2.4	24	240
P.K.: 0+110.000				
	Pavement	0.71	7.1	78.12
	Base	1.2	12	132
	SubBase	2.4	24	264
P.K.: 0+120.000				
	Pavement	0.71	7.1	85.22
	Base	1.2	12	144
	SubBase	2.4	24	288
P.K.: 0+130.000				
	Pavement	0.71	7.11	92.33
	Base	1.21	12.03	156.03
	SubBase	2.41	24.05	312.05
P.K.: 0+140.000				
	Pavement	0.72	7.15	99.48
	Base	1.21	12.1	168.13
	SubBase	2.43	24.2	336.25
P.K.: 0+150.000				
	Pavement	0.72	7.19	106.66
	Base	1.22	12.17	180.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
	SubBase	2.44	24.34	360.59
P.K.: 0+160.000				
	Pavement	0.72	7.2	113.86
	Base	1.22	12.19	192.49
	SubBase	2.44	24.39	384.98
P.K.: 0+170.000				
	Pavement	0.72	7.2	121.06
	Base	1.22	12.19	204.68
	SubBase	2.44	24.39	409.37
P.K.: 0+180.000				
	Pavement	0.72	7.19	128.25
	Base	1.22	12.18	216.87
	SubBase	2.44	24.37	433.73
P.K.: 0+190.000				
	Pavement	0.71	7.17	135.41
	Base	1.21	12.13	229
	SubBase	2.42	24.26	458
P.K.: 0+200.000				
	Pavement	0.71	7.12	142.54
	Base	1.2	12.04	241.04
	SubBase	2.4	24.08	482.08
P.K.: 0+210.000				
	Pavement	0.71	7.1	149.64
	Base	1.2	12	253.04
	SubBase	2.4	24	506.08
P.K.: 0+220.000				
	Pavement	0.71	7.1	156.74
	Base	1.2	12	265.04
	SubBase	2.4	24	530.08
P.K.: 0+230.000				
	Pavement	0.71	7.1	163.84
	Base	1.2	12	277.04
	SubBase	2.4	24	554.08

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+240.000				
	Pavement	0.71	7.1	170.94
	Base	1.2	12	289.04
	SubBase	2.4	24	578.08
P.K.: 0+250.000				
	Pavement	0.71	7.11	178.06
	Base	1.2	12.02	301.06
	SubBase	2.41	24.04	602.12
P.K.: 0+260.000				
	Pavement	0.72	7.16	185.22
	Base	1.22	12.12	313.18
	SubBase	2.44	24.23	626.36
P.K.: 0+270.000				
	Pavement	0.72	7.21	192.42
	Base	1.23	12.22	325.4
	SubBase	2.45	24.44	650.79
P.K.: 0+280.000				
	Pavement	0.72	7.22	199.65
	Base	1.23	12.25	337.64
	SubBase	2.45	24.49	675.29
P.K.: 0+290.000				
	Pavement	0.72	7.22	206.87
	Base	1.23	12.25	349.89
	SubBase	2.45	24.49	699.78
P.K.: 0+300.000				
	Pavement	0.72	7.22	214.09
	Base	1.23	12.25	362.14
	SubBase	2.45	24.49	724.27
P.K.: 0+310.000				
	Pavement	0.72	7.22	221.31
	Base	1.23	12.25	374.38
	SubBase	2.45	24.49	748.77

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+320.000				
	Pavement	0.72	7.22	228.53
	Base	1.23	12.25	386.63
	SubBase	2.45	24.49	773.26
P.K.: 0+330.000				
	Pavement	0.72	7.21	235.74
	Base	1.22	12.22	398.85
	SubBase	2.44	24.44	797.7
P.K.: 0+340.000				
	Pavement	0.71	7.16	242.9
	Base	1.2	12.12	410.97
	SubBase	2.41	24.24	821.94
P.K.: 0+350.000				
	Pavement	0.71	7.11	250.02
	Base	1.2	12.02	422.99
	SubBase	2.4	24.05	845.98
P.K.: 0+360.000				
	Pavement	0.71	7.1	257.12
	Base	1.2	12	434.99
	SubBase	2.4	24	869.98
P.K.: 0+370.000				
	Pavement	0.71	7.1	264.22
	Base	1.2	12	446.99
	SubBase	2.4	24	893.98
P.K.: 0+380.000				
	Pavement	0.71	7.1	271.32
	Base	1.2	12	458.99
	SubBase	2.4	24	917.98
P.K.: 0+390.000				
	Pavement	0.71	7.1	278.42
	Base	1.2	12	470.99
	SubBase	2.4	24	941.98

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+400.000				
	Pavement	0.71	7.1	285.52
	Base	1.2	12	482.99
	SubBase	2.4	24	965.98
P.K.: 0+410.000				
	Pavement	0.71	7.1	292.62
	Base	1.2	12	494.99
	SubBase	2.4	24	989.98
P.K.: 0+420.000				
	Pavement	0.71	7.1	299.72
	Base	1.2	12	506.99
	SubBase	2.4	24	1013.98
P.K.: 0+430.000				
	Pavement	0.71	7.11	306.83
	Base	1.2	12.01	519
	SubBase	2.4	24.02	1038.01
P.K.: 0+440.000				
	Pavement	0.71	7.12	313.95
	Base	1.21	12.04	531.04
	SubBase	2.41	24.08	1062.08
P.K.: 0+450.000				
	Pavement	0.71	7.14	321.08
	Base	1.21	12.07	543.11
	SubBase	2.42	24.15	1086.23
P.K.: 0+460.000				
	Pavement	0.72	7.14	328.23
	Base	1.21	12.09	555.2
	SubBase	2.42	24.18	1110.41
P.K.: 0+470.000				
	Pavement	0.72	7.14	335.37
	Base	1.21	12.09	567.29
	SubBase	2.42	24.18	1134.59

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+480.000				
	Pavement	0.72	7.14	342.52
	Base	1.21	12.09	579.38
	SubBase	2.42	24.18	1158.77
P.K.: 0+490.000				
	Pavement	0.72	7.14	349.66
	Base	1.21	12.09	591.48
	SubBase	2.42	24.18	1182.95
P.K.: 0+500.000				
	Pavement	0.72	7.14	356.8
	Base	1.21	12.09	603.57
	SubBase	2.42	24.18	1207.13
P.K.: 0+510.000				
	Pavement	0.72	7.14	363.95
	Base	1.21	12.09	615.66
	SubBase	2.42	24.18	1231.31
P.K.: 0+520.000				
	Pavement	0.71	7.14	371.09
	Base	1.21	12.08	627.74
	SubBase	2.41	24.17	1255.48
P.K.: 0+530.000				
	Pavement	0.71	7.13	378.22
	Base	1.2	12.05	639.79
	SubBase	2.41	24.11	1279.59
P.K.: 0+540.000				
	Pavement	0.71	7.11	385.33
	Base	1.2	12.02	651.81
	SubBase	2.4	24.04	1303.62
P.K.: 0+550.000				
	Pavement	0.71	7.1	392.43
	Base	1.2	12	663.81
	SubBase	2.4	24	1327.62

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+560.000				
	Pavement	0.71	7.1	399.53
	Base	1.2	12	675.81
	SubBase	2.4	24	1351.62
P.K.: 0+570.000				
	Pavement	0.71	7.1	406.64
	Base	1.2	12	687.81
	SubBase	2.4	24	1375.62
P.K.: 0+580.000				
	Pavement	0.71	7.1	413.74
	Base	1.2	12	699.81
	SubBase	2.4	24	1399.62
P.K.: 0+590.000				
	Pavement	0.71	7.1	420.84
	Base	1.2	12	711.81
	SubBase	2.4	24	1423.62
P.K.: 0+600.000				
	Pavement	0.71	7.1	427.94
	Base	1.2	12	723.81
	SubBase	2.4	24	1447.62
P.K.: 0+610.000				
	Pavement	0.71	7.1	435.04
	Base	1.2	12	735.81
	SubBase	2.4	24	1471.62
P.K.: 0+620.000				
	Pavement	0.71	7.1	442.14
	Base	1.2	12	747.81
	SubBase	2.4	24	1495.62
P.K.: 0+630.000				
	Pavement	0.71	7.1	449.24
	Base	1.2	12	759.81
	SubBase	2.4	24	1519.62

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+640.000				
	Pavement	0.71	7.1	456.34
	Base	1.2	12	771.81
	SubBase	2.4	24	1543.62
P.K.: 0+650.000				
	Pavement	0.71	7.1	463.44
	Base	1.2	12	783.81
	SubBase	2.4	24	1567.62
P.K.: 0+660.000				
	Pavement	0.71	7.1	470.54
	Base	1.2	12	795.81
	SubBase	2.4	24	1591.62
P.K.: 0+670.000				
	Pavement	0.71	7.1	477.64
	Base	1.2	12	807.81
	SubBase	2.4	24	1615.62
P.K.: 0+680.000				
	Pavement	0.71	7.1	484.74
	Base	1.2	12	819.81
	SubBase	2.4	24	1639.62
P.K.: 0+690.000				
	Pavement	0.71	7.1	491.84
	Base	1.2	12	831.81
	SubBase	2.4	24	1663.62
P.K.: 0+700.000				
	Pavement	0.71	7.1	498.94
	Base	1.2	12	843.81
	SubBase	2.4	24	1687.62
P.K.: 0+710.000				
	Pavement	0.71	7.1	506.04
	Base	1.2	12	855.81
	SubBase	2.4	24	1711.62

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+720.000				
	Pavement	0.74	7.25	513.29
	Base	1.26	12.29	868.11
	SubBase	2.52	24.59	1736.21
P.K.: 0+730.000				
	Pavement	0.76	7.47	520.76
	Base	1.29	12.75	880.86
	SubBase	2.59	25.5	1761.71
P.K.: 0+740.000				
	Pavement	0.76	7.55	528.31
	Base	1.29	12.9	893.76
	SubBase	2.59	25.81	1787.52
P.K.: 0+750.000				
	Pavement	0.76	7.55	535.86
	Base	1.29	12.9	906.66
	SubBase	2.59	25.81	1813.33
P.K.: 0+760.000				
	Pavement	0.73	7.45	543.31
	Base	1.25	12.69	919.36
	SubBase	2.49	25.39	1838.72
P.K.: 0+770.000				
	Pavement	0.71	7.22	550.53
	Base	1.2	12.24	931.59
	SubBase	2.4	24.47	1863.19
P.K.: 0+780.000				
	Pavement	0.71	7.1	557.63
	Base	1.2	12	943.59
	SubBase	2.4	24	1887.19
P.K.: 0+790.000				
	Pavement	0.71	7.1	564.73
	Base	1.2	12	955.59
	SubBase	2.4	24	1911.19

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+800.000				
	Pavement	0.71	7.1	571.84
	Base	1.2	12	967.59
	SubBase	2.4	24	1935.19
P.K.: 0+810.000				
	Pavement	0.71	7.1	578.94
	Base	1.2	12	979.59
	SubBase	2.4	24	1959.19
P.K.: 0+820.000				
	Pavement	0.71	7.1	586.04
	Base	1.2	12	991.59
	SubBase	2.4	24	1983.19
P.K.: 0+830.000				
	Pavement	0.71	7.1	593.13
	Base	1.2	12	1003.59
	SubBase	2.4	24	2007.19
P.K.: 0+840.000				
	Pavement	0.71	7.1	600.23
	Base	1.2	12	1015.59
	SubBase	2.4	24	2031.19
P.K.: 0+850.000				
	Pavement	0.71	7.1	607.33
	Base	1.2	12	1027.59
	SubBase	2.4	24	2055.19
P.K.: 0+860.000				
	Pavement	0.71	7.1	614.43
	Base	1.2	12	1039.59
	SubBase	2.4	24	2079.19
P.K.: 0+870.000				
	Pavement	0.71	7.1	621.54
	Base	1.2	12	1051.59
	SubBase	2.4	24	2103.19

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+880.000				
	Pavement	0.71	7.1	628.64
	Base	1.2	12	1063.59
	SubBase	2.4	24	2127.19
P.K.: 0+890.000				
	Pavement	0.72	7.14	635.78
	Base	1.21	12.07	1075.67
	SubBase	2.43	24.15	2151.34
P.K.: 0+900.000				
	Pavement	0.73	7.22	643
	Base	1.23	12.24	1087.91
	SubBase	2.47	24.49	2175.83
P.K.: 0+910.000				
	Pavement	0.73	7.27	650.27
	Base	1.23	12.34	1100.25
	SubBase	2.47	24.67	2200.5
P.K.: 0+920.000				
	Pavement	0.73	7.27	657.54
	Base	1.23	12.34	1112.59
	SubBase	2.47	24.67	2225.17
P.K.: 0+930.000				
	Pavement	0.73	7.27	664.81
	Base	1.23	12.34	1124.92
	SubBase	2.47	24.67	2249.85
P.K.: 0+940.000				
	Pavement	0.73	7.27	672.08
	Base	1.23	12.34	1137.26
	SubBase	2.47	24.67	2274.52
P.K.: 0+950.000				
	Pavement	0.73	7.27	679.35
	Base	1.23	12.33	1149.59
	SubBase	2.46	24.65	2299.18

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 0+960.000				
	Pavement	0.72	7.21	686.56
	Base	1.21	12.21	1161.8
	SubBase	2.42	24.43	2323.6
P.K.: 0+970.000				
	Pavement	0.71	7.13	693.68
	Base	1.2	12.05	1173.85
	SubBase	2.4	24.11	2347.71
P.K.: 0+980.000				
	Pavement	0.71	7.1	700.79
	Base	1.2	12.01	1185.86
	SubBase	2.4	24.01	2371.72
P.K.: 0+990.000				
	Pavement	0.71	7.12	707.91
	Base	1.21	12.03	1197.89
	SubBase	2.41	24.06	2395.79
P.K.: 1+000.000				
	Pavement	0.71	7.13	715.03
	Base	1.21	12.06	1209.95
	SubBase	2.42	24.12	2419.9
P.K.: 1+010.000				
	Pavement	0.71	7.13	722.16
	Base	1.21	12.06	1222.01
	SubBase	2.42	24.12	2444.03
P.K.: 1+020.000				
	Pavement	0.71	7.13	729.29
	Base	1.21	12.06	1234.07
	SubBase	2.42	24.12	2468.15
P.K.: 1+030.000				
	Pavement	0.71	7.13	736.42
	Base	1.21	12.06	1246.14
	SubBase	2.41	24.13	2492.27

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+040.000				
	Pavement	0.71	7.13	743.55
	Base	1.2	12.05	1258.19
	SubBase	2.41	24.11	2516.38
P.K.: 1+050.000				
	Pavement	0.71	7.11	750.66
	Base	1.2	12.03	1270.22
	SubBase	2.4	24.05	2540.44
P.K.: 1+060.000				
	Pavement	0.71	7.1	757.77
	Base	1.2	12.01	1282.22
	SubBase	2.4	24.01	2564.45
P.K.: 1+070.000				
	Pavement	0.71	7.1	764.87
	Base	1.2	12	1294.22
	SubBase	2.4	24	2588.45
P.K.: 1+080.000				
	Pavement	0.71	7.1	771.97
	Base	1.2	12.01	1306.23
	SubBase	2.4	24.01	2612.46
P.K.: 1+090.000				
	Pavement	0.71	7.12	779.09
	Base	1.21	12.04	1318.27
	SubBase	2.42	24.09	2636.55
P.K.: 1+100.000				
	Pavement	0.71	7.14	786.23
	Base	1.21	12.07	1330.35
	SubBase	2.42	24.15	2660.7
P.K.: 1+110.000				
	Pavement	0.71	7.14	793.37
	Base	1.21	12.07	1342.42
	SubBase	2.42	24.15	2684.85

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+120.000				
	Pavement	0.71	7.14	800.5
	Base	1.21	12.07	1354.5
	SubBase	2.42	24.15	2709
P.K.: 1+130.000				
	Pavement	0.71	7.14	807.64
	Base	1.21	12.07	1366.57
	SubBase	2.42	24.15	2733.15
P.K.: 1+140.000				
	Pavement	0.71	7.14	814.78
	Base	1.21	12.07	1378.64
	SubBase	2.41	24.14	2757.29
P.K.: 1+150.000				
	Pavement	0.71	7.12	821.89
	Base	1.2	12.03	1390.67
	SubBase	2.4	24.06	2781.35
P.K.: 1+160.000				
	Pavement	0.71	7.09	828.98
	Base	1.2	11.98	1402.65
	SubBase	2.39	23.96	2805.31
P.K.: 1+170.000				
	Pavement	0.71	7.09	836.08
	Base	1.2	11.98	1414.64
	SubBase	2.4	23.96	2829.27
P.K.: 1+180.000				
	Pavement	0.71	7.1	843.18
	Base	1.2	12	1426.64
	SubBase	2.4	24	2853.27
P.K.: 1+190.000				
	Pavement	0.71	7.1	850.28
	Base	1.2	12	1438.64
	SubBase	2.4	24	2877.27

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+200.000				
	Pavement	0.71	7.1	857.38
	Base	1.2	12	1450.64
	SubBase	2.4	24	2901.27
P.K.: 1+210.000				
	Pavement	0.72	7.14	864.52
	Base	1.22	12.08	1462.72
	SubBase	2.43	24.16	2925.43
P.K.: 1+220.000				
	Pavement	0.73	7.26	871.78
	Base	1.25	12.32	1475.03
	SubBase	2.5	24.63	2950.06
P.K.: 1+230.000				
	Pavement	0.73	7.31	879.09
	Base	1.25	12.42	1487.46
	SubBase	2.5	24.85	2974.91
P.K.: 1+240.000				
	Pavement	0.73	7.31	886.4
	Base	1.25	12.42	1499.88
	SubBase	2.5	24.85	2999.76
P.K.: 1+250.000				
	Pavement	0.73	7.31	893.7
	Base	1.25	12.42	1512.3
	SubBase	2.49	24.84	3024.6
P.K.: 1+260.000				
	Pavement	0.72	7.25	900.95
	Base	1.21	12.29	1524.59
	SubBase	2.42	24.58	3049.18
P.K.: 1+270.000				
	Pavement	0.71	7.13	908.08
	Base	1.2	12.06	1536.65
	SubBase	2.4	24.12	3073.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+280.000				
	Pavement	0.71	7.1	915.18
	Base	1.2	12	1548.65
	SubBase	2.4	24	3097.3
P.K.: 1+290.000				
	Pavement	0.71	7.1	922.28
	Base	1.2	12	1560.65
	SubBase	2.4	24	3121.3
P.K.: 1+300.000				
	Pavement	0.71	7.1	929.39
	Base	1.2	12	1572.65
	SubBase	2.4	24	3145.3
P.K.: 1+310.000				
	Pavement	0.71	7.1	936.49
	Base	1.2	12	1584.65
	SubBase	2.4	24	3169.3
P.K.: 1+320.000				
	Pavement	0.71	7.1	943.59
	Base	1.2	12	1596.65
	SubBase	2.4	24	3193.3
P.K.: 1+330.000				
	Pavement	0.71	7.1	950.69
	Base	1.2	12	1608.65
	SubBase	2.4	24	3217.3
P.K.: 1+340.000				
	Pavement	0.71	7.1	957.79
	Base	1.2	12	1620.65
	SubBase	2.4	24	3241.3
P.K.: 1+350.000				
	Pavement	0.71	7.1	964.89
	Base	1.2	12	1632.65
	SubBase	2.4	24	3265.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+360.000				
	Pavement	0.71	7.1	971.99
	Base	1.2	12	1644.65
	SubBase	2.4	24	3289.3
P.K.: 1+370.000				
	Pavement	0.71	7.1	979.09
	Base	1.2	12	1656.65
	SubBase	2.4	24	3313.3
P.K.: 1+380.000				
	Pavement	0.71	7.1	986.19
	Base	1.2	12	1668.65
	SubBase	2.4	24	3337.3
P.K.: 1+390.000				
	Pavement	0.71	7.1	993.29
	Base	1.2	12	1680.65
	SubBase	2.4	24	3361.3
P.K.: 1+400.000				
	Pavement	0.71	7.1	1000.39
	Base	1.2	12	1692.65
	SubBase	2.4	24	3385.3
P.K.: 1+410.000				
	Pavement	0.71	7.1	1007.49
	Base	1.2	12	1704.65
	SubBase	2.4	24	3409.3
P.K.: 1+420.000				
	Pavement	0.71	7.1	1014.59
	Base	1.2	12	1716.65
	SubBase	2.4	24	3433.3
P.K.: 1+430.000				
	Pavement	0.71	7.1	1021.69
	Base	1.2	12	1728.65
	SubBase	2.4	24	3457.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+440.000				
	Pavement	0.71	7.1	1028.8
	Base	1.2	12	1740.65
	SubBase	2.4	24	3481.3
P.K.: 1+450.000				
	Pavement	0.71	7.1	1035.9
	Base	1.2	12	1752.65
	SubBase	2.4	24	3505.3
P.K.: 1+460.000				
	Pavement	0.71	7.1	1043
	Base	1.2	12	1764.65
	SubBase	2.4	24	3529.3
P.K.: 1+470.000				
	Pavement	0.71	7.1	1050.1
	Base	1.2	12	1776.65
	SubBase	2.4	24	3553.3
P.K.: 1+480.000				
	Pavement	0.71	7.1	1057.2
	Base	1.2	12	1788.65
	SubBase	2.4	24	3577.3
P.K.: 1+490.000				
	Pavement	0.71	7.1	1064.31
	Base	1.2	12	1800.65
	SubBase	2.4	24	3601.3
P.K.: 1+500.000				
	Pavement	0.71	7.1	1071.41
	Base	1.2	12	1812.65
	SubBase	2.4	24	3625.3
P.K.: 1+510.000				
	Pavement	0.71	7.1	1078.51
	Base	1.2	12	1824.65
	SubBase	2.4	24	3649.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+520.000				
	Pavement	0.71	7.1	1085.61
	Base	1.2	12	1836.65
	SubBase	2.4	24	3673.3
P.K.: 1+530.000				
	Pavement	0.71	7.1	1092.72
	Base	1.2	12	1848.65
	SubBase	2.4	24	3697.3
P.K.: 1+540.000				
	Pavement	0.71	7.1	1099.82
	Base	1.2	12	1860.65
	SubBase	2.4	24	3721.3
P.K.: 1+550.000				
	Pavement	0.71	7.1	1106.92
	Base	1.2	12	1872.65
	SubBase	2.4	24	3745.3
P.K.: 1+560.000				
	Pavement	0.71	7.1	1114.02
	Base	1.2	12	1884.65
	SubBase	2.4	24	3769.3
P.K.: 1+570.000				
	Pavement	0.71	7.1	1121.12
	Base	1.2	12	1896.65
	SubBase	2.4	24	3793.3
P.K.: 1+580.000				
	Pavement	0.71	7.1	1128.23
	Base	1.2	12	1908.65
	SubBase	2.4	24	3817.3
P.K.: 1+590.000				
	Pavement	0.71	7.1	1135.33
	Base	1.2	12	1920.65
	SubBase	2.4	24	3841.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+600.000				
	Pavement	0.71	7.1	1142.43
	Base	1.2	12	1932.65
	SubBase	2.4	24	3865.3
P.K.: 1+610.000				
	Pavement	0.71	7.1	1149.53
	Base	1.2	12	1944.65
	SubBase	2.4	24	3889.3
P.K.: 1+620.000				
	Pavement	0.71	7.1	1156.63
	Base	1.2	12	1956.65
	SubBase	2.4	24	3913.3
P.K.: 1+630.000				
	Pavement	0.71	7.1	1163.73
	Base	1.2	12	1968.65
	SubBase	2.4	24	3937.3
P.K.: 1+640.000				
	Pavement	0.71	7.1	1170.83
	Base	1.2	12	1980.65
	SubBase	2.4	24	3961.3
P.K.: 1+650.000				
	Pavement	0.71	7.1	1177.93
	Base	1.2	12	1992.65
	SubBase	2.4	24	3985.3
P.K.: 1+660.000				
	Pavement	0.71	7.1	1185.04
	Base	1.2	12	2004.65
	SubBase	2.4	24	4009.3
P.K.: 1+670.000				
	Pavement	0.71	7.1	1192.14
	Base	1.2	12	2016.65
	SubBase	2.4	24	4033.3

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+680.000				
	Pavement	0.71	7.1	1199.24
	Base	1.2	12	2028.65
	SubBase	2.4	24	4057.3
P.K.: 1+690.000				
	Pavement	0.71	7.1	1206.34
	Base	1.2	12	2040.65
	SubBase	2.4	24	4081.3
P.K.: 1+700.000				
	Pavement	0.71	7.1	1213.44
	Base	1.2	12	2052.65
	SubBase	2.4	24	4105.3
P.K.: 1+710.000				
	Pavement	0.71	7.1	1220.54
	Base	1.2	12	2064.65
	SubBase	2.4	24	4129.3
P.K.: 1+720.000				
	Pavement	0.71	7.1	1227.64
	Base	1.2	12	2076.65
	SubBase	2.4	24	4153.3
P.K.: 1+730.000				
	Pavement	0.73	7.19	1234.83
	Base	1.24	12.19	2088.84
	SubBase	2.47	24.37	4177.68
P.K.: 1+740.000				
	Pavement	0.75	7.38	1242.21
	Base	1.28	12.57	2101.41
	SubBase	2.57	25.14	4202.81
P.K.: 1+750.000				
	Pavement	0.75	7.42	1249.63
	Base	1.28	12.68	2114.08
	SubBase	2.57	25.35	4228.17

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+760.000				
	Pavement	0.75	7.42	1257.06
	Base	1.28	12.68	2126.76
	SubBase	2.57	25.35	4253.52
P.K.: 1+770.000				
	Pavement	0.73	7.39	1264.45
	Base	1.25	12.6	2139.36
	SubBase	2.5	25.19	4278.72
P.K.: 1+780.000				
	Pavement	0.71	7.22	1271.67
	Base	1.2	12.24	2151.6
	SubBase	2.4	24.48	4303.19
P.K.: 1+790.000				
	Pavement	0.71	7.1	1278.77
	Base	1.2	12	2163.6
	SubBase	2.4	24	4327.19
P.K.: 1+800.000				
	Pavement	0.71	7.1	1285.87
	Base	1.2	12	2175.6
	SubBase	2.4	24	4351.19
P.K.: 1+810.000				
	Pavement	0.71	7.1	1292.97
	Base	1.2	12	2187.6
	SubBase	2.4	24	4375.19
P.K.: 1+820.000				
	Pavement	0.71	7.1	1300.08
	Base	1.2	12	2199.6
	SubBase	2.4	24	4399.19
P.K.: 1+830.000				
	Pavement	0.71	7.1	1307.18
	Base	1.2	12	2211.6
	SubBase	2.4	24	4423.19

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+840.000				
	Pavement	0.71	7.1	1314.28
	Base	1.2	12	2223.6
	SubBase	2.4	24	4447.19
P.K.: 1+850.000				
	Pavement	0.71	7.1	1321.38
	Base	1.2	12	2235.6
	SubBase	2.4	24	4471.19
P.K.: 1+860.000				
	Pavement	0.71	7.1	1328.48
	Base	1.2	12	2247.6
	SubBase	2.4	24	4495.19
P.K.: 1+870.000				
	Pavement	0.71	7.12	1335.6
	Base	1.21	12.03	2259.63
	SubBase	2.41	24.07	4519.26
P.K.: 1+880.000				
	Pavement	0.72	7.17	1342.77
	Base	1.22	12.15	2271.78
	SubBase	2.45	24.29	4543.55
P.K.: 1+890.000				
	Pavement	0.72	7.21	1349.98
	Base	1.22	12.22	2284
	SubBase	2.45	24.45	4568
P.K.: 1+900.000				
	Pavement	0.72	7.21	1357.19
	Base	1.22	12.23	2296.23
	SubBase	2.45	24.45	4592.45
P.K.: 1+910.000				
	Pavement	0.72	7.21	1364.4
	Base	1.22	12.23	2308.45
	SubBase	2.45	24.45	4616.91

	Tipo de área	Área	Vol. incremental	Vol. acumul.
		Metros cuadrados	Metros cúbicos	Metros cúbicos
P.K.: 1+920.000				
	Pavement	0.72	7.18	1371.59
	Base	1.21	12.17	2320.62
	SubBase	2.42	24.34	4641.25
P.K.: 1+927.719				
	Pavement	0.71	5.5	1377.09
	Base	1.2	9.31	2329.93
	SubBase	2.4	18.61	4659.86

Tabla 5-13 *Cartera de Materiales*

6. SEÑALIZACIÓN VIAL

Las señales utilizadas en este diseño vial fueron





7. ANEXOS

Anexo 1 Planos de Diseño