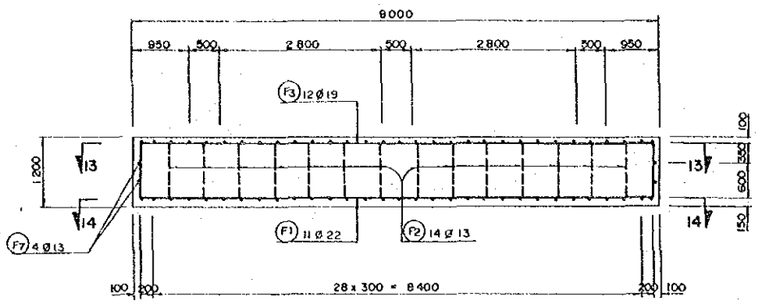
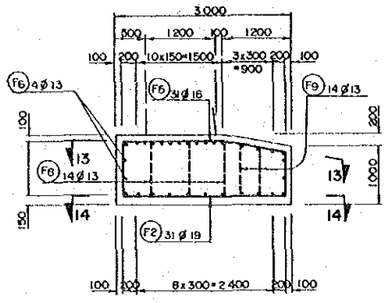
SECCION 15 - 15
ESCALA 1:50



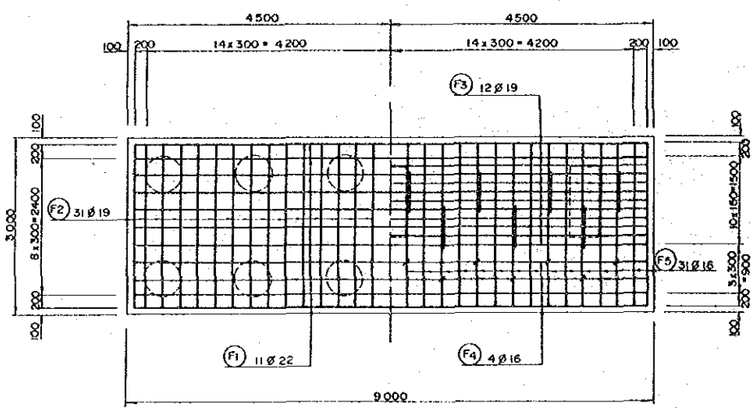
SECCION 16 - 16
ESCALA 1:50



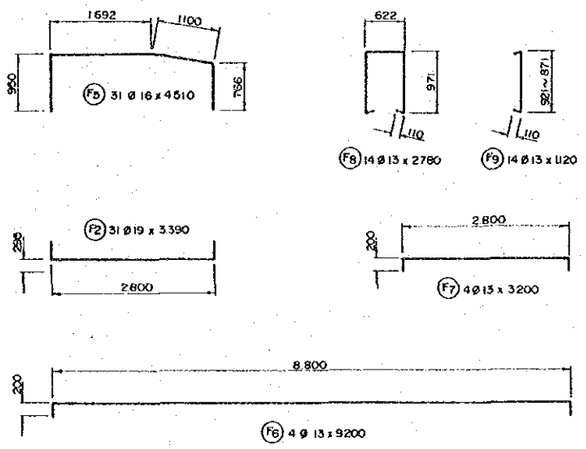
PLANILLA DE FIERROS PARA ZAPATA							
POSICION	Ø	LONGITUD (mm.)	No DE BARRAS	PESO (Kg/m)	PESO (Kg/BARRA)	PESO TOTAL (Kg)	OBSERV.
F1	22	9.480	11	3.042	28.838	317.218	
F2	19	3.390	31	2.235	7.577	234.887	
F3	19	10.700	12	2.235	23.915	286.980	
F4	16	10.370	4	1.552	16.094	64.376	
F5	16	4.510	31	1.552	7.000	217.000	
F6	13	9.200	4	0.994	9.145	36.580	
F7	13	3.200	4	0.994	3.181	12.724	
F8	13	2.780	14	0.994	2.763	38.682	
F9	13	1.120	14	0.994	1.113	15.582	
TOTAL						1,224.029 Kg	

CANTIDAD TOTAL POR DIAMETRO	
Ø 22	317.218 x 2 = 634.436 Kg
Ø 19	521.867 x 2 = 1,043.734 Kg
Ø 16	281.376 x 2 = 562.752 Kg
Ø 13	103.568 x 2 = 207.136 Kg
TOTAL	1224.029 x 2 = 2,448.058 Kg

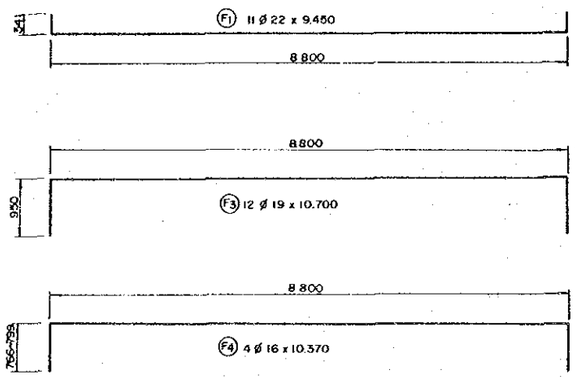
SECCION 14 - 14 SECCION 13 - 13
ESCALA 1:50



ESQUEMA DE DOBLADO



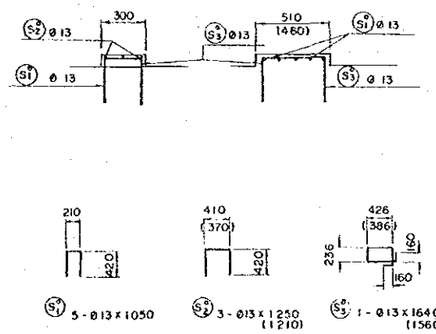
ESQUEMA DE DOBLADO PARA ZAPATA
ESCALA 1:50



	PUENTE		SAN JUAN, SAN GREGORIO Y PTO. ALMACEN				AMISTAD, SICURI MURURITA			
POSCION	Ø	PESO (kg/m)	LONGITUD (mm)	NO DE BARRAS	PESO Kg/BARRAS	PESO TOTAL (kg)	LONGITUD (mm)	NO DE BARRAS	PESO kg/BARRAS	PESO TOTAL (kg)
W1	16	1.552	2.910	3	4.516	13.548	3.110	3	4.827	14.431
W2	16	1.552	2.250	5	3.492	17.460	2.250	6	3.492	20.952
W3	13	0.994	2.910	3	2.893	8.679	3.110	3	3.091	9.273
W4	13	0.994	2.250	5	2.237	11.185	2.250	6	2.237	13.422
W5	13	0.994	2.530	4	2.515	10.060	2.730	4	2.714	10.856
W6	13	0.994	1.520	6	1.511	9.066	1.520	7	1.511	10.577
W7	13	0.994	2.530	4	2.515	10.060	2.730	4	2.714	10.856
W8	13	0.994	1.520	6	1.511	9.066	1.520	7	1.511	10.577
W9	13	0.994	3.700	2	3.678	7.356	4.350	2	4.324	8.648
W10	10	0.560	240	4	0.134	0.536	240	4	0.134	0.536
TOTAL						99.016				110.178 kg

CANTIDAD TOTAL POR DIAMETRO		CANTIDAD TOTAL POR DIAMETRO
Ø16	31.008 x 2 x 2 ESTRIBOS = 124.032 kg	Ø16 35.433 x 2 x 2 ESTRIBOS = 141.732 kg
Ø13	65.472 x 2 x 2 " = 261.888 "	Ø13 74.209 x 2 x 2 " = 296.836 "
Ø10	0.536 x 2 x 2 " = 2.144 "	Ø10 0.536 x 2 x 2 " = 2.144 "
	TOTAL 97.016 x 2 x 2 " = 388.064 "	TOTAL 110.178 x 2 x 2 " = 440.712 "

ASIENTO DE APOYO



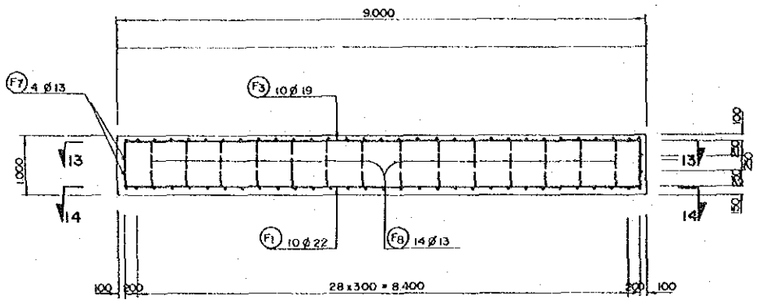
CURIRABITAIN ( )

PLANILLA DE FIERROS PARA ASIENTO DE APOYO (SIN CURIRABA)							
POSCION	Ø	LONGITUD (mm)	NO. DE BARRAS	PESO (kg/m)	PESO (Kg/BARRA)	PESO TOTAL	OBSERV.
S1	13	1.050	5	0.994	1.044	5.220	
S2	13	1.250 (1.210)	3	0.994	1.243 (1.203)	3.729 (3.609)	
S3	13	1.640 (1.560)	1	0.994	1.630 (1.551)	1.630 (1.551)	
SUB TOTAL						10.579 (10.380)	

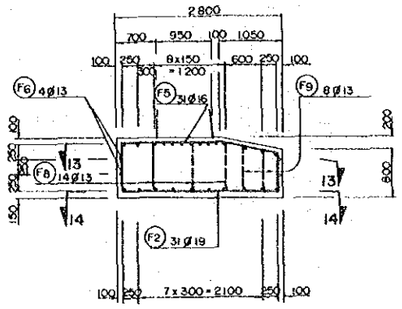
CANTIDAD TOTAL POR DIAMETRO	
Ø 13	10.579 x 4 x 2 ESTRIBO = 84.632 kg
(Ø 13	10.380 x 4 x 2 " = 83.040 ")

ARMADURA DE ZAPATA, PUENTES: SAN JUAN, SAN GREGORIO, PTO. ALMACEN, MURURITA, AMISTAD Y SICURI

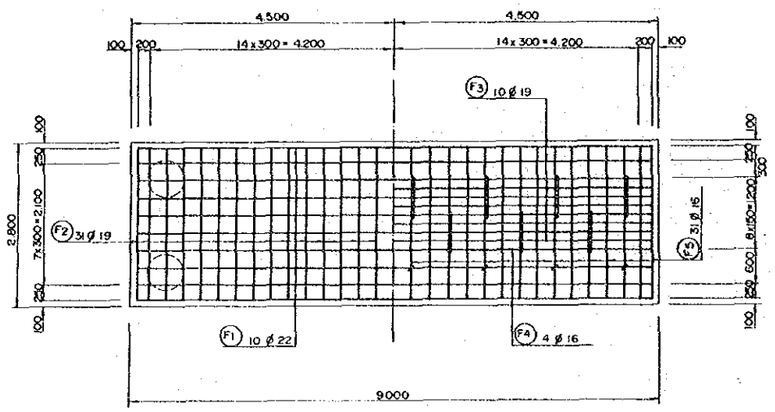
SECCION 15 - 15
ESCALA 1:5



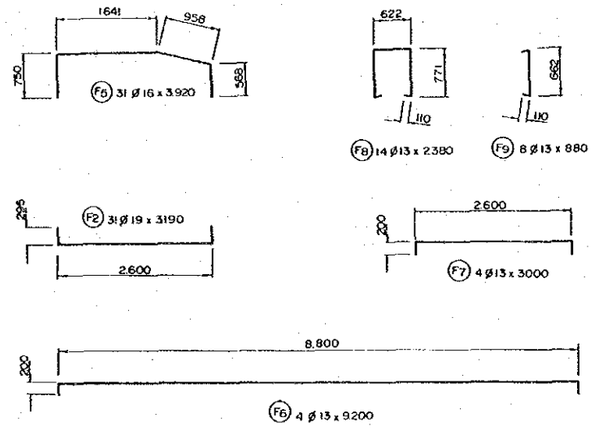
SECCION 16 - 16
ESCALA 1:50



SECCION 14 - 14 SECCION 13 - 13
ESCALA 1:50



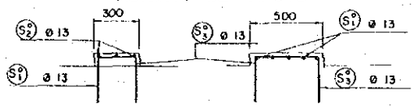
ESQUEMA DE DOBLADO



PLANILLA DE FIERROS PARA ZAPATA							
POSICION	ø	LONGITUD (mm.)	Nº DE BARRAS	PESO (Kg m.)	PESO (Kg. BARRA)	PESO TOTAL (Kg.)	OBSERV.
F1	22	9.480	10	3.042	28.838	288.380	
F2	19	3.190	31	2.235	7.130	221.030	
F3	19	10.300	10	2.235	23.020	230.205	
F4	16	10.100	4	1.552	15.675	62.700	
F5	16	3.920	31	1.552	6.080	188600	
F6	13	9.200	4	0.994	9.145	36.580	
F7	13	3.000	4	0.994	2.982	11.928	
F8	13	2.380	14	0.994	2.370	33.120	
F9	13	880	8	0.994	874	6.997	
TOTAL						1,079.540 Kg.	

CANTIDAD TOTAL POR DIAMETRO		
ø 22	288.380 x 2 = 576.760	Kg.
ø 19	451.235 x 2 = 902.470	Kg.
ø 16	251.300 x 2 = 502.600	Kg.
ø 13	88.625 x 2 = 177.250	Kg.
TOTAL	1,079.540 x 2 = 2,159.080	Kg.

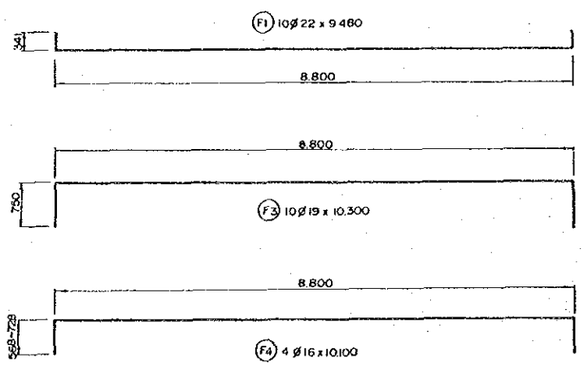
ASIENTO DE APOYO



PLANILLA DE FIERROS PARA ASIENTO DE APOYO (CURIRABA)							
POSICION	ø	LONGITUD (mm)	NO. DE BARRAS	PESO (kg/m)	PESO (kg/ BARRA)	PESO TOTAL (kg)	OBSERV.
S1	13	1.310 (.990)	5	0.994	1.302 (0.984)	6.570 (4.920)	
S2	13	1.510 (1.190)	3	0.994	1.501 (1.183)	4.503 (3.549)	
S3	13	1.640	1	0.994	1.630 (1.130)	1.630 (1.130)	
TOTAL						12.643 (10.099)	

CANTIDAD TOTAL POR DIAMETRO		
D 13	12.643 x 2 x 2 = 50.572 kg	
D 13	10.099 x 2 x 2 = 40.396 kg	
TOTAL	90.968 kg	

ESQUEMA DE DOBLADO PARA ZAPATA
ESCALA 1:50

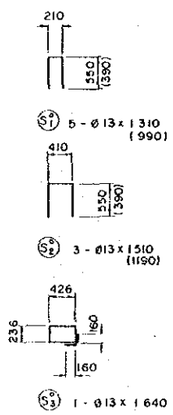


POSICION	ø	PESO (kg/m)	TAJIBO LONGITUD (mm)	NO DE BARRAS	PESO (kg/ BARRA)	PESO TOTAL (kg)	CURIRABITA LONGITUD (mm)	NO. DE BARRAS	PESO (kg / BARRA)	PESO TOTAL (kg)	CURIRABA LONGITUD (mm)	NO DE BARRAS	PESO (kg / BARRA)	PESO TOTAL (kg)	LONGITUD (mm)	NO DE BARRAS	PESO (kg / BARRA)	PESO TOTAL (kg)
W1	16	1.552	3 110	3	4.827	14.481	2 710	3	4.206	12.618	2 910	4	4.516	18.064	2910	3	4.516	13548
W2	16	1.552	2 250	6	3.492	20.952	2 050	5	3.182	15.910	2 190	5	3.399	16.995	2170	5	3.368	16840
W3	13	0.994	3 110	3	3.091	9.273	2 710	3	2.694	8.082	2 910	4	2.893	11.572	2910	3	2.893	8.679
W4	13	0.994	2 250	6	2.237	13.422	2 050	5	2.038	10.190	2 190	5	2.177	10.885	2170	5	2.157	10.785
W5	13	0.994	2 730	4	2.714	10.856	2 330	4	2.318	9.264	2 770	4	2.753	11.012	2450	4	2.435	9.740
W6	13	0.974	1 520	7	1.511	10.577	1.620	4	1.610	6.440	1910	5	1.899	9.495	1590	5	1.580	7.900
W7	13	0.994	2 730	4	2.714	10.856	2 330	4	2.316	9.264	2770	4	2.753	11.012	2450	4	2435	9.740
W8	13	0.994	1 520	7	1.511	10.577	1 620	4	1.610	6.440	1910	5	1.899	9.495	1590	5	1.580	7.900
W9	13	0.994	4 350	2	4.324	8.648	3 860	2	3.837	7.674	4250	2	4.225	8.450	3930	2	3906	7.812
W10	10	0.560	240	4	0.134	0.536	240	3	0.134	0.402	240	4	0.134	0.536	240	4	0.134	0.536
TOTAL						110.178 kg				86.284 kg			(H=2.71 m)	107.516 kg			(H=2.39 m)	93.480 kg

TAJIBO CANTIDAD TOTAL POR DIAMETRO		
	ESTRIBOS	kg
ø 16	35.433 x 2 x 2	= 141.732 kg
ø 13	74.209 x 2 x 2 "	= 296 836 "
ø 10	0.536 x 2 x 2 "	= 2.144 "
TOTAL	110.178 x 2 x 2 "	= 440.712 "

CURIRABITA CANTIDAD TOTAL POR DIAMETRO		
	ESTRIBOS	kg
ø 16	28.528 x 2 x 2	= 114.112 kg
ø 13	57.354 x 2 x 2 "	= 229.416 "
ø 10	0.402 x 2 x 2 "	= 1.608 "
TOTAL		

CURIRABA CANTIDAD TOTAL POR DIAMETRO		
ø 16	35.059 x 2 + 30.388 x 2 =	130 894 kg
ø 13	71.291 x 2 + 62.556 x 2 =	268 954 "
ø 10	0.536 x 2 + 0.536 x 2 =	2.144 "
TOTAL	107.516 x 2 + 93.480 x 2 =	401 992 "



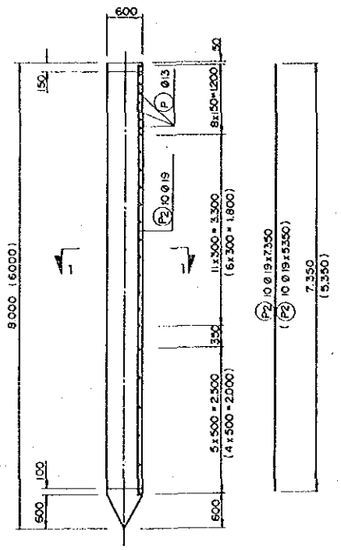
ARMADURA DE ZAPATA, PUENTES: TAJIBO, CURIRABA Y CURIRABITA

ARMADURA DE PILOTES

ESCALA 1:50

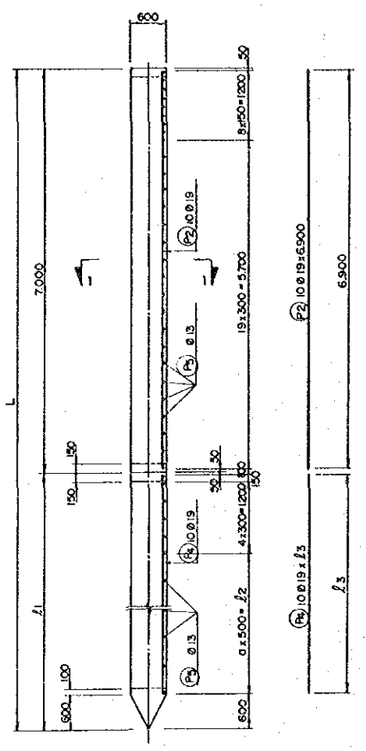
PUENTES

SAN JUAN, SAN GREGORIO, PTO. ALMACEN Y TAJIBO



PUENTES

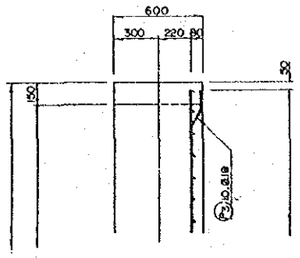
AMISTAD, SICURI, MURURITA, CURIRABITA Y CURIRABA



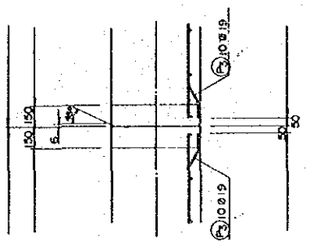
DETALLE DE PILOTE

ESCALA 1:20

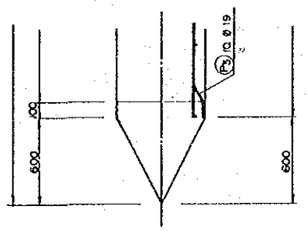
CABEZAL



JUNTA

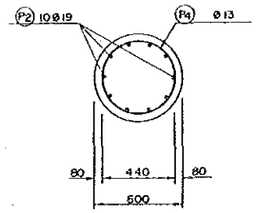


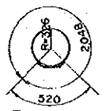
PUNTA



SECCION 1 - 1

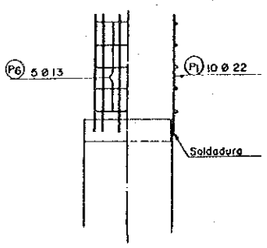
ESCALA 1:20

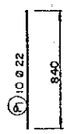


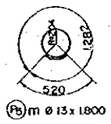


P6 5Ø13 x 2570

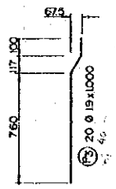
FIERROS DE EMPALME







P5 m Ø13 x 1800



	L (mm.)	l1 (mm.)	l2 (mm.)	l3 (mm.)	a (Pza.)	m (Pza.)	Observ.
Amistad Sicuri	15.000	8.000	6000	7.350	12	46	
Mururita	12.000	5.000	3000	4.350	6	40	
Curirabita	14.000	7.000	5.000	6.350	10	43	
Curiraba	15.000	8.000	6.000	7.350	12	46	

PLANILLA DE FIERROS

POSICION	ø	LONGITUD (mm.)	No. DE BARRAS	PESO (Kg/m.)	PESO Kg/BARRA	PESO TOTAL (Kg.)	OBSERVACION
P1	19	840	10	2.235	1.877	18.770	
P2	19	7.350 (5.350)	10	2.235	16.427 (11.957)	164.270 (119.570)	
P3	19	1.000	20	2.235	2.235	44.700	
P6	13	1.800	26 (20)	0.994	1.789	46.514 (35.780)	
P5	13	2.570	5	0.994	2.555	12.775	
SUB TOTAL						287.029 Kg. 1 Pilote (231.595 Kg. 1 Pilote)	

PUENTE SAN JUAN

Ø 19	227.740	Kg/Pilote x 12 Pilotes	x 2 =	5,465.760 Kg.
Ø 13	59.289	Kg/Pilote x 12 "	x 2 =	1,422.936 Kg.
TOTAL	287.029	Kg.		6,876.696 Kg.

PUENTE SAN GREGORIO Y PTO. ALMACEN

Ø19	183.040	Kg/Pilote x 12 Pilotes	x 2 =	4,392.960 Kg.
Ø 13	48.555	Kg/Pilote x 12 "	x 2 =	1,165.320 Kg.
TOTAL	231.595	Kg.		5,558.280 Kg.

PUENTE TAJIBO

Ø 19	227.740	Kg/Pilote x 10 Pilotes	x 2 =	4,454.800 Kg.
Ø13	59.289	Kg/Pilote x 10 "	x 2	1,185.780 Kg.
TOTAL	287.029	Kg.		5,740.580 Kg.

CANTIDAD TOTAL POR DIAMETRO

Ø 19	14,313.520	Kg.
Ø 13	3,774.036	Kg.
GRAN TOTAL	18,087.556	Kg.

PLANILLA DE FIERROS

POSICION	ø	LONGITUD (mm.)	No. DE BARRAS	PESO (Kg/m.)	PESO Kg/BARRA	PESO TOTAL (Kg.)	OBSERVACION
P1	22	880	10	3.042	2.677	26.770	
P2	19	6.900	10	2.235	15.422	154.220	
P3	19	1.000	40	2.235	2.235	89.400	
P4	19	7.350	10	2.235	16.427	164.270	AMISTAD, SICURI Y CURIRABA
	19	4.350	10	2.235	9.722	97.220	MURURITA
	19	6.350	10	2.235	14.192	141.920	CURIRABITA
P5	13	1.800	46	0.994	4.023	185.058	AMISTAD, SICURI Y CURIRABA
	13	1.800	40	0.994	4.023	160.920	MURURITA
	13	1.800	43	0.994	4.023	172.989	CURIRABITA
P6	13	2.570	5	0.994	2.555	12.775	
SUB TOTAL						12,066.420 Kg.	

PUENTE AMISTAD Y SICURI

Ø 19	426.664	Kg/Pilote x 12 Pilotes	x 2 =	10,239.936 Kg.
Ø 13	197.833	Kg/ " x 12 "	x 2 =	4,747.992
TOTAL	624.497	Kg.		14,987.928 Kg

PUENTE MURURITA

Ø 19	359.614	Kg./Pilote x 12 Pilotes	x 2 =	8,630.730 Kg
Ø 13	173.695	Kg/ " x 12 Pilotes	x 2 =	4,168.680 Kg.
TOTAL	533.309	Kg.		12,799.416 Kg.

PUENTE CURIRABITA

Ø 19	404.314	Kg/Pilote x 10 Pilotes	x 2 =	8,086.280 Kg.
Ø 13	185.764	Kg/ " x 10 Pilotes	x 2 =	3,715.280 Kg.
TOTAL	590.078	Kg.		11,801.560 Kg.

PUENTE CURIRABA

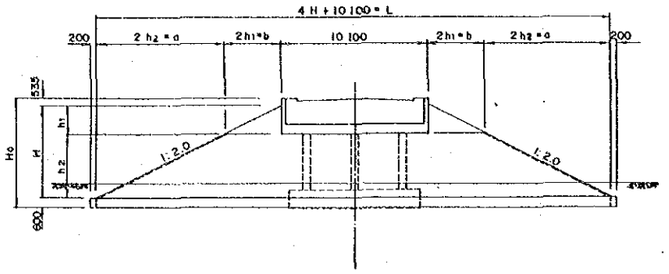
Ø 19	426.664	Kg/Pilote x 10 Pilotes	x 2 =	8,533.280 Kg.
Ø 13	197.833	Kg/Pilote x 10 Pilotes	x 2 =	3,956.660 Kg.
TOTAL	624.497	Kg		12,489.940 Kg.

CANTIDAD TOTAL POR DIAMETRO

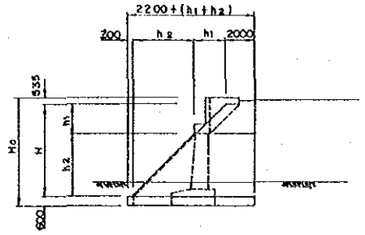
Ø 19	35,490.226	Kg.
Ø 13	16,588.612	Kg.
TOTAL	52,078.838	Kg.

PLANO DE ARMADURA Y DETALLES DE PILOTES

ELEVACION FRONTAL ESCOLLERADO
ESC. 1:50

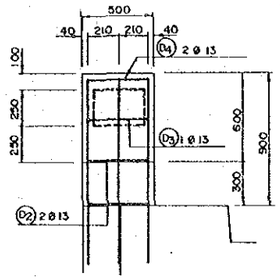


ELEVACION LATERAL
ESC. 1:50

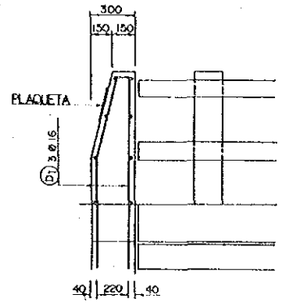


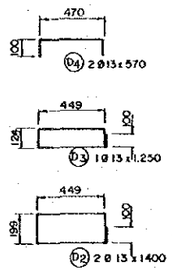
PARAPETO DE ACCESO AL PUENTE
ESCALA 1:20

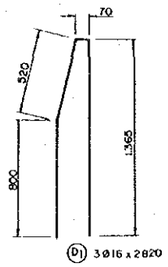
ELEVACION



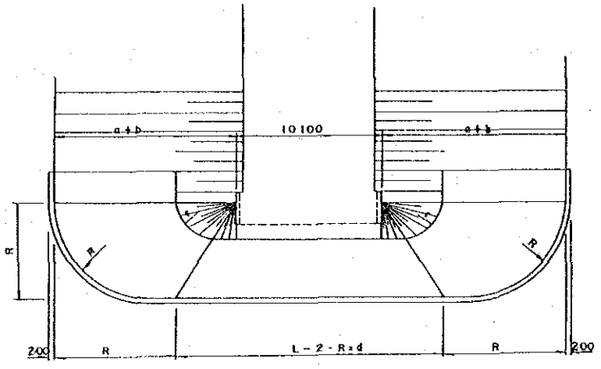
PERFIL



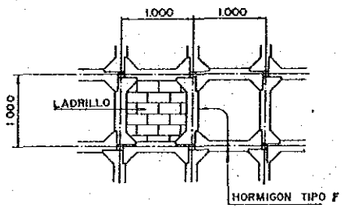




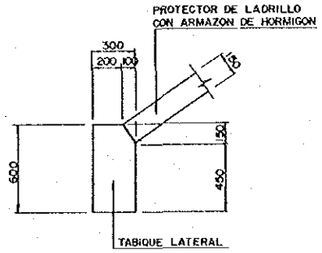
PLANTA
ESC. 1:50



PROTECTOR DE LADRILLO CON ARMAZON DE HORMIGON
ESC. 1:40



TABIQUE LATERAL
ESC 1:20



DIMENSIONES DE ESTRUCTURA (ESCOLLERADO)

PUENTES	Ho	H	h_1	h_2	a	b	L	R	r	C	d
San Juan San Gregorio	7.470	6.335	1.935	4.400	8.800	3.870	35.440	6.335	1.935	18.900	22.770
Pto. Almacen	7.170	6.035	1.935	4.100	8.200	3.870	35.240	6.035	1.935	18.300	22.170
Amistad Sicuri	8.370	7.235	2.135	5.100	10.200	4.270	39.040	7.235	2.135	20.300	24.570
Tajibo	5.470	4.335	2.135	2.200	4.400	4.270	27.440	4.335	2.135	14.500	18.770
Mururita	7.670	6.535	2.135	4.400	8.800	4.270	36.240	6.535	2.135	18.900	23.170
Curirabita	6.470	5.335	1.735	3.600	7.200	3.470	31.440	5.335	1.735	17.300	20.770
Curiraba	5.970	4.835	1.935	2.900	5.800	3.870	29.440	4.835	1.935	13.900	19.770

CUADRO DE CANTIDADES UNITARIAS

ENLADRILLADO DE BLOQUE EN HORMIGON (POR M^2)	Hormigón	Tipo(A)	m^3	0.048
	Armado de acero de refuerzo	Ø 10	Kg	9.594
	Encofrado		m^2	0.772
	Enladrillado		Pza.	21
	Mortero		m^3	0.008
	Antideslizador	Ø 20 L=0.70	Kg.	1.726
CORDON DE BLOQUE DE HORMIGON(POR M)	Hormigón	Tipo(F)	m^3	0.105
	Encofrado		m^2	1.23

PLANILLA DE FIERROS DE PARAPETO

POSICION	Ø	LONGITUD (mm.)	No. DE BARRAS	PESO (Kg/m.)	PESO Kg./BARRA	PESO TOTAL (Kg.)	OBSERVACION
(D1)	16	2.820	3	1.552	4.377	13.137	
(D2)	13	1.400	2	0.994	1.392	2.784	
(D3)	13	1.250	1	0.994	1.243	1.243	
(D4)	13	570	2	0.994	0.667	1.658	
TOTAL						18.816 Kg	

MATERIALES PARA UN POSTE

Hormigón	M^3	0.113 / Poste
Encofrado	M^2	1.359 / Poste
Fierro	Kg.	18.816 / Poste
PARA UN PUENTE		
Hormigón	M^3	0.452 / Puente
Encofrado	M^2	5.436 / Puente
Fierro	Kg.	75.264 / Puente
Plaqueta	Pza.	2

PLAQUETA

350 × 250

MINISTERIO DE TRANSPORTES Y COMUNICACIONES
SERVICIO NACIONAL DE CAMINOS

PUENTE: LONG M.

DISEÑO: CONVENIO DE COOPERACION JICA

SUPERVISION: .....

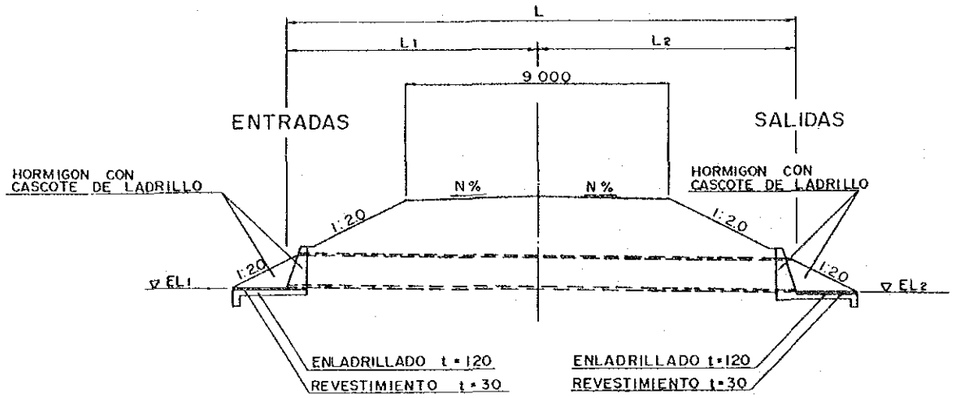
CONTRATISTA: .....

FECHA DE CONCLUSION: .....

PLANO DE PROTECCION DE ESCOLLERADO Y PARAPETO

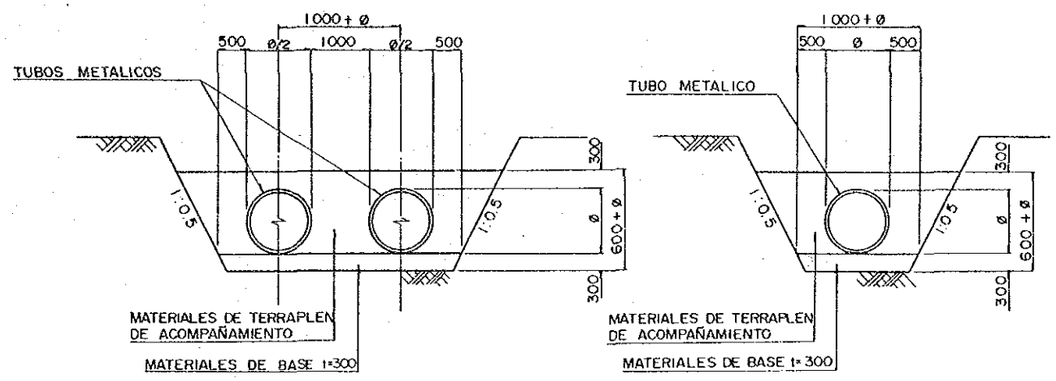
DETALLES TIPICOS DE DRENAJES
(TUBOS)

TIPO DE SECCION TRANSVERSAL



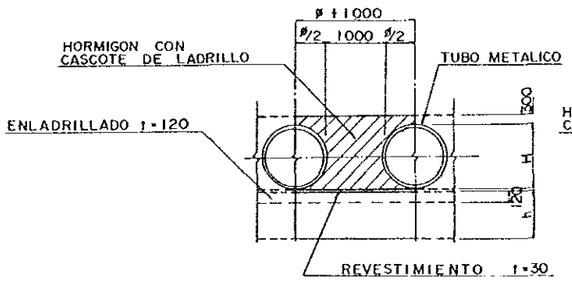
DETALLES DE ASIENTO

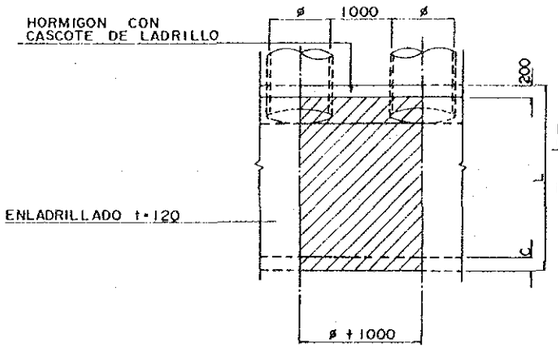
CONDICION DE CORTE



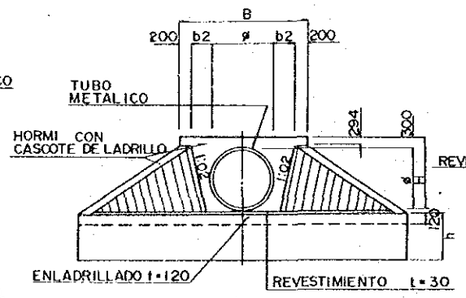
TIPOS DE ENTRADAS DE ALCANTARILLAS Y SALIDAS DE ALCANTARILLAS

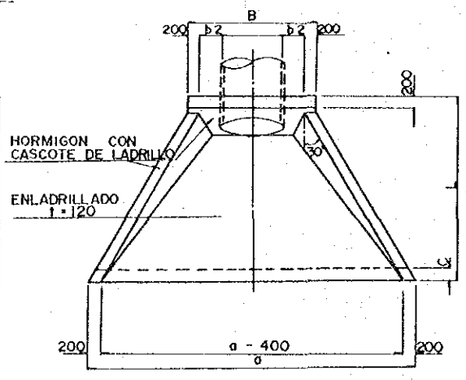
DOS FILAS



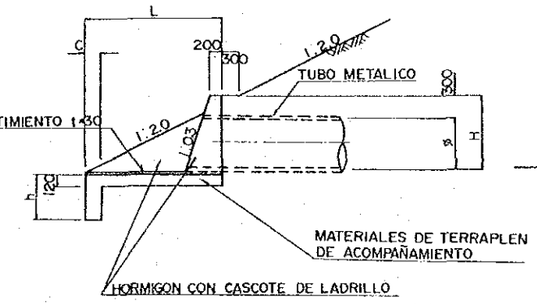


UNA FILA





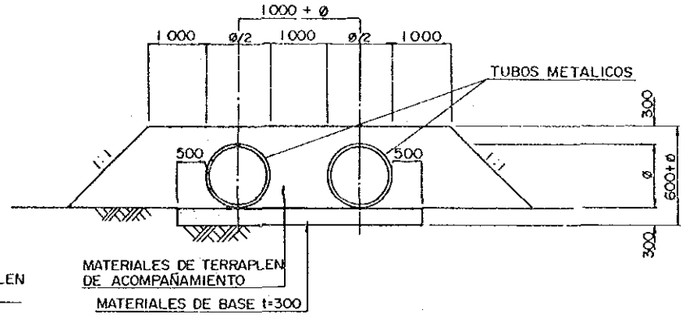
CORTE LONGITUDINAL



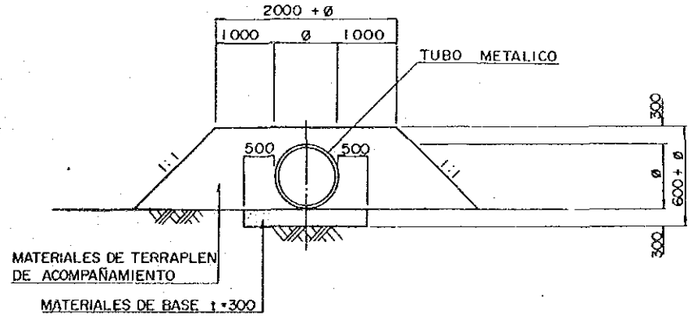
DIAMETRO	MEDIDA						
	a	b	h	C	B	H	L
Ø 900	3 872	240	720	250	1 780	1 200	2 100
Ø 1200	4 985	300	960	250	2 200	1500	2 700
Ø 1500	6 098	360	1 200	250	2 620	1800	3 300
Ø 1800	7 211	420	1 440	250	3 040	2 100	3 900
Ø 2 100	8 324	480	1 620	250	3 460	2 400	4 500
Ø 2 400	9 436	540	1 920	300	3 880	2 700	5 100
Ø 2700	10 549	600	2 160	300	4 300	3 000	5 700
Ø 3000	11 662	660	2 400	300	4 720	3 300	6 300

CONDICION DE TERRAPLENES

DOS FILAS



UNA FILA



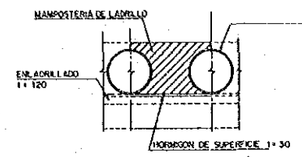
NOTA:
EL ENLADRILLADO TIENE QUE SER DE LADRILLO GAMBOTE CON JUNIAS DE MORTERO.

CUADRO DE DIMENSIONES DE ALCANTARILLAS

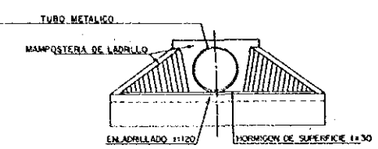
SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L1	LONGITUD DERECHA L2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L1	LONGITUD A AGREGAR DERECHA L2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL1	ALTURA DE LA SALIDA EL2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
II	12+000.00	0		ø 2.70	3	7.40	7.60	15.00				152.05	151.95													2	4	–	–
	13+654.50	0		ø 3.00	2	7.94	7.06	15.00				151.75	151.65													–	–	2	2
	14+500.00	0		ø 2.70	2	7.40	7.60	15.00				152.05	151.95													2	2	–	–
	15+450.00	0		ø 2.70	2	7.40	7.60	15.00				152.05	151.95													2	2	–	–
	16+124.10	0		ø 3.00	2	7.40	7.60	15.00				151.75	151.65													–	–	2	2
	16+850.00	0		ø 3.00	1	7.40	7.60	15.00				151.75	151.65													–	–	2	–
	17+496.80		0	ø 1.50	2	11.40	11.40	22.80	4.00	4.00	8.00	151.13	151.03					2	2										
	18+270.00	0		ø 3.00	1	7.40	7.60	15.00				151.85	151.75													–	–	2	–
	25+370.00	0		ø 3.00	4	9.90	10.10	20.00				150.45	150.35															2	6
	27+687.00	0		ø 3.00	4	9.39	9.61	19.00				150.75	150.65															2	6
III	29+220.00	0		ø 3.00	4	7.40	7.60	15.00				151.75	151.65															2	6
	30+264.80	0		ø 3.00	4	7.40	7.60	15.00				151.75	151.65															2	6
	30+540.00		0	ø 3.00	2	9.40	9.40	18.80	4.00	4.00	8.00	150.69	150.59															2	2
	31+070.00	0		ø 3.00	4	7.40	7.60	15.00				151.85	151.75															2	6
	32+660.00	0		ø 2.70	3	7.40	7.60	15.00				152.15	152.05													2	2		
	34+130.00	0		ø 2.40	3	6.90	7.10	14.00				152.45	152.35											2	4				
	35+573.00	0		ø 3.00	3	7.40	7.60	15.00				151.75	152.65															2	4
	40+370.00	0		ø 2.40	2	6.90	7.10	14.00				152.45	152.35											2	2				
	40+600.00	0		ø 2.10	2	6.90	7.10	14.00				152.75	152.65									2	2						
	41+786.60		0	ø 1.20	2	7.15	8.15	15.30	1.00	2.00	3.00	153.25	153.15			2	2												
	42+320.00	0		ø 1.80	1	6.54	7.46	14.00				153.05	152.95							2	–								
	43+390.00	0		ø 1.50	1	6.90	7.10	14.00				153.35	153.25					2	–										
	44+402.70		0	ø 0.90	1	8.30	9.30	17.60	1.00	2.00	3.00	153.05	152.95	2	–														
	47+220.00	0		ø 1.20	1	6.35	6.65	13.00				154.68	154.53			2	–												
	48+190.00	0		ø 1.20	1	6.46	6.54	13.00				155.08	154.93			2	–												
	48+713.20		0	ø 1.20	1	8.15	8.15	16.30	2.00	2.00	4.00	154.08	153.93			2	–												
	49+020.00	0		ø 1.20	1	7.35	7.65	15.00				154.38	154.23			2	–												

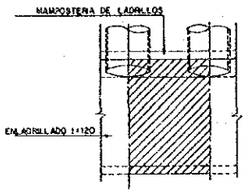
CANTIDADES POR UNIDAD DE TRABAJO

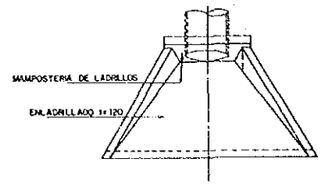
B



A







A

	HORMIGON m^3	ENCOFRADO m^2	MORTERO m^3	LADRILLO m^3
ø 0.90	1.477	10.908	0.169	1.257
ø 1.20	2.701	17.628	0.279	2.163
ø 1.50	4.418	25.963	0.417	3.312
ø 1.80	6.736	35.920	0.582	4.706
ø 2.10	9.704	47.496	0.774	6.219
ø 2.40	13.410	60.692	0.995	9.074
ø 2.70	17.934	75.507	1.243	11.426
ø 3.00	23.353	91.943	1.518	14.049

B

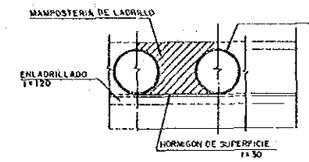
	HORMIGON m^3	LADRILLO m^3	ENCOFRADO m^2	MORTERO m^3
ø 0.90	0.596	0.764	3.432	0.120
ø 1.20	0.871	1.175	4.529	0.178
ø 1.50	1.205	1.665	5.706	0.248
ø 1.80	1.603	2.234	6.964	0.328
ø 2.10	2.071	2.837	8.303	0.419
ø 2.40	2.613	3.917	9.722	0.520
ø 2.70	3.236	4.795	11.222	0.633
ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L1	LONGITUD DERECHA L2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L1	LONGITUD A AGREGAR DERECHA L2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL 1	ALTURA DE LA SALIDA EL 2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
IV	51 + 220.00	0		ø 1.20	1	5.99	7.01	13.00				155.08	154.93			2	–												
	52 + 770.00	0		ø 1.20	1	7.21	6.79	14.00				154.88	154.73			2	–												
	54 + 205.00	0		ø 1.20	2	6.35	6.65	13.00				154.88	154.73			2	2												
	55 + 480.00	0		ø 1.20	1	6.42	6.58	13.00				155.08	154.93			2	–												
	56 + 075.00	0		ø 1.20	1	6.35	6.65	13.00				155.18	155.03			2	–												
	56 + 826.10		0	ø 0.90	1	7.65	6.65	14.30	2.00	1.00	3.00	155.18	155.03	2	–														
	57 + 325.00	0		ø 0.90	2	6.31	7.69	14.00				155.38	155.23	2	2														
	57 + 890.00	0		ø 1.20	1	6.35	6.65	13.00				155.18	155.03			2	–												
	59 + 866.00		0	ø 1.20	1	7.55	8.55	16.10	1.00	2.00	3.00	155.08	154.93			2	–												
	60 + 944.80		0	ø 1.50	1	6.40	7.40	13.80	0	1.00	1.00	155.53	155.38					2	–										
	63 + 210.00	0		ø 0.90	1	6.89	6.11	13.00				156.08	155.93	2	–														
	64 + 250.00	0		ø 0.90	1	5.85	6.15	12.00				156.23	156.13	2	–														
	65 + 820.00	0		ø 0.90	1	6.35	6.65	13.00				156.78	156.63	2	–														
	66 + 960.00	0		ø 1.20	1	7.17	6.83	14.00				156.58	156.43			2	–												
	67 + 635.00	0		ø 1.20	1	6.85	7.15	14.00				156.58	156.43			2	–												
	68 + 650.00	0		ø 1.20	1	6.35	6.65	13.00				156.68	156.53			2	–												
	69 + 785.00	0		ø 0.90	1	7.75	7.25	15.00				156.48	156.33	2	–														
	74 + 055.00	0		ø 1.20	1	6.31	7.69	14.00				157.18	157.03			2	–												
	75 + 380.00	0		ø 1.20	1	7.85	8.15	16.00				156.68	156.53			2	–												
	76 + 085.00	0		ø 1.20	1	7.82	8.18	16.00				156.88	156.73			2	–												
	76 + 580.00	0		ø 1.20	1	7.35	7.65	15.00				157.08	156.93			2	–												
	77 + 770.00	0		ø 2.10	3	6.85	7.15	14.00				158.08	157.93									2	4						
	79 + 096.60		0	ø 0.90	1	7.25	7.25	14.50	3.00	3.00	6.00	158.38	158.23	2	–														
	81 + 320.00		0	ø 1.50	1	7.35	7.35	14.70				158.48	158.33					2	–										
	82 + 150.00	0		ø 1.50	1	6.85	7.15	14.00				158.08	157.93					2	–										
V	87 + 730.00	0		ø 1.50	2	6.35	6.65	13.00				159.18	159.03					2	2										
	89 + 000.00		0	ø 0.90	1	7.30	7.30	14.60				158.66	158.51	2	–														
	89 + 180.00	0		ø 1.20	2	6.35	6.65	13.00				158.48	158.33			2	2												
	91 + 869.50		0	ø 1.80	3	7.40	7.40	14.80				158.66	158.51							2	4								

CANTIDADES POR UNIDAD DE TRABAJO

B



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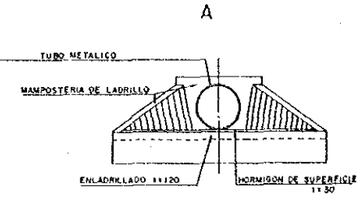
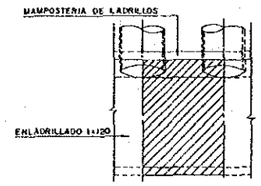
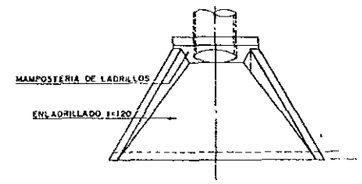






A

	HORMIGON m³	ENCOFRADO m²	MORTERO m³	LADRILLO m³
Ø 0.90	1.477	10.908	0.169	1.257
Ø 1.20	2.701	17.628	0.279	2.163
Ø 1.50	4.418	25.963	0.417	3.312
Ø 1.80	6.736	35.920	0.582	4.706
Ø 2.10	9.704	47.496	0.774	6.219
Ø 2.40	13.410	60.692	0.995	9.074
Ø 2.70	17.934	75.507	1.243	11.426
Ø 3.00	23.353	91.943	1.518	14.049

B

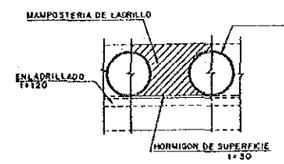
	HORMIGON m³	LADRILLO m³	ENCOFRADO m²	MORTERO m³
Ø 0.90	0.596	0.764	3.432	0.120
Ø 1.20	0.871	1.175	4.529	0.178
Ø 1.50	1.205	1.665	5.706	0.248
Ø 1.80	1.603	2.234	6.964	0.328
Ø 2.10	2.071	2.837	8.303	0.419
Ø 2.40	2.613	3.917	9.722	0.520
Ø 2.70	3.236	4.795	11.222	0.633
Ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L1	LONGITUD DERECHA L2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L1	LONGITUD A AGREGAR DERECHA L2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL 1	ALTURA DE LA SALIDA EL 2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
	92+865.00	O		ø 2.10	3	7.35	7.65	15.00				158.38	158.23									2	4						
	93+326.00		O	ø 1.20	3	8.15	8.15	16.30				159.33	159.18			2	4												
	93+700.00		O	ø 1.50	1	7.35	7.35	14.70				159.38	159.23					2	–										
	94+455.00		O	ø 1.50	1	7.30	7.30	14.60				159.29	159.14					2	–										
	94+697.50		O	ø 1.80	3	7.50	7.50	15.00				159.17	159.02							2	4								
	95+015.00		O	ø 0.90	1	7.50	7.50	15.00				159.91	159.76	2	–														
	95+377.70		O	ø 0.90	1	7.40	7.40	14.80				159.58	159.43	2	–														
	96+625.00	O		ø 1.50	2	8.35	8.65	17.00				158.88	158.73					2	2										
	97+780.30		O	ø 0.90	1	9.50	9.50	19.00	2.00	2.00	4.00	159.74	159.59	2	–														
	97+800.00		O	ø 1.20	2	8.50	8.50	17.00	1.00	1.00	2.00	159.92	159.77			2	2												
	99+160.00	O		ø 1.50	1	7.71	7.29	15.00				159.48	159.33					2	–										
	100+680.00	O		ø 2.10	4	7.35	7.65	15.00				158.48	158.33									2	6						
	101+571.20		O	ø 1.20	1	7.30	7.30	14.60				159.21	159.06			2	–												
	101+690.00	O		ø 2.70	5	6.81	8.19	15.00				157.93	157.78												2	8			
	102+210.00	O		ø 2.70	5	6.85	7.15	14.00				158.08	157.93												2	8			
V	102+975.00	O		ø 2.70	3	7.23	6.77	14.00				158.38	158.23												2	4			
	105+320.00	O		ø 2.10	4	8.35	8.65	17.00				158.98	158.83									2	6						
	106+365.00	O		ø 2.40	3	8.85	9.15	18.00				158.88	158.43											2	4				
	108+292.30		O	ø 3.00	8	8.00	7.00	15.00				159.25	159.10															2	14
	108+765.00	O		ø 2.40	5	9.35	9.65	19.00				158.48	158.33											2	8				
	108+955.00	O		ø 2.40	5	9.35	9.65	19.00				158.48	158.33											2	8				
	109+915.00	O		ø 2.10	2	9.39	8.61	18.00				159.08	158.93									2	2						
	111+825.00	O		ø 0.90	3	8.35	8.65	17.00				160.08	159.93	2	4														
	113+220.00	O		ø 1.50	2	7.85	8.15	16.00				159.78	159.63					2	2										
	113+755.00	O		ø 1.80	4	7.85	8.15	16.00				159.58	159.43							2	6								
	114+815.00		O	ø 0.90	3	11.15	12.15	23.30	2.00	3.00	5.00	158.42	158.27	2	4														
	115+500.00	O		ø 1.80	3	7.35	7.65	15.00				159.78	159.63							2	4								
	116+025.00	O		ø 3.00	4	6.81	8.19	15.00				158.78	158.63															2	6
	116+760.00		O	ø 1.80	4	7.50	7.50	15.00				159.67	159.52							2	6								
	117+565.00	O		ø 3.00	4	6.85	7.15	14.00				158.88	158.73															2	6

CANTIDADES POR UNIDAD DE TRABAJO

B



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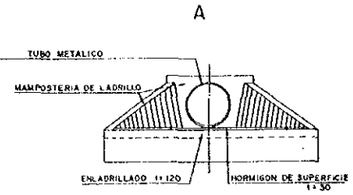
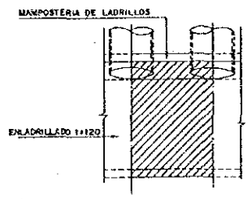
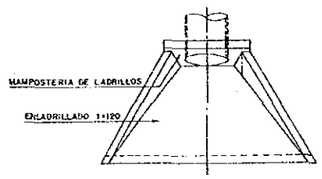






A

	HORMIGON m³	ENCOFRADO m²	MORTERO m³	LADRILLO m³
ø 0.90	1.477	10.908	0.169	1.257
ø 1.20	2.701	17.628	0.279	2.163
ø 1.50	4.418	25.963	0.417	3.312
ø 1.80	6.736	35.920	0.582	4.706
ø 2.10	9.704	47.496	0.774	6.219
ø 2.40	13.410	60.692	0.995	9.074
ø 2.70	17.934	75.507	1.243	11.426
ø 3.00	23.353	91.943	1.518	14.049

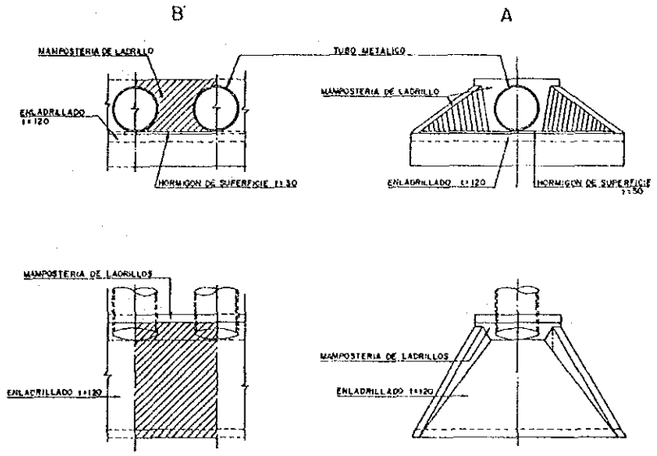
B

	HORMIGON m³	LADRILLO m³	ENCOFRADO m²	MORTERO m³
ø 0.90	0.596	0.764	3.432	0.120
ø 1.20	0.871	1.175	4.529	0.178
ø 1.50	1.205	1.665	5.706	0.248
ø 1.80	1.603	2.234	6.964	0.328
ø 2.10	2.071	2.837	8.303	0.419
ø 2.40	2.613	3.917	9.722	0.520
ø 2.70	3.236	4.795	11.222	0.633
ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L1	LONGITUD DERECHA L2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L1	LONGITUD A AGREGAR DERECHA L2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL 1	ALTURA DE LA SALIDA EL 2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
V	118+190.00	0		ø 3.00	2	7.85	8.15	16.00				158.58	158.43															2	2
	121+193.00	0		ø 3.00	2	5.85	6.15	12.00				159.68	159.53															2	2
	123+710.00	0		ø 2.10	2	6.85	7.15	14.00				160.88	160.73									2	2						
	125+013.00		0	ø 0.90	1	6.05	6.05	12.10				162.48	162.33	2	–														
	126+308.00		0	ø 0.90	2	11.05	10.05	21.10	4.00	3.00	7.00	160.14	159.99	2	2														
	130+370.00	0		ø 2.10	2	6.85	7.15	14.00				162.08	161.93									2	2						
	131+300.00	0		ø 2.70	2	6.85	7.15	14.00				161.48	161.33													2	2		
	131+970.00	0		ø 2.10	1	6.85	7.15	14.00				162.08	161.93									2	–						
	134+700.00		0	ø 1.50	2	10.50	10.50	21.00	3.00	3.00	6.00	162.49	162.34					2	2										
	135+450.00		0	ø 0.90	1	7.35	8.35	15.70	–	1.00	1.00	164.26	164.11	2	–														
	135+960.00	0		ø 1.80	2	6.85	7.15	14.00				164.08	163.93							2	2								
	137+135.00	0		ø 1.80	1	6.85	7.15	14.00				164.18	164.03							2	–								
	137+830.00	0		ø 1.50	1	7.71	7.29	15.00				164.38	164.23					2	–										
	138+550.00		0	ø 0.90	1	8.90	8.90	17.80				166.49	166.34	2	–														
	140+025.00	0		ø 0.90	1	7.85	8.15	16.00				165.48	165.33	2	–														
	141+130.00	0		ø 0.90	1	7.35	7.65	15.00				166.28	166.13	2	–														
	143+690.00	0		ø 1.80	1	6.85	7.15	14.00				166.38	166.28							2	–								
	144+770.00	0		ø 2.10	1	6.35	6.65	13.00				166.28	166.13									2	–						
	146+120.00	0		ø 1.80	1	5.85	6.15	12.00				167.08	166.93							2	–								
	147+170.00	0		ø 1.50	2	7.85	8.15	16.00				166.68	166.43					2	2										
	147+469.00		0	ø 0.90	1	7.45	8.45	15.90	1.00	2.00	3.00	167.04	166.89	2	–														
	151+020.00	0		ø 1.50	1	6.85	7.15	14.00				168.78	168.63					2	–										
	151+920.00	0		ø 1.20	1	6.35	6.65	13.00				169.48	169.33			2	–												
	153+305.00	0		ø 1.50	1	6.85	7.15	14.00				169.28	169.13					2	–										
	155+240.00	0		ø 1.20	2	7.14	6.86	14.00				170.38	170.23			2	2												
VI	156+587.00		0	ø 0.90	1	8.70	8.70	17.40	3.00	3.00	6.00	169.84	169.69	2	–														
	158+765.00	0		ø 0.90	1	7.85	8.15	16.00				170.08	169.93	2	–														
	160+000.00		0	ø 0.90	2	7.90	8.90	16.80	3.00	4.00	7.00	169.83	169.68	2	2														
	160+280.00		0	ø 0.90	2	8.15	8.15	16.30	2.00	2.00	4.00	170.10	169.95	2	2														

CANTIDADES POR UNIDAD DE TRABAJO



A

	HORMIGON m³	ENCOFRADO m²	MORTERO m³	LADRILLO m³
ø 0.90	1.477	10.908	0.169	1.257
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ø 1.50	4.418	25.963	0.417	3.312
ø 1.80	6.736	35.920	0.582	4.706
ø 2.10	9.704	47.496	0.774	6.219
ø 2.40	13.410	60.692	0.995	9.074
ø 2.70	17.934	75.507	1.243	11.426
ø 3.00	23.353	91.943	1.518	14.049

B

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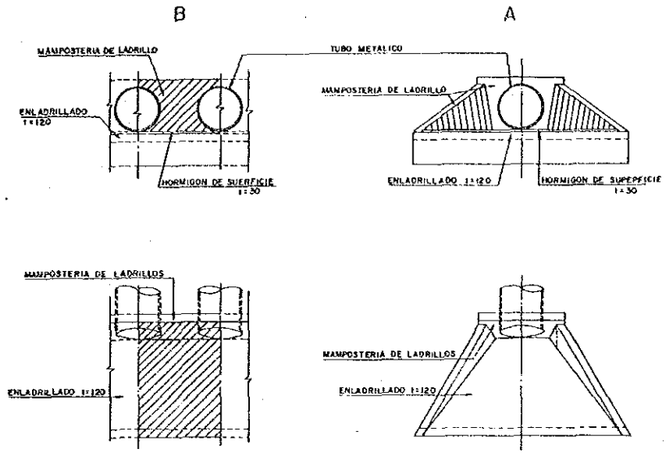
ø 1.50	1.205	1.665	5.706	0.248
ø 1.80	1.603	2.234	6.964	0.328
ø 2.10	2.071	2.837	8.303	0.419
ø 2.40	2.613	3.917	9.722	0.520
ø 2.70	3.236	4.795	11.222	0.633
ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L_1	LONGITUD DERECHA L_2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L_1	LONGITUD A AGREGAR DERECHA L_2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL_1	ALTURA DE LA SALIDA EL_2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
VI	161+240.00	O		ø 0.90	1	6.85	7.15	14.00				170.58	170.43	2	–														
	162+535.00	O		ø 1.80	2	6.35	6.65	13.00				170.28	170.13							2	2								
	163+480.00		O	ø 1.80	2	7.35	7.35	14.70				170.07	169.92							2	2								
	163+793.00		O	ø 0.90	2	8.10	9.10	17.20	1.00	2.00	3.00	170.06	169.91	2	2														
	165+535.00		O	ø 1.50	2	8.50	8.50	17.00	2.00	2.00	4.00	169.98	169.83					2	2										
	166+915.00	O		ø 0.90	1	7.35	7.65	15.00				170.98	170.83	2	–														
	167+407.00		O	ø 0.90	2	7.00	7.00	14.00				171.94	171.79	2	2														
	169+570.00	O		ø 1.20	2	6.35	6.65	13.00				174.38	174.23			2	2												
	171+275.00	O		ø 1.20	2	6.35	6.65	13.00				174.78	174.63			2	2												
	172+960.00	O		ø 0.90	2	6.35	6.65	13.00				175.88	175.73	2	2														
	174+200.00		O	ø 0.90	1	7.80	7.80	15.60	1.00	1.00	2.00	175.30	175.15	2	–														
	175+325.00		O	ø 0.90	1	6.15	6.15	12.30				176.35	176.20	2	–														
	178+438.00		O	ø 0.90	1	6.15	6.15	12.30				178.53	178.38	2	–														
	182+550.00		O	ø 0.90	1	6.45	6.45	12.90				179.99	179.84	2	–														
	183+665.00		O	ø 0.90	1	7.10	7.10	14.20	1.00	1.00	2.00	179.32	179.17	2	–														
VII	184+440.00	O		ø 0.90	2	6.35	6.65	13.00				179.78	179.63	2	2														
	184+940.00	O		ø 1.20	3	6.35	6.65	13.00				179.48	179.33			2	4												
	187+275.00	O		ø 0.90	3	6.35	6.65	13.00				181.48	181.33	2	4														
	187+920.00	O		ø 0.90	3	5.85	6.15	12.00				181.88	181.73	2	4														
	188+575.00	O		ø 1.20	2	6.35	6.65	13.00				181.48	181.33			2	2												
	188+900.00		O	ø 0.90	1	6.35	6.35	12.70	2.00	2.00	4.00	181.82	181.67	2	–														
	189+160.00	O		ø 1.50	2	6.35	6.65	13.00				181.28	181.13					2	2										
	189+365.00		O	ø 0.90	1	6.50	6.50	13.00	2.00	2.00	4.00	181.68	181.53	2	–														
	190+370.00	O		ø 0.90	3	5.85	6.15	12.00				182.21	182.06	2	4														
	191+600.00	O		ø 0.90	5	6.35	6.65	13.00				182.78	182.63	2	8														
	191+833.50		O	ø 0.90	2	6.10	7.10	13.20	–	1.00	1.00	182.85	182.70	2	2														
	192+608.00		O	ø 0.90	1	6.35	6.35	12.70				183.33	183.18	2	–														
	193+880.00	O		ø 0.90	5	5.85	6.15	12.00				184.12	183.97	2	8														
	194+825.00	O		ø 0.90	5	5.85	6.15	12.00				186.54	186.39	2	8														

CANTIDADES POR UNIDAD DE TRABAJO



A

	HORMIGON m^3	ENCOFRADO m^2	MORTERO m^3	LADRILLO m^3
ø 0.90	1.477	10.908	0.169	1.257
ø 1.20	2.701	17.628	0.279	2.163
ø 1.50	4.418	25.963	0.417	3.312
ø 1.80	6.736	35.920	0.582	4.706
ø 2.10	9.704	47.496	0.774	6.219
ø 2.40	13.410	60.692	0.995	9.074
ø 2.70	17.934	75.507	1.243	11.426
ø 3.00	23.353	91.943	1.518	14.049

B

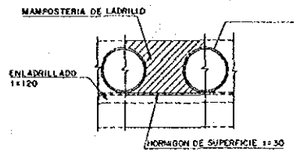
	HORMIGON m^3	LADRILLO m^3	ENCOFRADO m^2	MORTERO m^3
ø 0.90	0.596	0.764	3.432	0.120
ø 1.20	0.871	1.175	4.529	0.178
ø 1.50	1.205	1.665	5.706	0.248
ø 1.80	1.603	2.234	6.964	0.328
ø 2.10	2.071	2.837	8.303	0.419
ø 2.40	2.613	3.917	9.722	0.520
ø 2.70	3.236	4.795	11.222	0.633
ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD IZQUIERDA L1	LONGITUD DERECHA L2	LONGITUD TOTAL L	LONGITUD A AGREGAR IZQUIERDA L1	LONGITUD A AGREGAR DERECHA L2	LONGITUD A AGREGAR TOTAL L	ALTURA DE LA ENTRADA EL 1	ALTURA DE LA SALIDA EL 2	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS ø 0.90 A	ø 0.90 B	ø 1.20 A	ø 1.20 B	ø 1.50 A	ø 1.50 B	ø 1.80 A	ø 1.80 B	ø 2.10 A	ø 2.10 B	ø 2.40 A	ø 2.40 B	ø 2.70 A	ø 2.70 B	ø 3.00 A	ø 3.00 B
VII	195+585.50		O	ø 0.90	1	5.60	6.60	12.20	—	1.00	1.00	185.25	185.10	2	–														
	195+655.00	O		ø 0.90	5	5.85	6.15	12.00				185.28	185.13	2	8														
	196+570.00	O		ø 1.50	3	6.85	7.15	14.00				184.68	184.53					2	4										
	197+670.00	O		ø 1.20	5	5.85	6.15	12.00				186.18	186.03			2	8												
	198+459.80		O	ø 0.90	1	7.55	6.55	14.10	1.00	—	1.00	186.85	186.70	2	–														
	198+776.00		O	ø 0.90	1	6.70	6.70	13.40				187.09	186.94	2	–														
	199+815.00	O		ø 0.90	3	6.35	6.65	13.00				187.88	187.73	2	4														
	200+270.00	O		ø 0.90	3	6.35	6.65	13.00				187.88	187.73	2	4														
	201+425.00		O	ø 1.50	1	8.70	8.70	17.40	2.00	2.00	4.00	186.29	186.14					2	–										
	201+523.00		O	ø 1.80	1	7.45	7.45	14.90				186.66	186.51							2	–								
	201+600.00		O	ø 1.50	1	6.95	6.95	13.90				187.81	187.66					2	–										
	201+700.00		O	ø 1.50	1	7.10	7.10	14.20	1.00	1.00	2.00	186.89	186.74					2	–										
	201+900.00		O	ø 0.90	1	8.15	8.15	16.30				187.28	187.13	2	–														
	202+215.00		O	ø 0.90	1	7.20	8.20	15.40	—	1.00	1.00	187.23	187.08	2	–														
	202+800.00		O	ø 0.90	1	7.05	7.05	14.10				187.17	187.55	2	–														
	203+955.00	O		ø 0.90	3	6.35	6.65	13.00				187.88	187.73	2	4														
VIII	205+180.00	O		ø 1.20	3	6.35	6.65	13.00				187.98	187.83			2	4												
	206+400.00		O	ø 1.50	1	5.95	5.95	11.90				188.12	187.97					2	–										
	206+600.00		O	ø 1.50	1	7.25	7.25	14.50	1.00	1.00	2.00	187.70	187.55					2	–										
	206+740.00	O		ø 1.50	3	6.85	7.15	14.00				187.68	187.53					2	4										
	207+081.50		O	ø 1.50	2	7.05	7.05	14.10				187.72	187.57					2	2										
	208+453.10		O	ø 1.50	1	7.10	8.10	15.20	—	1.00	1.00	187.52	187.37					2	–										
	209+740.00	O		ø 1.80	2	6.35	6.65	13.00				188.28	188.13							2	2								
	211+438.50		O	ø 1.80	1	8.25	8.25	16.50	3.00	3.00	6.00	186.71	186.56							2	–								
	211+900.00		O	ø 3.00	1	7.60	7.60	15.20				185.95	185.80															2	–
	212+475.00	O		ø 3.00	2	6.81	8.19	15.00				186.18	186.03															2	2
	215+000.00		O	ø 0.90	2	6.10	6.10	12.20				189.17	189.02	2	2														
	215+220.00	O		ø 1.50	2	5.85	6.15	12.00				188.78	188.63					2	2										
	215+853.00	O		ø 1.50	2	6.35	6.65	13.00				190.38	190.23					2	2										

CANTIDADES POR UNIDAD DE TRABAJO

B



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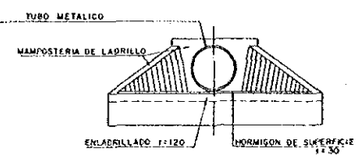
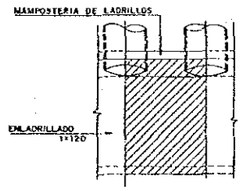
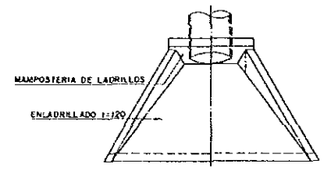






A

	HORMIGON m³	ENCOFRADO m²	MORTERO m³	LADRILLO m³
Ø 0.90	1.477	10.908	0.169	1.257
Ø 1.20	2.701	17.628	0.279	2.163
Ø 1.50	4.418	25.963	0.417	3.312
Ø 1.80	6.736	35.920	0.582	4.706
Ø 2.10	9.704	47.496	0.774	6.[illegible]19
Ø 2.40	13.410	60.692	0.995	9.074
Ø 2.70	17.934	75.507	1.243	11.426
Ø 3.00	23.353	91.943	1.518	14.049

B

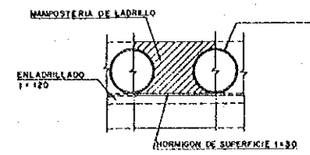
	HORMIGON m³	LADRILLO m³	ENCOFRADO m²	MORTERO m³
Ø 0.90	0.596	0.764	3.432	0.120
Ø 1.20	0.871	1.175	4.529	0.178
Ø 1.50	1.205	1.665	5.706	0.248
Ø 1.80	1.603	2.234	6.964	0.328
Ø 2.10	2.071	2.837	8.303	0.419
Ø 2.40	2.613	3.917	9.722	0.520
Ø 2.70	3.236	4.795	11.222	0.633
Ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE DIMENSIONES DE ALCANTARILLAS

SECTOR	PROGRESIVA Nº	NUEVA	EXISTENTE	DIAMETRO	BATERIA	LONGITUD			LONGITUD A AGREGAR			ALTURA DE LA ENTRADA	ALTURA DE LA SALIDA	CANTIDAD DE TIPOS PARA ENTRADAS Y SALIDAS													
						IZQUIERDA L_1	DERECHA L_2	TOTAL L	IZQUIERDA L_1	DERECHA L_2	TOTAL L	EL_1	EL_2	ø 0.90		ø 1.20		ø 1.50		ø 1.80		ø 2.10		ø 2.40		ø 2.70		ø 3.00	
														A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
VIII	216+250.00		0	ø 1.50	1	6.70	6.70	13.40				191.53	191.38					2	—										
	218+630.00	0		ø 3.00	5	6.85	7.15	14.00				190.68	190.53															2	8
	218+770.00	0		ø 3.00	5	6.85	7.15	14.00				190.68	190.53															2	8
	220+170.00	0		ø 3.00	2	7.30	8.70	16.00				190.58	190.43															2	2

CANTIDADES POR UNIDAD DE TRABAJO

B



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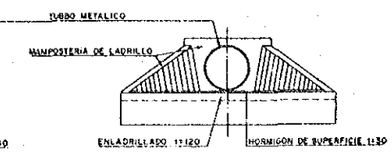

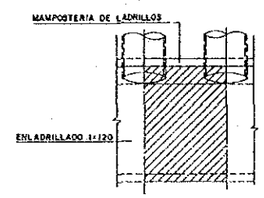

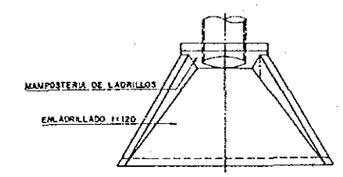

A

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ø 2.10	9.704	47.496	0.774	6.219
ø 2.40	13.410	60.692	0.995	9.074
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B

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ø 2.40	2.613	3.917	9.722	0.520
ø 2.70	3.236	4.795	11.222	0.633
ø 3.00	3.943	5.760	12.803	0.756

CUADRO DE CANTIDADES PARA ALCANTARILLAS

SECTOR	PROGRESIVA Nº	LONGITUD TOTAL DE ALCANTARILLAS								HORMIGON CON CASCOTE DE LADRILLO	MORTERO DE RECUBRIMIENTO	LADRILLO	ENCOFRADO	MOVIMIENTO DE TIERRAS			OBSERVACION
		ø 0.90	ø 1.20	ø 1.50	ø 1.80	ø 2.10	ø 2.40	ø 2.70	ø 3.00	MURO CABEZAL MURO ALERO	1:3			EXCAVACION	FUNDACION COMPACTADA (A 4 d MAYOR)	TERRAPLEN ADYACENTE	
		ESPESOR SIN REVESTIMIENTO (mm.)															
		1.50	1.50	1.50	2.00	2.50	2.50	2.50	2.50	M³	M³	M³	M²	M³	M³	M³	
		M.L.															
II	12+000.00							45.00		48.81	5.02	42.03	195.90	335.97	51.98	497.84	
	13+654.50								30.00	54.59	4.55	39.62	209.49	264.60	37.35	382.38	
	14+500.00							30.00		42.34	3.75	32.44	173.46	223.98	34.65	331.89	
	15+450.00							30.00		42.34	3.75	32.44	173.46	223.98	34.65	331.89	
	16+124.10								30.00	54.59	4.55	39.62	209.49	264.60	37.35	382.38	
	16+850.00								15.00	46.71	3.04	28.10	183.89	132.30	18.68	191.19	
	17+496.80			16.00						11.25	1.33	9.95	63.34	50.82	12.72	86.27	
	18+270.00								15.00	46.71	3.04	28.10	183.89	132.30	18.68	191.19	
	25+370.00								80.00	70.36	7.57	62.66	260.70	705.60	99.60	1,019.68	
	27+687.00								76.00	70.36	7.57	62.66	260.70	670.32	94.62	968.70	
	TOTAL			16.00				105.00	246.00	488.06	44.17	377.62	1,914.32	3,004.47	440.28	4,383.41	
III	29+220.00								60.00	70.36	7.57	62.66	260.70	529.20	74.70	764.76	
	30+264.80								60.00	70.36	7.57	62.66	260.70	529.20	74.70	764.76	
	30+540.00								16.00	54.59	4.55	39.62	209.49	141.12	19.92	203.94	
	31+070.00								60.00	70.36	7.57	62.66	260.70	529.20	74.70	764.76	
	32+660.00							45.00		42.34	3.75	32.44	173.46	335.97	51.98	497.84	
	34+130.00						42.00			37.27	4.07	33.82	160.27	261.45	44.73	398.41	
	35+573.00								45.00	62.48	6.06	51.14	235.10	396.90	56.03	573.57	
	40+370.00						28.00			32.05	3.03	25.98	140.83	174.30	29.82	265.61	
	40+600.00					28.00				23.55	2.39	18.11	111.60	142.69	27.30	224.42	
	41+786.60		6.00							7.14	0.91	6.68	44.31	14.31	4.23	25.43	
	42+320.00				14.00					13.47	1.16	9.41	71.84	57.12	12.39	93.10	
	43+390.00			14.00						8.84	0.83	6.62	51.93	44.46	11.13	75.49	
	44+402.70	3.00								2.95	0.34	2.51	21.82	5.12	1.85	9.58	
	47+220.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	48+190.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	48+713.20		4.00							5.40	0.56	4.33	35.25	9.54	2.82	16.96	
	49+020.00		15.00							5.40	0.56	4.33	35.25	35.78	10.58	63.59	
	TOTAL	3.00	51.00	14.00	14.00	28.00	70.00	45.00	241.00	517.36	52.04	431.63	2143.75	3268.38	515.22	4,852.44	
IV	51+220.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	52+770.00		14.00							5.40	0.56	4.33	35.25	33.39	9.87	59.35	
	54+205.00		26.00							7.14	0.91	6.68	44.31	62.01	18.33	110.21	
	55+480.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	56+075.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	56+826.10	3.00								2.95	0.34	2.51	21.82	5.12	1.85	9.58	
	57+325.00	28.00								4.15	0.58	4.04	28.68	47.77	17.22	89.40	
	57+890.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	59+866.00		3.00							5.40	0.56	4.33	35.25	7.16	2.12	12.72	

CUADRO DE CANTIDADES PARA ALCANTARILLAS

SECTOR	PROGRESIVA N°	LONGITUD TOTAL DE ALCANTARILLAS								HORMIGON CON CASCOTE DE LADRILLO	MORTERO DE RECUBRIMIENTO	LADRILLO	ENCOFRADO	MOVIMIENTO DE TIERRAS			OBSERVACION
		ø 0.90	ø 1.20	ø 1.50	ø 1.80	ø 2.10	ø 2.40	ø 2.70	ø 3.00	MURO CABEZAL MURO ALERO	1:3			EXCAVACION	FUNDACION COMPACTADA (A 4 d MAYOR)	TERRAPLEN ADYACENTE	
		ESPESOR SIN REVESTIMIENTO (mm)															
		1.50	1.50	1.50	2.00	2.50	2.50	2.50	2.50								
		M L								M³	M³	M³	M²	M³	M³	M³	
IV	60+944.80			1.00						8.84	0.83	6.62	51.93	3.18	0.80	5.39	
	63+210.00	13.00								2.95	0.34	2.51	21.82	22.18	8.00	41.51	
	64+250.00	12.00								2.95	0.34	2.51	21.82	20.47	7.38	38.32	
	65+820.00	13.00								2.95	0.34	2.51	21.82	22.18	8.00	41.51	
	66+960.00		14.00							5.40	0.56	4.33	35.25	33.39	9.87	59.35	
	67+635.00		14.00							5.40	0.56	4.33	35.25	33.39	9.87	59.35	
	68+650.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	69+785.00	15.00								2.95	0.34	2.51	21.82	25.59	9.23	47.90	
	75+055.00		14.00							5.40	0.56	4.33	35.25	33.39	9.87	59.35	
	75+380.00		16.00							5.40	0.56	4.33	35.25	38.16	11.28	67.82	
	76+085.00		16.00							5.40	0.56	4.33	35.25	38.16	11.28	67.82	
	76+580.00		15.00							5.40	0.56	4.33	35.25	35.78	10.58	63.59	
	77+770.00					42.00				27.69	3.22	23.79	128.20	214.03	40.95	336.63	
	79+096.50	6.00								2.95	0.34	2.51	21.82	10.24	3.69	19.16	
	81+320.00									8.84	0.83	6.62	51.93				
	82+150.00			14.00						8.84	0.83	6.62	51.93	44.46	11.13	75.49	
	TOTAL	90.00	197.00	15.00	0.00	42.00	0.00	0.00	0.00	153.40	16.52	125.72	946.15	885.10	247.17	1540.00	
V	87+730.00			26.00						11.25	1.33	9.95	63.34	82.58	20.67	140.19	
	89+000.00									2.59	0.34	2.51	21.82				
	89+180.00		26.00							7.14	0.91	6.68	44.31	62.01	18.33	110.21	
	91+869.50									19.88	2.48	18.35	99.70				
	92+865.00					45.00				27.69	3.22	23.79	128.20	229.32	43.88	360.68	
	93+326.00									8.89	1.27	9.03	53.37				
	93+700.00									8.84	0.83	6.62	51.93				
	94+455.00									8.84	0.83	6.62	51.93				
	94+697.50									19.88	2.48	18.35	99.70				
	95+015.00									2.59	0.34	2.51	21.82				
	95+377.70									2.59	0.34	2.51	21.82				
	96+625.00			34.00						11.25	1.33	9.95	63.34	107.98	27.03	183.33	
	97+780.30	4.00								2.95	0.34	2.51	21.82	6.82	2.46	12.77	
	97+800.00		4.00							7.14	0.91	6.68	44.31	9.54	2.82	16.96	
	99+160.00			15.00						8.84	0.83	6.62	51.93	47.64	11.93	80.88	
	100+680.00					60.00				31.83	4.06	29.46	144.81	305.76	58.50	480.90	
	101+571.20									5.40	0.56	4.33	35.25				
	101+690.00							75.00		61.76	7.55	61.21	240.79	559.95	86.63	829.73	
	102+210.00							70.00		61.76	7.55	61.21	240.79	522.62	80.85	774.41	
	102+975.00							42.00		48.81	5.02	42.03	195.90	313.57	48.51	464.65	
	105+320.00					68.00				31.83	4.06	29.46	144.81	346.53	66.30	545.02	
	106+365.00						54.00			37.27	4.07	33.82	160.27	336.15	67.51	512.24	

CUADRO DE CANTIDADES PARA ALCANTARILLAS

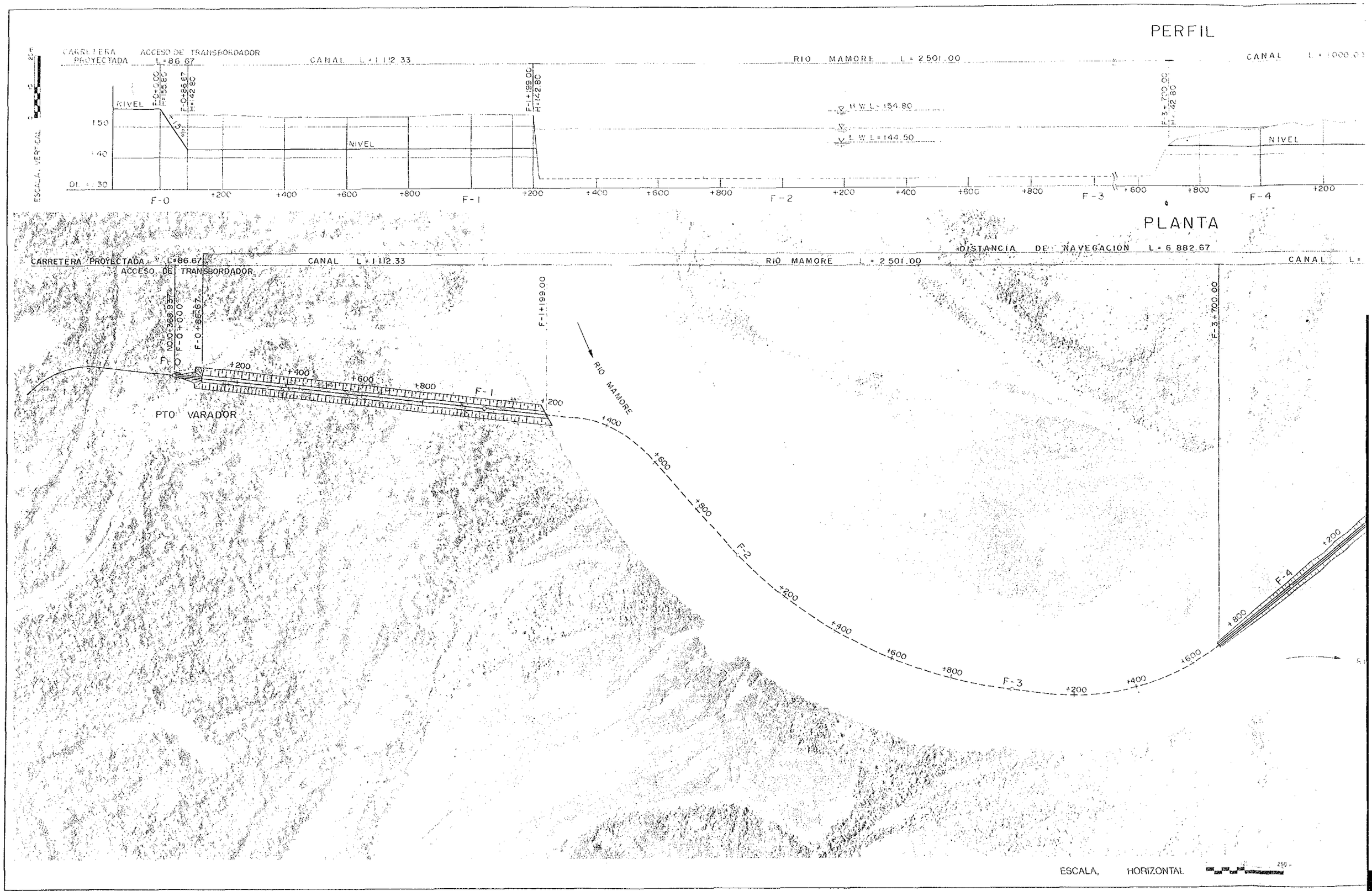
SECTOR	PROGRESIVA Nº	LONGITUD TOTAL DE ALCANTARILLAS								HORMIGON CON CASCOTE DE LADRILLO	MORTERO DE RECUBRIMIENTO	LADRILLO	ENCOFRADO	MOVIMIENTO DE TIERRAS			OBSERVACION
		ø 0.90	ø 1.20	ø 1.50	ø 1.80	ø 2.10	ø 2.40	ø 2.70	ø 3.00	MURO CABEZAL MURO ALERO	1:3			EXCAVACION	FUNDACION COMPACTADA (A 4 ó MAYOR)	TERRAPLEN ADYACENTE	
		ESPESOR SIN REVESTIMIENTO (mm.)															
		1.50	1.50	1.50	2.00	2.50	2.50	2.50	2.50								
		M.L.								M³	M³	M³	M²	M³	M³	M³	
V	108+292.30									26.82	1.99	18.15	121.38				
	108+765.00						95.00			47.72	6.15	49.48	199.16	591.38	101.18	901.17	
	108+955.00						95.00			47.72	6.15	49.48	199.16	591.38	101.18	901.17	
	109+915.00					36.00				23.55	2.39	18.11	111.60	183.46	35.10	288.54	
	111+825.00	51.00								5.34	0.82	5.57	35.54	87.01	31.37	162.84	
	113+220.00			32.00						11.25	1.33	9.95	63.34	101.63	25.44	172.54	
	113+755.00				64.00					23.09	3.13	22.82	113.62	261.12	56.64	425.60	
	114+815.00	15.00								5.34	0.82	5.57	35.54	25.59	9.23	47.90	
	115+500.00				45.00					19.88	2.48	18.35	99.70	183.60	39.83	299.25	
	116+025.00								60.00	70.36	7.57	62.66	260.70	529.20	74.70	764.76	
	116+760.00									13.47	1.16	9.41	71.84				
	117+565.00								56.00	70.36	7.57	62.66	260.70	493.92	69.72	713.78	
	118+190.00								32.00	54.59	4.55	39.62	209.49	282.24	39.84	407.87	
	121+193.00								24.00	54.59	4.55	39.62	209.49	211.68	29.88	305.90	
	123+710.00					28.00				23.55	2.39	18.11	111.60	142.69	27.30	224.42	
	125+013.00									2.95	0.34	2.51	21.82				
	126+308.00	14.00								4.15	0.58	4.04	28.68	23.88	8.61	44.70	
	130+370.00					28.00				23.55	2.39	18.11	111.60	142.69	27.30	224.42	
	131+300.00							28.00		42.34	3.75	32.44	173.46	209.05	32.34	309.76	
	131+970.00					14.00				19.41	1.55	12.44	94.99	71.34	13.65	112.21	
	134+700.00			12.00						11.25	1.33	9.95	63.34	38.11	9.54	64.70	
	135+450.00	1.00								2.95	0.34	2.51	21.82	1.71	0.62	3.19	
	135+960.00				28.00					16.68	1.82	13.88	85.77	114.24	24.78	186.20	
	137+135.00				14.00					13.47	1.16	9.41	71.84	57.12	12.39	93.10	
	137+830.00			15.00						8.84	0.83	6.62	51.93	47.64	11.93	80.88	
	138+550.00									2.59	0.34	2.51	21.82				
	140+025.00	16.00								2.95	0.34	2.51	21.82	27.30	9.84	51.09	
	141+130.00	15.00								2.95	0.34	2.51	21.82	25.59	9.23	47.90	
	143+690.00				14.00					13.47	1.16	9.41	71.84	57.12	12.39	93.10	
	144+770.00					13.00				19.41	1.55	12.44	94.99	66.25	12.68	104.20	
	146+120.00				12.00					13.47	1.16	9.41	71.84	48.96	10.62	79.80	
	147+017.00			32.00						11.25	1.33	9.95	63.34	101.63	25.44	172.54	
	147+469.00	3.00								2.95	0.34	2.51	21.82	5.12	1.85	9.58	
	151+020.00			14.00						8.84	0.83	6.62	51.93	44.46	11.13	75.49	
	151+920.00		13.00							5.40	0.56	4.33	35.25	31.01	9.17	55.11	
	153+305.00			14.00						8.84	0.83	6.62	51.93	44.46	11.13	75.49	
	155+240.00		28.00							7.14	0.91	6.68	44.31	66.78	19.74	118.69	
	TOTAL	119.00	71.00	194.00	177.00	292.00	244.00	215.00	172.00	1171.50	127.48	1011.17	5402.78	7839.83	1441.21	12129.86	

CUADRO DE CANTIDADES PARA ALCANTARILLAS

SECTOR	PROGRESIVA Nº	LONGITUD TOTAL DE ALCANTARILLAS								HORMIGON CON CASCOTE DE LADRILLO	MORTERO DE RECUBRIMIENTO	LADRILLO	ENCOFRADO	MOVIMIENTO DE TIERRAS			OBSERVACION
		ø 0.90	ø 1.20	ø 1.50	ø 1.80	ø 2.10	ø 2.40	ø 2.70	ø 3.00	MURO CABEZAL MURO ALERO	1:3			EXCAVACION	FUNDACION COMPACTADA (A 4¢ MAYOR)	TERRAPLEN ADYACENTE	
		ESPESOR SIN REVESTIMIENTO (mm.)															
		1.50	1.50	1.50	2.00	2.50	2.50	2.50	2.50	M³	M³	M³	M²	M³	M³	M³	
		M.L.															
VI	156+587.00	6.00								2.95	0.34	2.51	21.82	10.24	3.69	19.16	
	158+765.00	16.00								2.95	0.34	2.51	21.82	27.30	9.84	51.09	
	160+000.00	14.00								4.15	0.58	4.04	28.68	23.88	8.61	44.70	
	160+280.00	8.00								4.15	0.58	4.04	28.68	13.65	4.92	25.54	
	161+240.00	14.00								2.95	0.34	2.51	21.82	23.88	8.61	44.70	
	162+535.00				26.00					16.68	1.82	13.88	85.77	106.08	23.01	172.90	
	163+480.00									16.68	1.82	13.88	85.77				
	163+793.00	6.00								4.15	0.58	4.04	28.68	10.24	3.69	19.16	
	165+535.00			8.00						11.25	1.33	9.95	63.34	25.41	6.36	43.14	
	166+915.00	15.00								2.95	0.34	2.51	21.82	25.59	9.23	47.90	
	167+407.00									4.15	0.58	4.04	28.68				
	169+570.00		26.00							7.14	0.91	6.68	44.31	62.01	18.33	110.21	
	171+275.00		26.00							7.14	0.91	6.68	44.31	62.01	18.33	110.21	
	172+960.00	26.00								4.15	0.58	4.04	28.68	44.36	15.99	83.02	
	174+200.00	2.00								2.95	0.34	2.51	21.82	3.41	1.23	6.39	
	175+325.00									2.59	0.34	2.51	21.82				
	178+438.00									2.59	0.34	2.51	21.82				
	182+550.00									2.59	0.34	2.51	21.82				
	183+665.00	2.00								2.95	0.34	2.51	21.82	3.41	1.23	6.39	
	TOTAL	109.00	52.00	8.00	26.00	0.00	0.00	0.00	0.00	105.11	12.75	93.86	663.28	441.47	133.07	784.51	
VII	184+440.00	26.00								4.15	0.58	4.04	28.68	44.36	15.99	83.02	
	184+940.00		39.00							8.89	1.27	9.03	53.37	93.02	27.50	165.32	
	187+275.00	39.00								5.34	0.82	5.57	35.54	66.53	23.99	124.53	
	187+920.00	36.00								5.34	0.82	5.57	35.54	61.42	22.14	114.95	
	188+575.00		26.00							7.14	0.91	6.68	44.31	62.01	18.33	110.21	
	188+900.00	4.00								2.95	0.34	2.51	21.82	6.82	2.46	12.77	
	189+160.00			26.00						11.25	1.33	9.95	63.34	82.58	20.67	140.19	
	189+365.00	4.00								2.95	0.34	2.51	21.82	6.82	2.46	12.77	
	190+370.00	36.00								5.34	0.82	5.57	35.54	61.42	22.14	114.95	
	191+600.00	65.00								7.72	1.30	8.63	49.27	110.89	39.98	207.55	
	191+833.50	2.00								4.15	0.58	4.04	28.68	3.41	1.23	6.39	
	192+608.00									2.59	0.34	2.51	21.82				
	193+880.00	60.00								7.72	1.30	8.63	49.27	102.36	36.90	191.58	
	194+825.00	60.00								7.72	1.30	8.63	49.27	102.36	36.90	191.58	
	195+585.50	1.00								2.95	0.34	2.51	21.82	1.71	0.62	3.19	
	195+655.00	60.00								7.72	1.30	8.63	49.27	102.36	36.90	191.58	
	196+270.00		42.00							13.66	1.83	13.28	74.75	133.39	33.39	226.46	
	197+670.00		60.00							12.37	1.98	13.73	71.48	143.10	42.30	254.34	
	198+495.80	1.00								2.95	0.34	2.51	21.82	1.71	0.62	3.19	

CUADRO DE CANTIDADES PARA ALCANTARILLAS

SECTOR	PROGRESIVA Nº	LONGITUD TOTAL DE ALCANTARILLAS								HORMIGON CON CASCOTE DE LADRILLO	MORTERO DE RECUBRIMIENTO	LADRILLO	ENCOFRADO	MOVIMIENTO DE TIERRAS			OBSERVACION
		ø 0.90	ø 1.20	ø 1.50	ø 1.80	ø 2.10	ø 2.40	ø 2.70	ø 3.00	MURO CABEZAL MURO ALERO	1:3			EXCAVACION	FUNDACION COMPACTADA (A 4.0 MAYOR)	TERRAPLEN ADYACENTE	
		ESPESOR SIN REVESTIMIENTO (mm.)															
		1.50	1.50	1.50	2.00	2.50	2.50	2.50	2.50								
		M.L.								M³	M³	M³	M²	M³	M³	M³	
VII	198+776.00									2.59	0.34	2.51	21.82				
	199+815.00	39.00								5.34	0.82	5.57	35.54	66.53	23.99	124.53	
	200+270.00	39.00								5.34	0.82	5.57	35.54	66.53	23.99	124.53	
	201+425.00			4.00						8.84	0.83	6.62	51.93	12.70	3.18	21.57	
	201+523.00									13.47	1.16	9.41	71.84				
	201+600.00									8.84	0.83	6.62	51.93				
	201+700.00			2.00						8.84	0.83	6.62	51.93	6.35	1.59	10.78	
	201+900.00									2.59	0.34	2.51	21.82				
	202+215.00	1.00								2.95	0.34	2.51	21.82	1.71	0.62	3.19	
	202+800.00									2.95	0.34	2.51	21.82				
	203+955.00	39.00								5.34	0.82	5.57	35.54	66.53	23.99	124.53	
	TOTAL	512.00	125.00	74.00						189.99	25.31	180.55	1198.94	1406.62	461.88	2563.70	
VIII	205+180.00		39.00							8.89	1.27	9.03	53.37	93.02	27.50	165.32	
	206+400.00									8.84	0.83	6.62	51.93				
	206+600.00			2.00						8.84	0.83	6.62	51.93	6.35	1.59	10.78	
	206+740.00			42.00						13.66	1.83	13.28	74.75	133.39	33.39	226.46	
	207+081.50									11.25	1.33	9.95	63.34				
	208+453.10			1.00						8.84	0.83	6.62	51.93	3.18	0.80	5.39	
	209+740.00				26.00					16.68	1.82	13.88	85.77	106.08	23.01	172.90	
	211+438.50				6.00					13.47	1.16	9.41	71.84	24.48	5.31	39.90	
	211+900.00									46.71	3.04	28.10	183.89				
	212+475.00								30.00	54.59	4.55	39.62	209.49	264.60	37.35	382.38	
	215+000.00									4.15	0.58	4.04	28.68				
	215+220.00			24.00						11.25	1.33	9.95	63.34	76.22	19.08	129.41	
	215+853.00			26.00						11.25	1.33	9.95	63.34	82.58	20.67	140.19	
	216+250.00									13.47	1.16	9.41	71.84				
	218+630.00								70.00	78.25	9.08	74.18	286.31	617.40	87.15	892.22	
	218+770.00								70.00	78.25	9.08	74.18	286.31	617.40	87.15	892.22	
	220+170.00								32.00	54.59	4.55	39.62	209.49	282.24	39.84	407.87	
	TOTAL	—	39.00	95.00	32.00				202.00	442.98	44.60	364.46	1907.55	2306.94	382.84	3465.04	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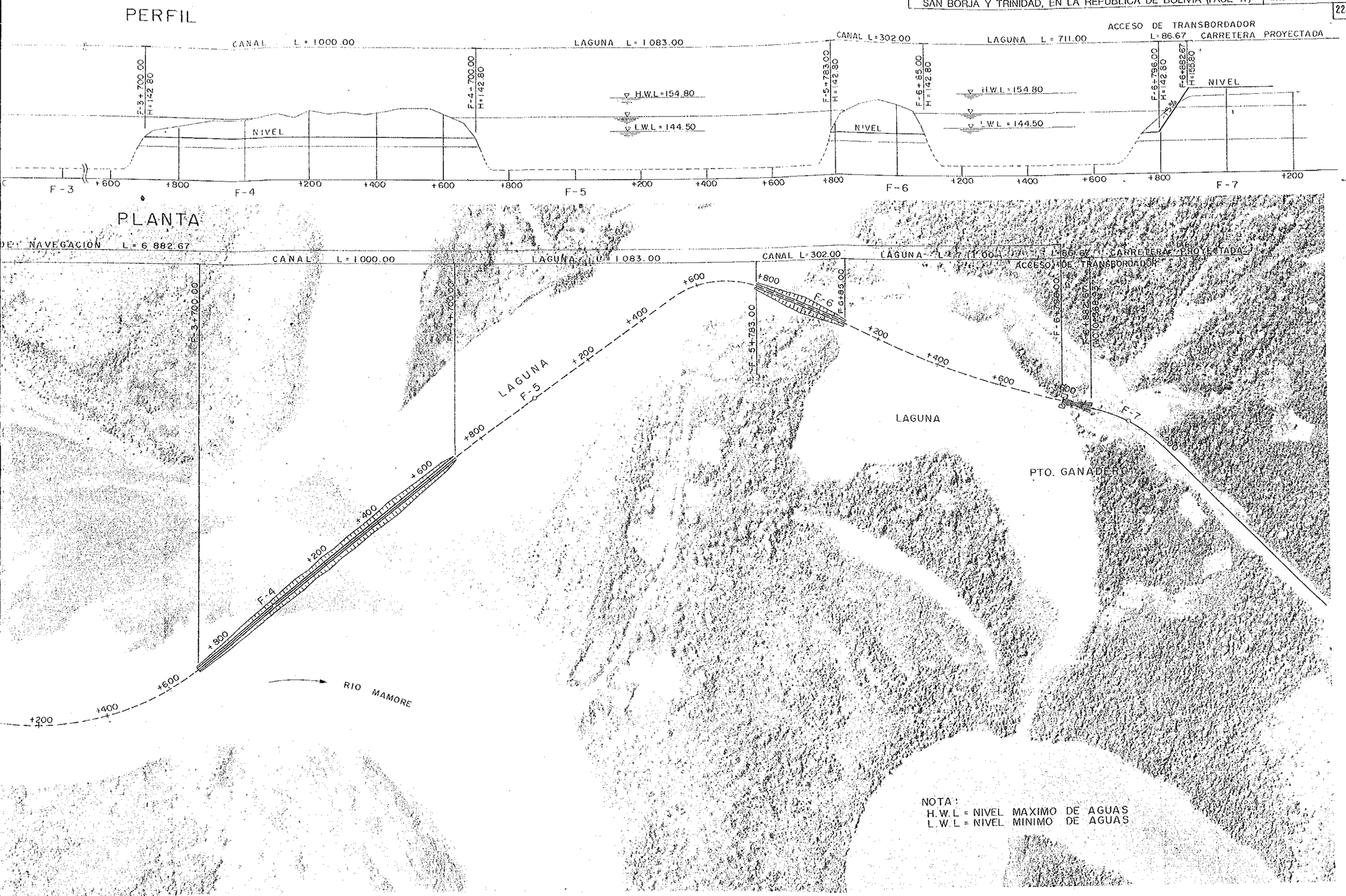
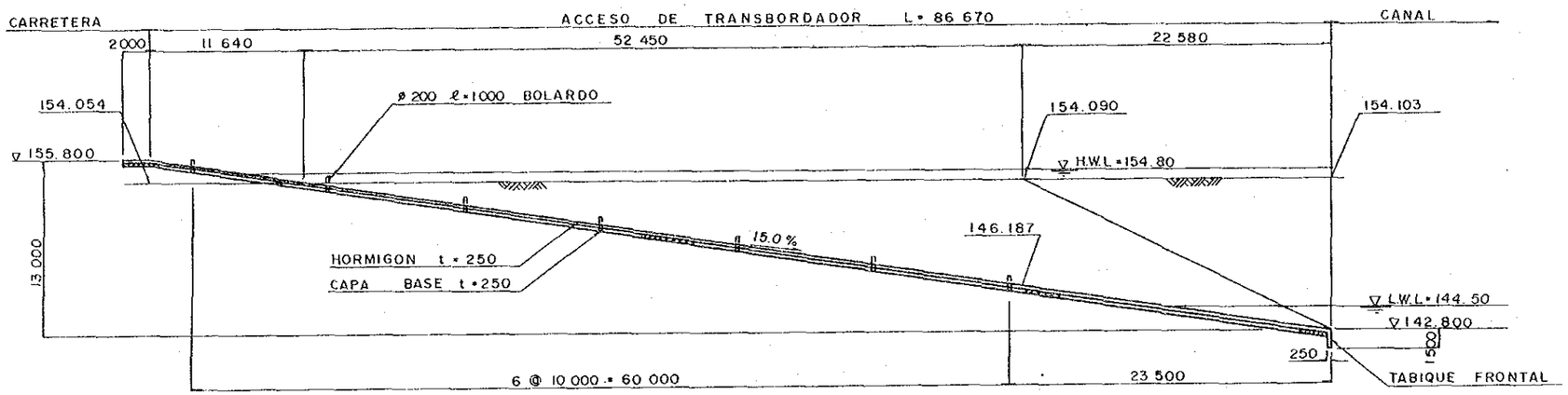
CARRETERA PROYECTADA
ACCESO DE TRANSBORDADOR
L = 86.67
CANAL L = 1 112.33
RIO MAMORE L = 2 501.00
CANAL
NIVEL
F-0+0.00
F-0+86.67
F-1+98.00
F-3+700.00
H.W.L = 154.80
L.W.L = 144.50
F-0
F-1
F-2
F-3
F-4
PLANTA
DISTANCIA DE NAVEGACION L = 6 882.67
CARRETERA PROYECTADA
ACCESO DE TRANSBORDADOR
NO-0+369.37
F-1+196.00
PTO VARADOR
RIO MAMORE
ESCALA, HORIZONTAL


PERFIL
CANAL L = 1000.00
LAGUNA L = 1083.00
CANAL L=302.00
LAGUNA L = 711.00
ACCESO DE TRANSBORDADOR L=86.67
CARRETERA PROYECTADA
F-3 + 700.00 H=142.80
F-4 + 700.00 H=142.80
F-5 + 783.00 H=142.80
F-6 + 85.00 H=142.80
F-6 + 796.00 H=142.80
F-6+682.67 H=155.80
H.W.L = 154.80
L.W.L = 144.50
NIVEL
-75%
F-3
F-4
F-5
F-6
F-7
+600
+800
+200
+400
PLANTA
DE NAVEGACION L = 6 882.67
CANAL L = 1000.00
LAGUNA L = 1083.00
CANAL L=302.00
LAGUNA L = 711.00
CARRETERA PROYECTADA
ACCESO DE TRANSBORDADOR
LAGUNA F-5
LAGUNA
PTO. GANADERO
RIO MAMORE
N
NOTA:
H.W.L = NIVEL MAXIMO DE AGUAS
L.W.L = NIVEL MINIMO DE AGUAS
ESCALA, HORIZONTAL
0 125 250 m

TERMINAL DE TRANSBORDADOR (I)

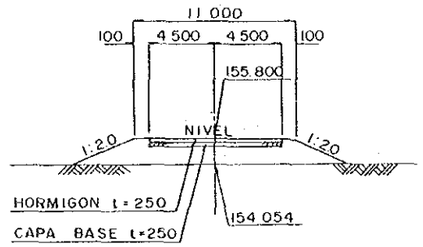
LADO PTO VARADOR

PERFIL A - A S = 1:200



SECCION TRANSVERSAL DE ACCESO

C - C S = 1:200



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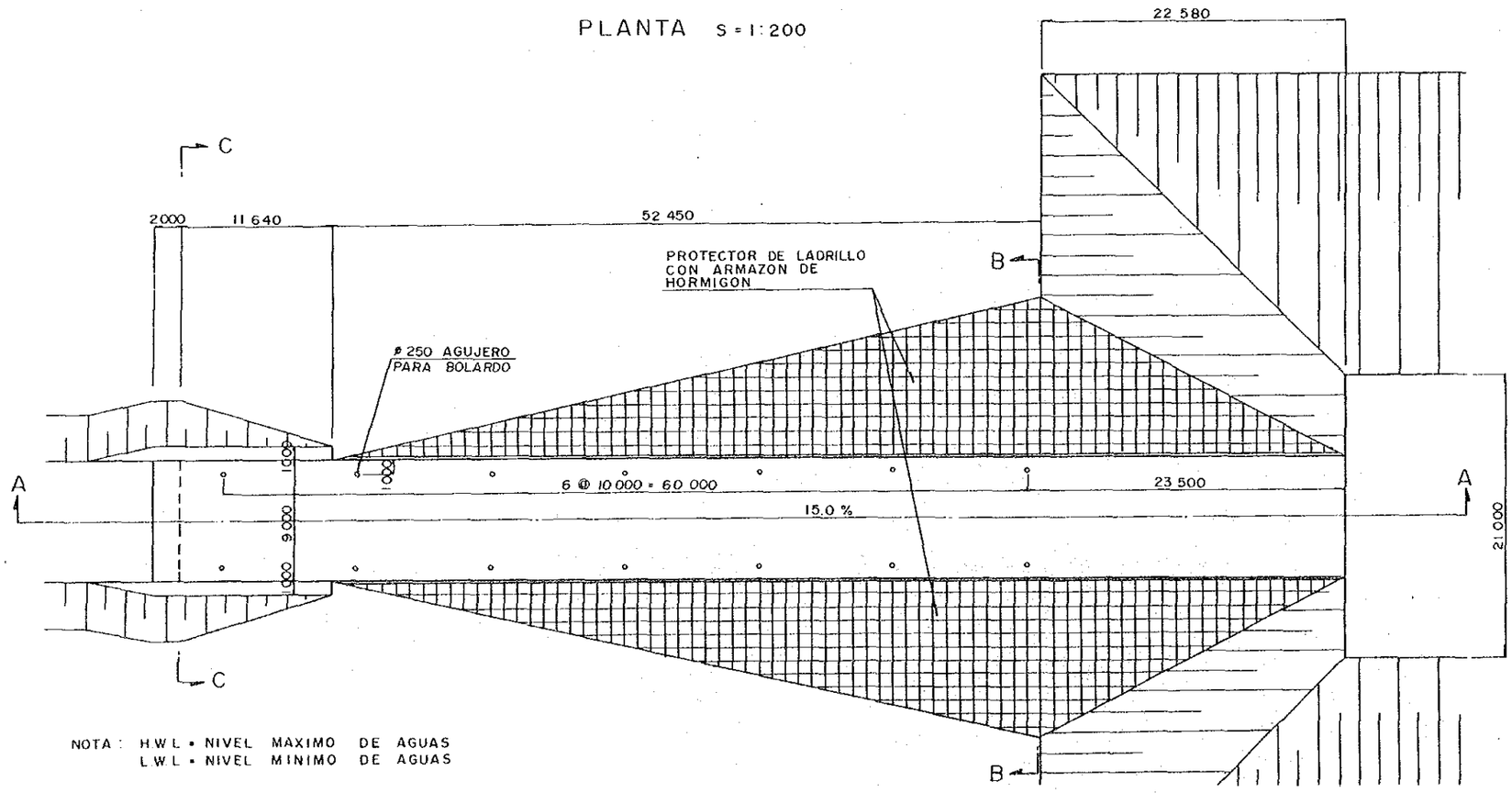

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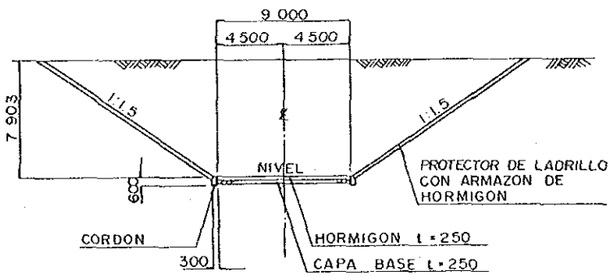
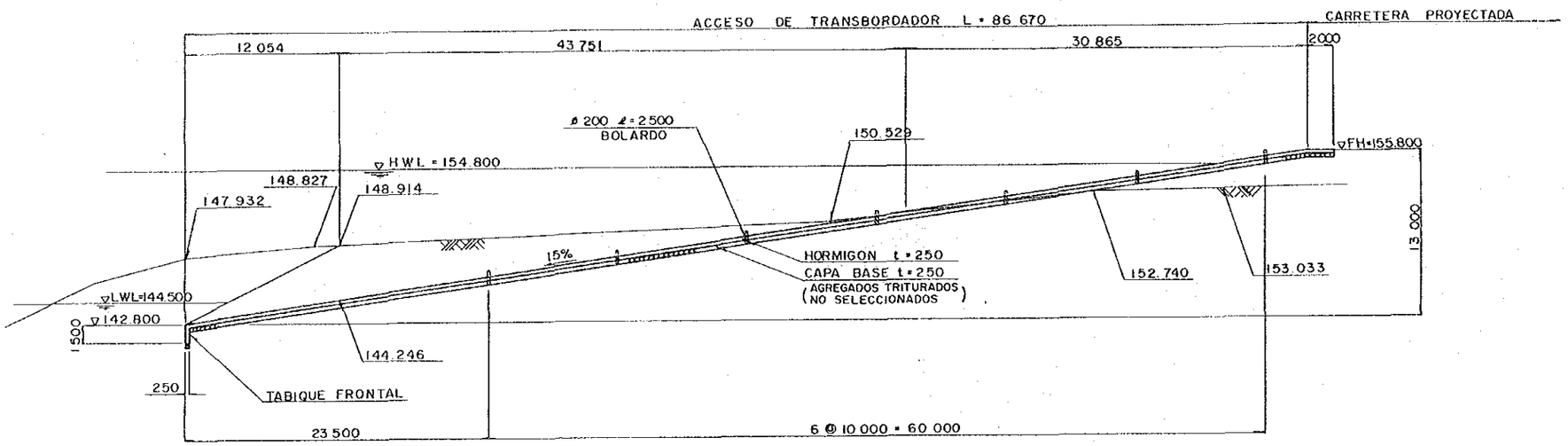


NOTA : H.W.L = NIVEL MAXIMO DE AGUAS
L.W.L = NIVEL MINIMO DE AGUAS

TERMINAL DE TRANSBORDADOR (II)

LADO PTO. GANADERO

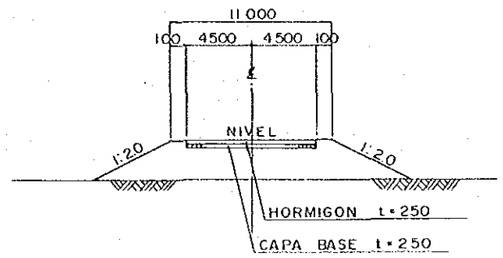
PERFIL A - A S = 1:200



SECCION TRANSVERSAL DE ACCESO

S = 1:200

B - B



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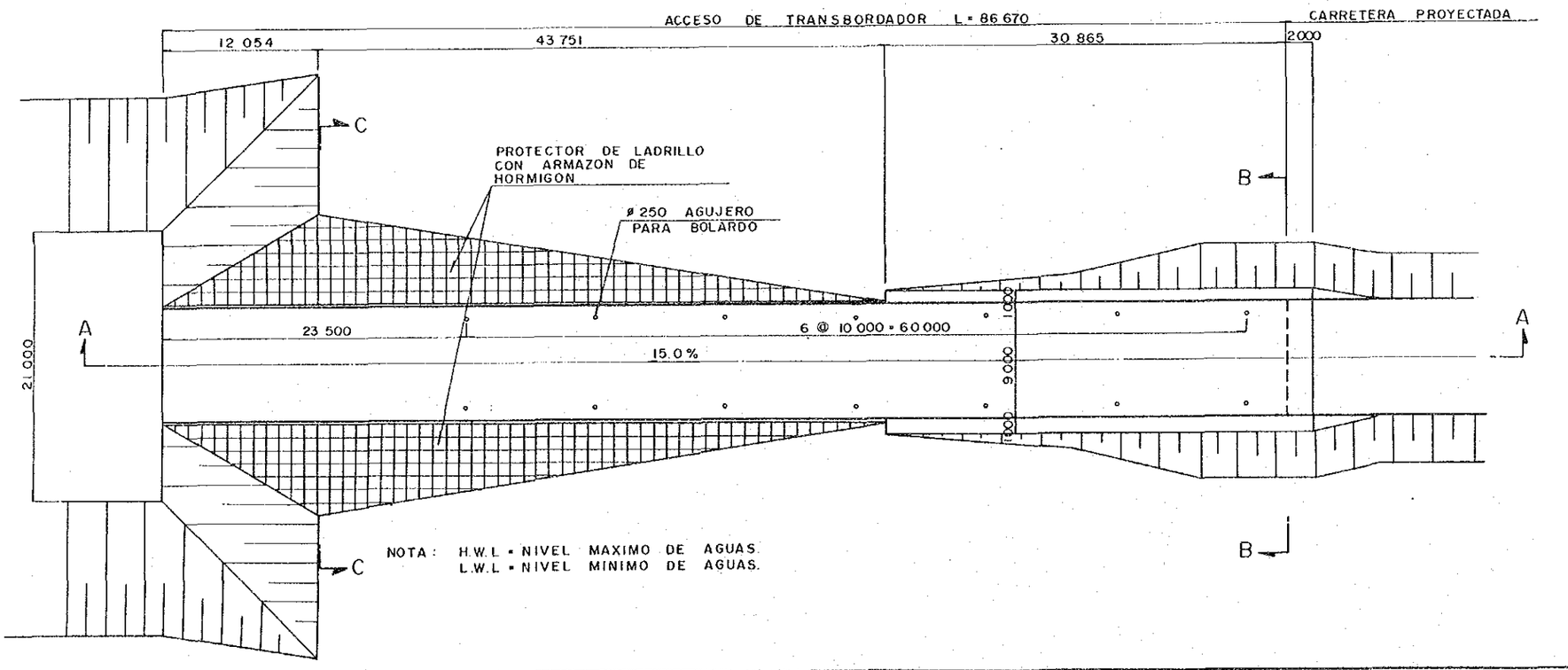

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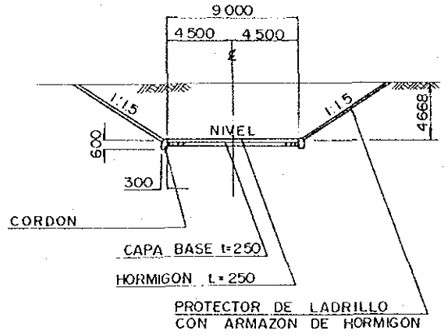
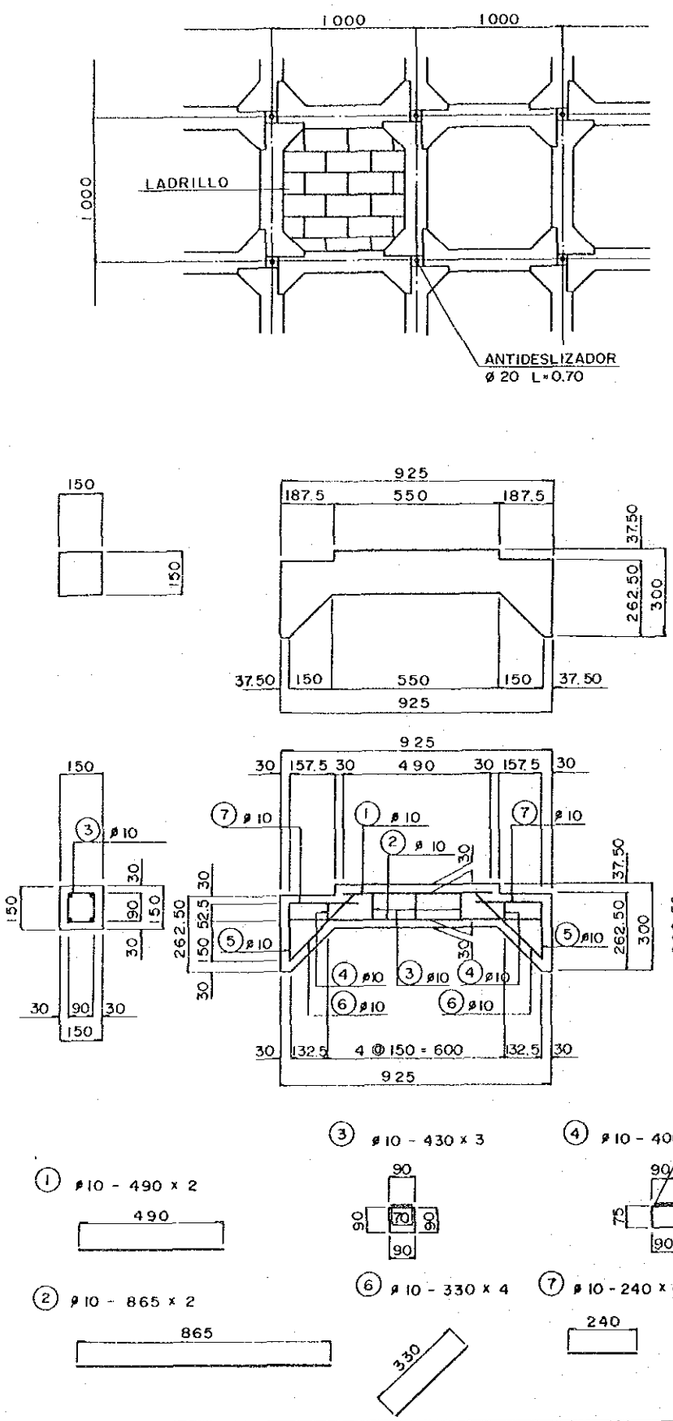
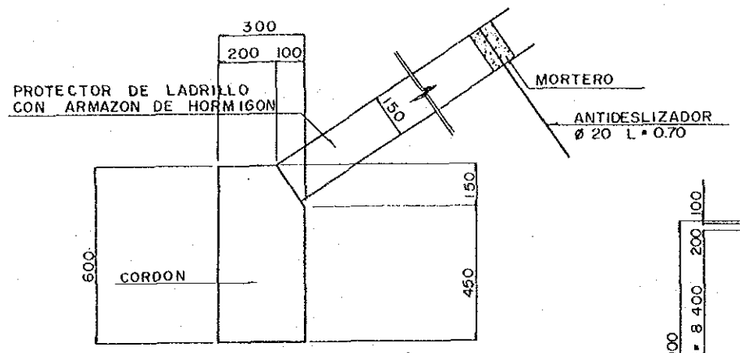


DIBUJO DETALLADO

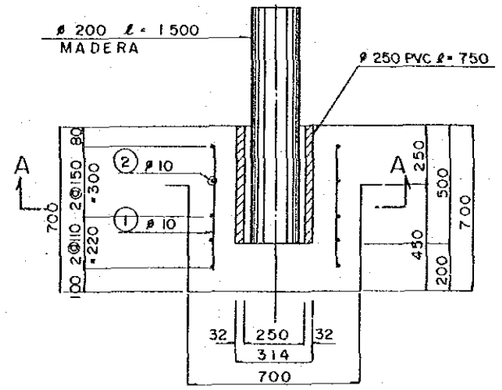
PROTECTOR DE LADRILLO CON ARMAZON DE HORMIGON



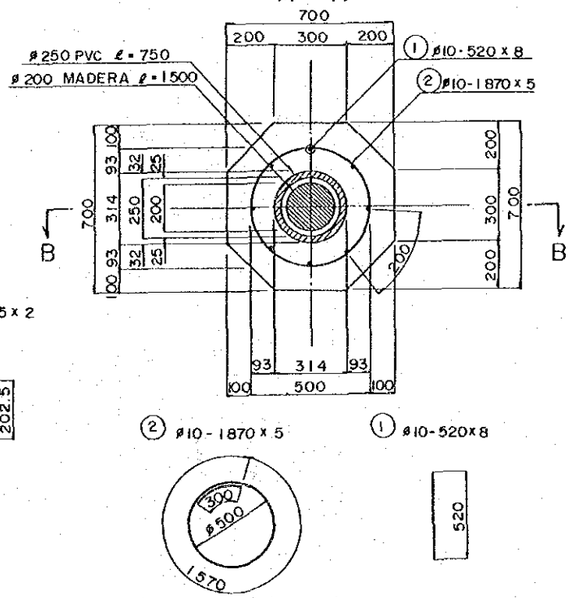
TABIQUE LATERAL S=1:10



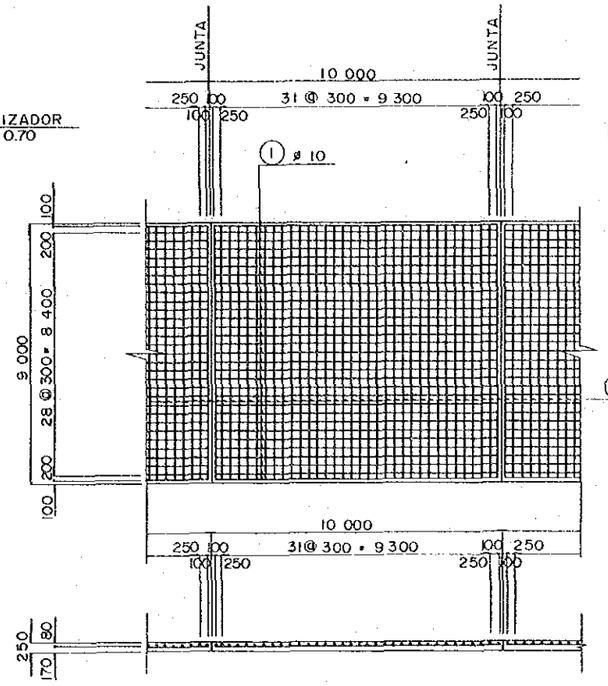
DETALLE DE AMARRADERO B - B



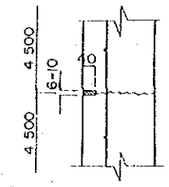
A - A



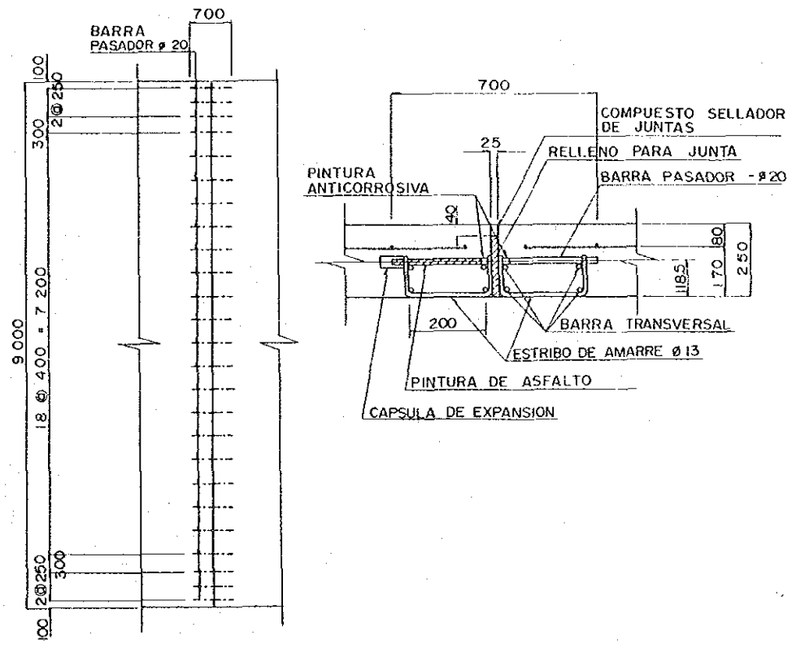
PAVIMENTO DE CONCRETO



DETALLE DE JUNTAS LONGITUDINALES



DETALLE DE JUNTAS TRANSVERSALES



SECCION TRANSVERSAL PARA TERMINALES Y CANALES

NO.0 + 400

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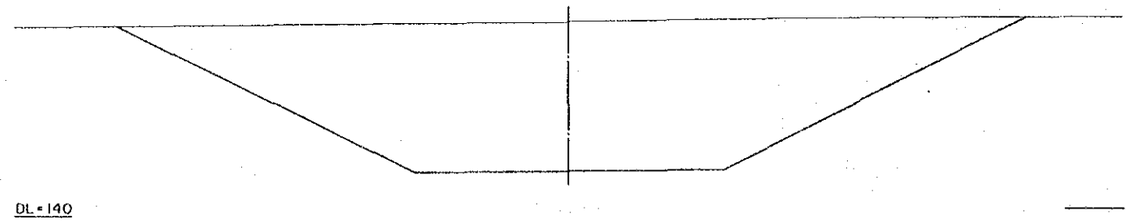
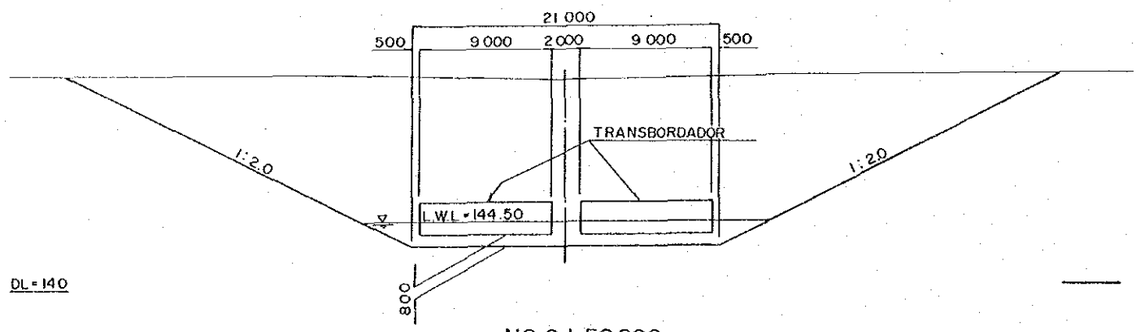
NS = 142.800



NO.0+ 200

PT = 154.167
NS = 142.800



NO.0 + 50.000

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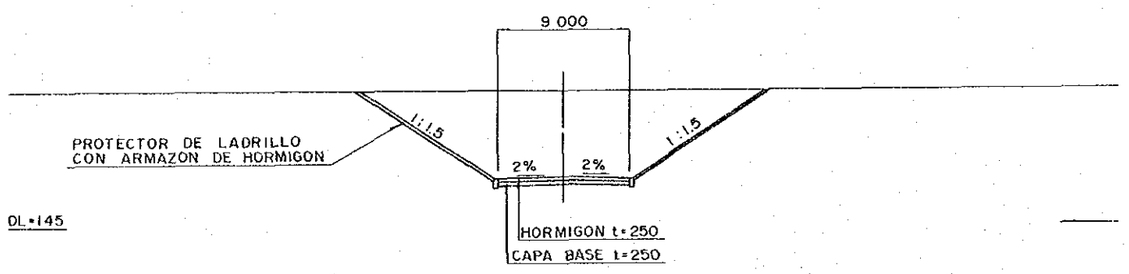
NS = 148.301



NO.0+0.000

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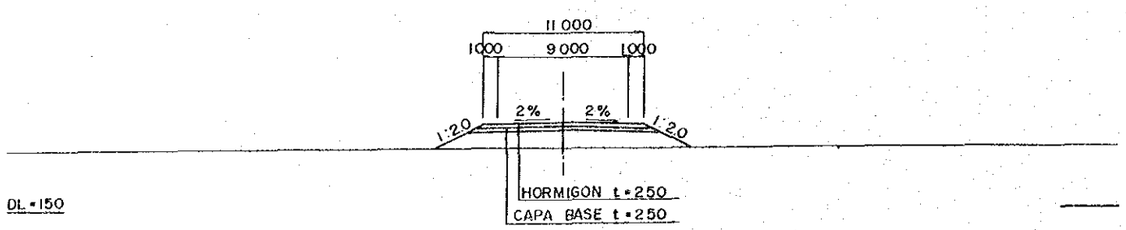
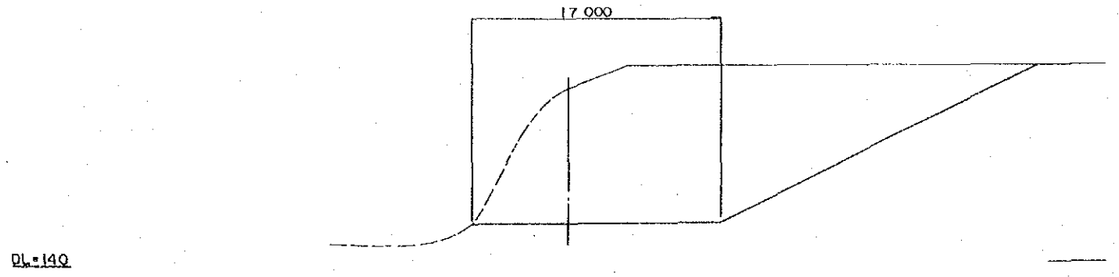
NS = 155.800



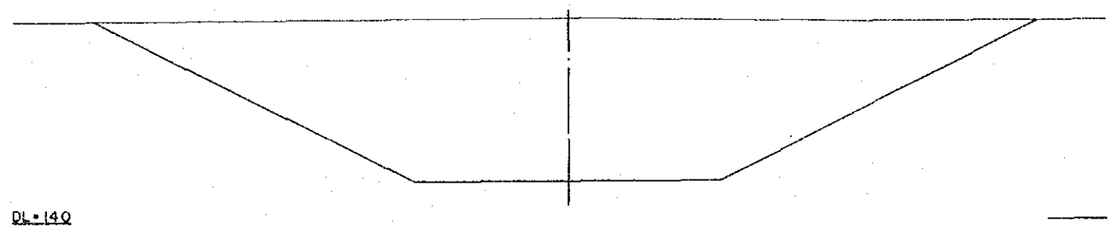
NO. 1 + 200

PT = 152.000
NS = 142.800



NO. 1 + 0.00

PT = 153.917
NS = 142.800



NO.0+800

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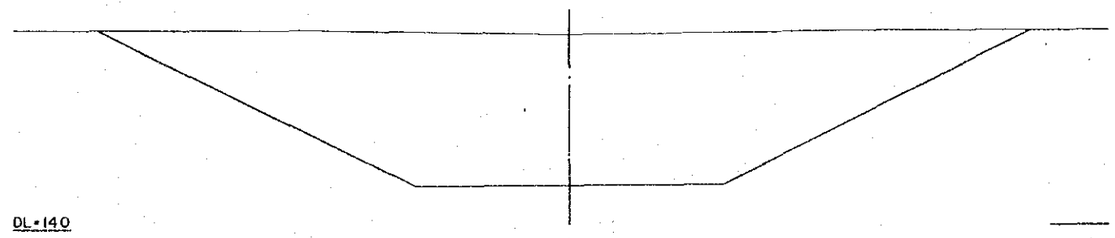
NS = 142.600



NO.0+600

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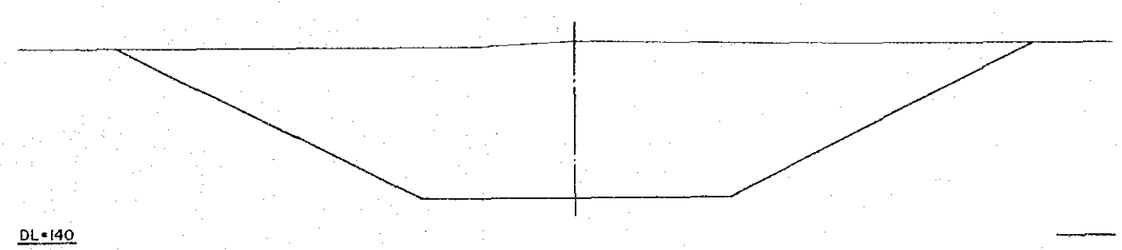
NS = 142.800



SECCION TRANSVERSAL PARA TERMINALES Y CANALES

NO. 4+400

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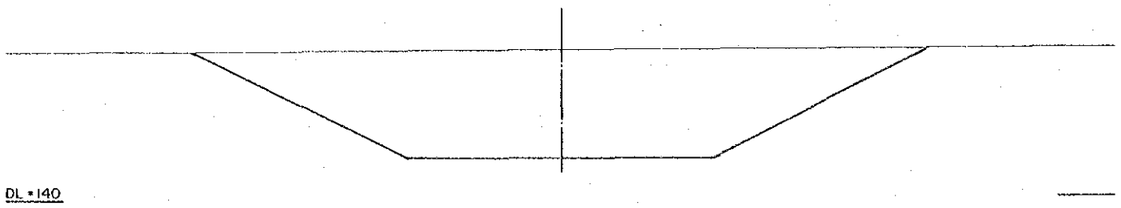
NS = 142.800



NO.4+200

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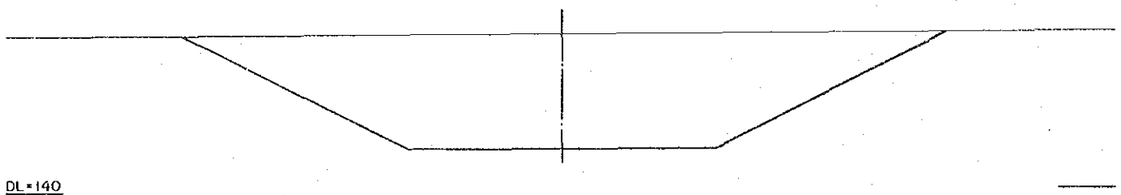
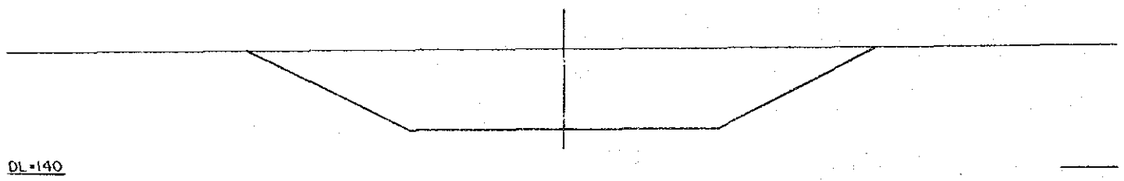
NS = 142.800



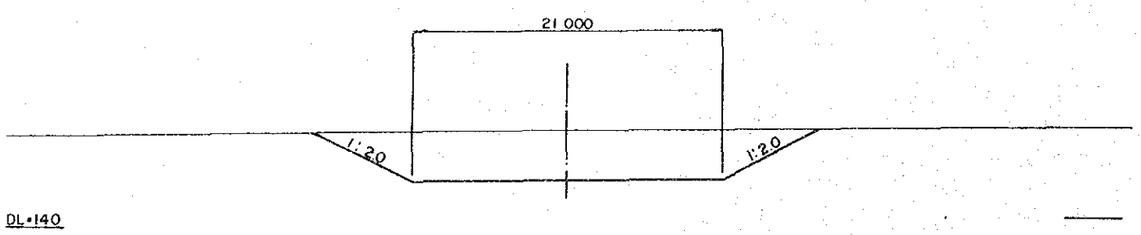
NO.4+0.000

PT = 148.349
NS = 142.800



NO.3+800

PT = 146.095
NS = 142.800



NO.6+0.000

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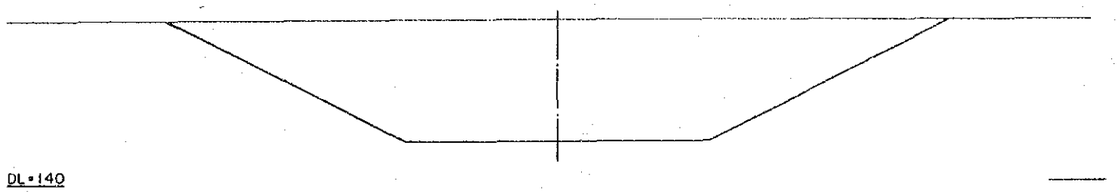
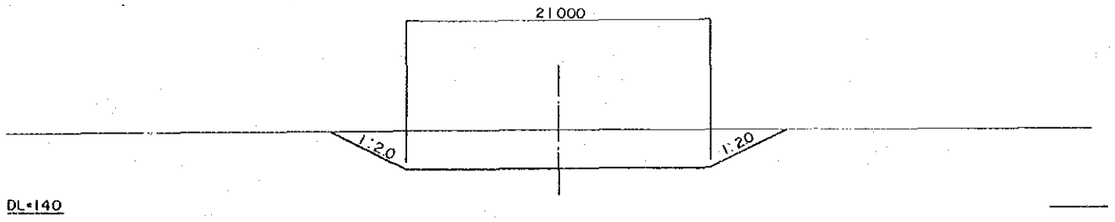
NS = 142.800



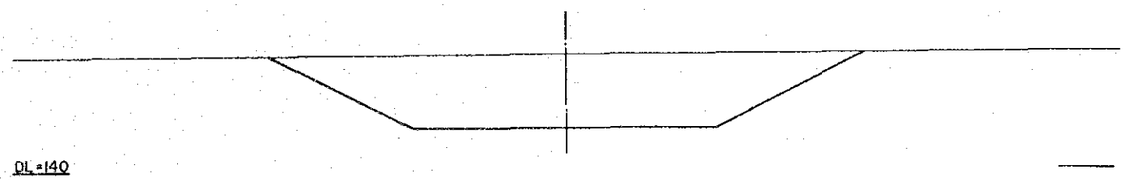
NO.5+800

PT = 145.400
NS = 142.800



NO.4+600

PT = 147.848
NS = 142.800



SECCION TRANSVERSAL PARA TERMINALES Y CANALES

NO.6+882.67

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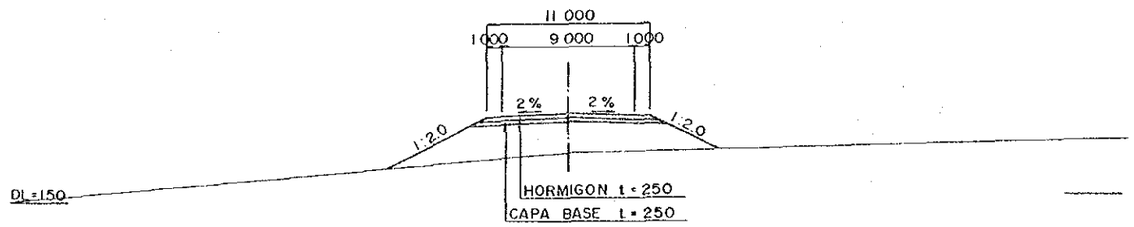
NS = 155.800



NO.6+805.4

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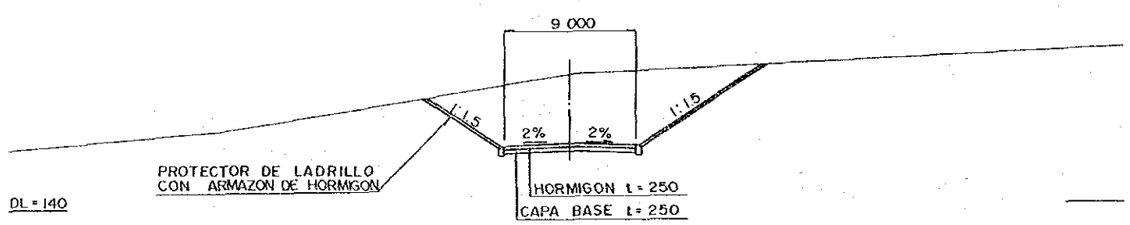
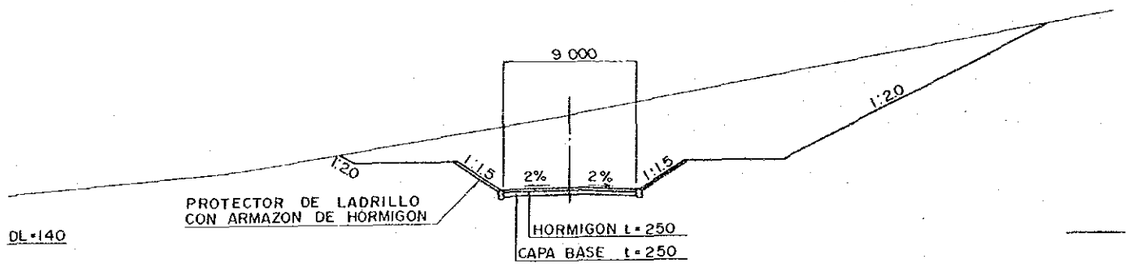
NS = 144.246



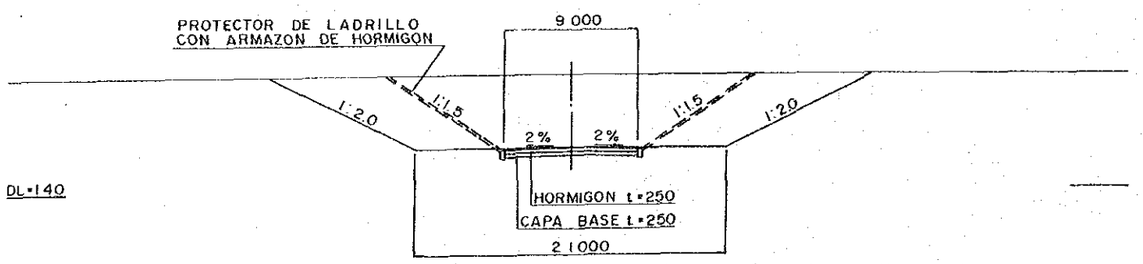
NO.6+800

PT = 148.290
NS = 143.400



NO.6+796

PT = 147.932
NS = 142.800



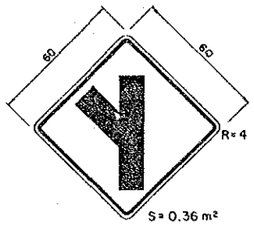
DETALLES DE LA SEÑALIZACION

SEÑALES RESTRICTIVAS

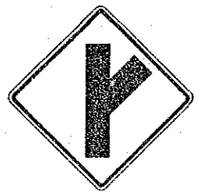
EN CAMINO ASFALTADO 80 km/h
EN CAMINO RIPIADO 60 km/h

R- 19 S = 0.54 m²

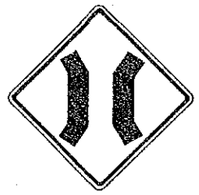
SEÑALES PREVENTIVAS



P - 10 A



P - 10 B



P - 22

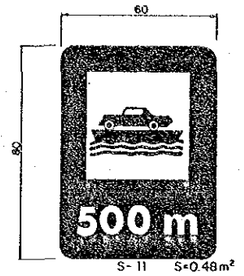
P - 13 A

P - 13 B

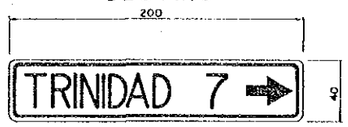
P - 35

SEÑALES INFORMATIVAS

SERVICIO



DESTINO



IDENTIFICACION

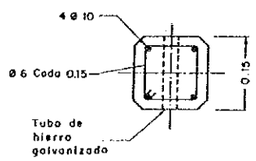
TIPO DE SEÑALES Y APLICACIONES

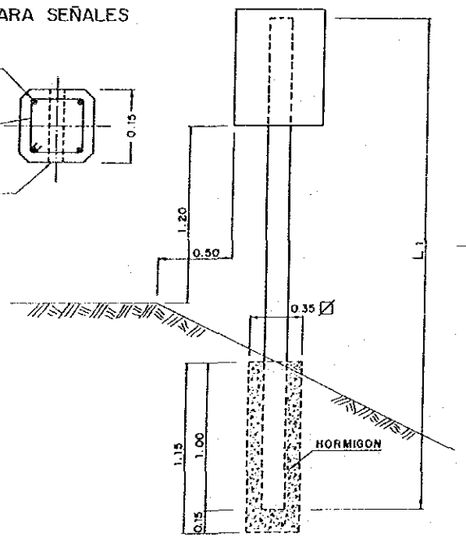
RESTRICTIVAS (R-19): AMBOS LADOS, CADA 20 Km
PREVENTIVAS (P-10A, 10B, 13A, 13B, 35): VER PLANO
(P-22): INSTALAR ANTES DE CADA PUENTE
INFORMATIVAS (SERVICIO, S-11): VER PLANO
(DESTINO): VER PLANO
(IDENTIFICACION): AMBOS LADOS, CADA 20Km

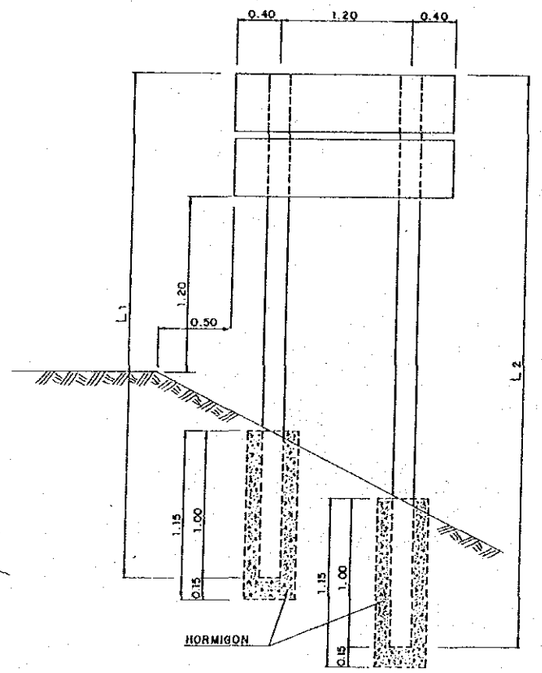
LONGITUD DE POSTES

TIPO		L1 cm	L2 cm
RESTRICTIVAS		347.5	——
PREVENTIVAS		343.6	——
INFORMATIVAS	KILOMETRAJE IDENTIFICACION	300.0	——
	DESTINO	350.0	410.0
	SERVICIO	357.5	——

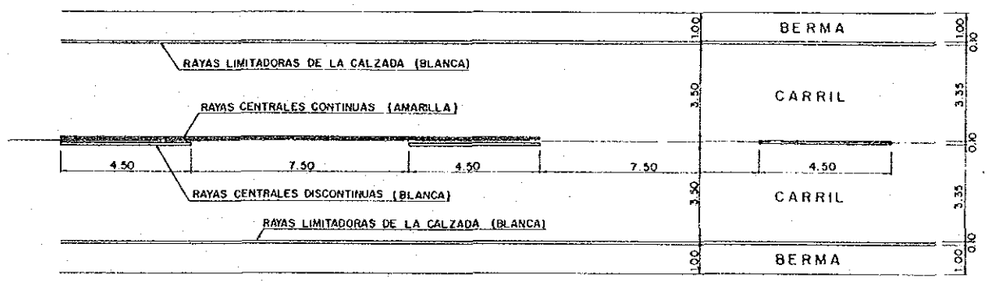
POSTES PARA SEÑALES



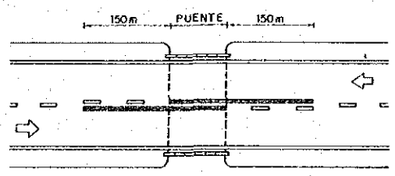




MARCAS EN EL PAVIMENTO



DEMARCACION EN ESTRUCTURAS ESTRECHAS

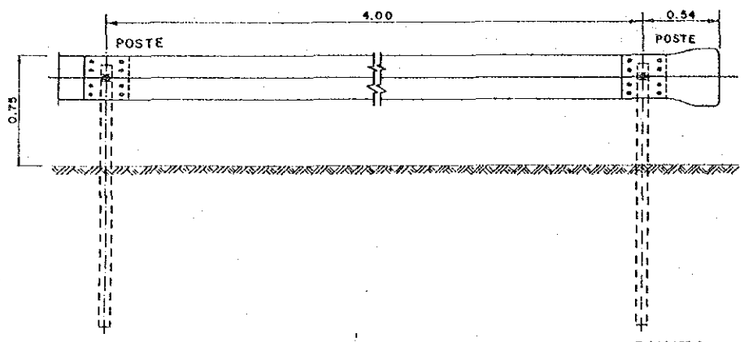


APLICACION

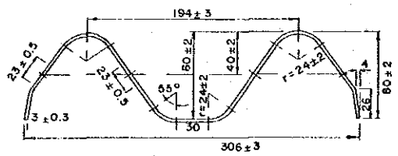
RAYAS CENTRALES DISCONTINUAS : LONGITUD TOTAL, EXCEPTO PUENTES
RAYAS CENTRALES CONTINUAS : TRAMO COLINDANTE A LOS PUENTES (REFERIRSE AL PLANO DE LA IZQUIERDA)
RAYAS LIMITADORAS DE LA CALZADA: LONGITUD TOTAL DE LA CARRETERA

NOTA: LOS DETALLES SE DEBERAN BASAR EN LA "SEÑALIZACION VIAL, MANUAL TECNICO 1977" DEL S.N.C.

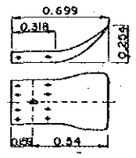
DETALLES DE DEFENSAS



CHAPA DE LA DEFENSA

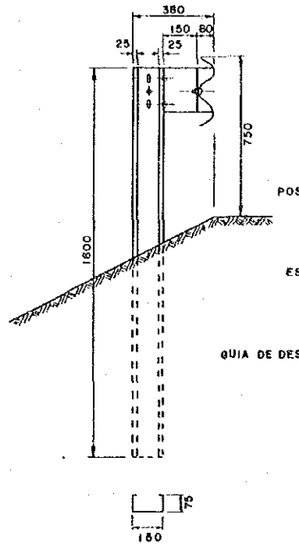


PUNTA

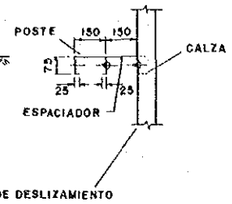


POSTE

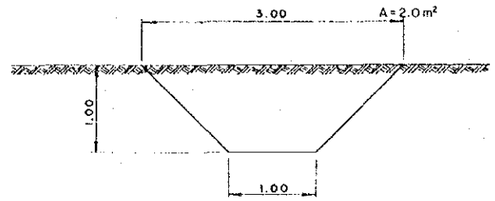
PERFIL



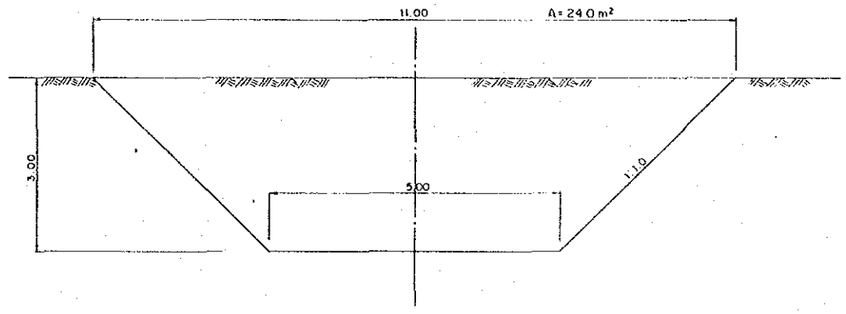
PLANTA



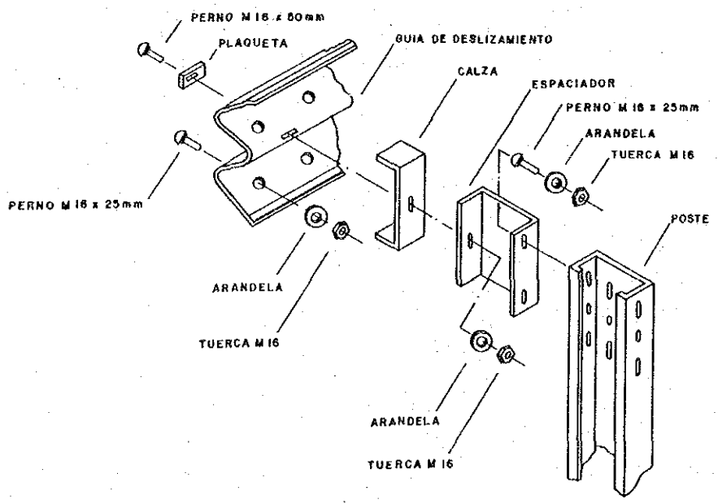
ZANJA TRAPEZOIDAL DE ENCAUCE



DESVIOS DE CANAL

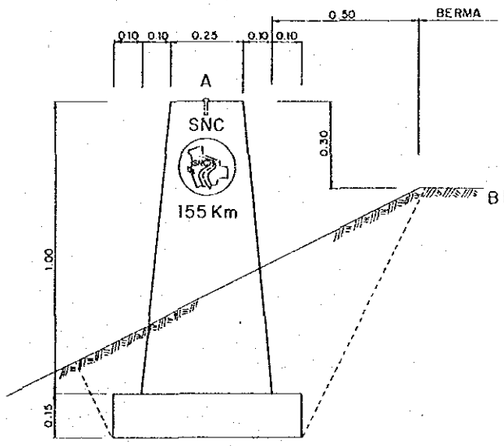


ARMADO

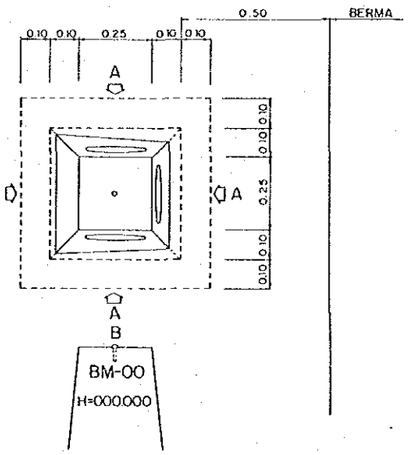


SEÑALIZACION DE KILOMETRAJE (B.M.)

CORTE Y ELEVACION



PLANTA



NOTA: Estas señales se colocaran cada 5 Km en forma intercalada entre las vias de ida y vuelta.

SUMARIO DE VOLUMEN

Nº 1

TIPO DE OBRA	ITEM	DETALLE	UNIDAD	SECTOR I	II	III	IV	V	VI	VII	VIII	TOTAL
RELLENO	Descape	1 = 15 cm	ha	66.21	150.32	113.73	160.11	395.18	199.74	166.80	95.04	1,347.16
	Desbosque y limpieza	1 = 30 cm	ha	23.25	10.69	68.08	148.66	219.35	43.56	6.99	58.32	578.90
	Relleno	Terraplen	m³	264.932	625.357	110.524	30.004	83.915	2.139	4.062	101.475	1,222.408
		Subrasante	m³	73.230	196.215	208.812	218.389	371.707	90.533	62.284	81.385	1,302.555
	Transporte de tierra (Subrasante)	Préstamo lateral	m³	–	36.051	164.257	165.462	364.025	36.021	3.811	78.045	847.672
		Acarreos a distancia	m³	73.230	160.165	43.730	53.155	7.258	54.512	58.473	3.340	453.863
		Distancia promedio de transporte	m	5.200	2.210	1.572	1.651	1.500	1.934	3.153	2.000	19.220
	Acabado (subrasante)	Nivelación y compactación	m²	97.071	192.751	203.148	344.088	684.963	271.876	194.399	171.607	2.159.903
REMOCION DE TUBOS CORRUGADOS EXISTENTES	Con excavacion y relleno	Ø 0.90	m	–	–	38.10	–	–	–	–	–	38.10
		Ø 1.50	m	59.00	134.20	60.76	–	45.00	–	–	–	298.96
		Ø 1.80	m	40.10	90.00	–	–	108.00	–	–	–	238.10
		Ø 3.00	m	–	26.00	–	–	–	–	–	–	26.00
	Sin excavacion y relleno	Ø 0.90	m	–	41.00	–	–	–	–	–	–	41.00
		Ø 1.50	m	–	–	50.40	–	27.40	–	–	–	77.80
		Ø 1.80	m	–	29.20	–	–	86.10	–	–	–	115.30
		Ø 2.10	m	–	–	–	–	21.40	–	–	–	21.40
		Ø 2.70	m	–	–	–	–	73.50	–	–	–	73.50
COLOCACION DE TUBOS CORRUGADOS	Excavacion	Excavadora 0.6 m	m³	–	3.004.47	3.268.38	885.10	7.839.83	441.47	1.406.62	2.306.94	19.152.81
	Fundación		m³	–	440.28	515.22	247.17	1.441.21	133.07	461.88	382.84	3.621.74
	Colocación de tubos	Ø 0.90	m	–	–	3.00	90.00	119.00	109.00	512.00	–	833.00
		Ø 1.20	m	–	–	51.00	197.00	71.00	52.00	125.00	39.00	535.00
		Ø 1.50	m	–	16.00	14.00	15.00	194.00	8.00	74.00	95.00	416.00
		Ø 1.80	m	–	–	14.00	–	177.00	26.00	–	32.00	249.00
		Ø 2.10	m	–	–	28.00	42.00	292.00	–	–	–	362.00
		Ø 2.40	m	–	–	70.00	–	244.00	–	–	–	314.00
		Ø 2.70	m	–	105.00	45.00	–	215.00	–	–	–	365.00
		Ø 3.00	m	–	246.00	241.00	–	172.00	–	–	202	861.00
	Material de relleno		m³	–	4.383.41	4.852.44	1.540.00	12.129.86	784.51	2.563.70	3.465.04	29.718.96
CABEZALES	Hormigón		m³	–	488.06	517.36	153.40	1.171.50	105.11	189.29	442.98	3.067.70
	Fundaciones		m²	–	1.472.33	1.734.67	550.67	4.249.33	425.00	843.67	1.486.67	10.762.32
	Encofrado		m²	–	1.914.32	2.143.75	946.15	5.402.78	663.28	1.198.94	1.907.55	14.176.77
	Entadrillado		m³	–	377.62	431.63	125.72	1.017.17	93.86	180.55	364.46	2.591.01
	Revestimiento de hormigon	1:3	m³	–	44.17	52.04	16.52	127.48	12.75	25.31	44.60	322.87
PAVIMENTACION	Capa superficial		m²	70.781	–	–	–	–	–	–	–	70.781
	Capa base		m³	7.179	–	–	–	–	–	–	–	7.179
	Sub base		m³	14.763	37.067	42.009	71.154	141.498	56.221	40.158	35.487	438.357
	Pavimentacion de bermas		m²	20.223	–	–	–	–	–	–	–	20.233
TRABAJOS COMPLEMENTARIOS	Zanjas de encauce		m	–	–	–	–	1.300	–	–	–	1.300
	Defensas		m	2.396	1.224	–	920	2.704	80	80	1.488	8.892
	Desvíos de canales fluviales		m	270	–	–	–	–	–	–	–	270
	Señalización	Tip. P	Pza	8	7	1	2	19	4	3	4	48
		R – 19	Pza	2	2	2	4	8	2	2	2	24
		S – 11	Pza	1	1	–	–	–	–	–	–	2
		Ident	Pza	2	2	2	4	8	2	2	2	24
		Destino	Pza	1	–		1	3	2	–	1	
		B. M.	Pza	2	4	4	7	14	6	4	4	45
	Marcas en el pavimento	W = 10 cm	m	24.341.1	–	–	–	–	–	–	–	26.341.1
	Oficinas administrativos	3 Pza	m²	1 460	–	–	–	1.460	1.460	–	–	4.380
	Oficinas de transbordador	2 Pza	m²	107	107	–	–	–	–	–	–	214
	Instalaciones de Transbordador	2 Pza	Global	–	–	–	–	–	–	–	–	1
ESTRUCTURA	Puentes		Pte.	3	2	–	–	2	–	1	1	9

CANTIDADES DE PUENTES

CUADRO DE MATERIALES PARA SUPERESTRUCTURA

		Clase	UNIDAD	Puente SAN JUAN Tramo 25m	Puente SAN GREGORIO Tramo 25m	Puente PUELTO ALMACEN Tramo 25m	Puente AMISTAD Tramo 30m	Puente SICRI Tramo 30m	Puente TAJIBO Tramo 30m	Puente MURURITA Tramo 30m	Puente CURIRABITA Tramo 20 m	Puente CRIRABA Tramo 25m	TOTAL
Hormigon (Encofrado)	Diafragmas	Tipo-P	m³ (m²)	7.834	7.834	7.834	9.402 (77.349)	9.402	9.402	9.402	5.845 (47.303)	7.834	74.789 (190.451)
	Losa	Tipo-A	m³ (m²)	36.992	36.992	36.992	44.217 (1 98.454)	44.217	44.217	44.217	29.767 (140.838)	36.992	354.603 (510.390)
	Bordillo	Tipo-A	m³ (m²)	6.400	6.400	6.400	7.650 (55.634)	7.650	7.650	7.650	5.150 (37.609)	6.400	61.350 (1 39.865)
	Pavimento	Tipo-A	(m³)	4.096	4.096	4.096	4.896	4.896	4.896	4.896	3.296	4.096	39.264
	Sub-Total	Tipo-A	m³ (m²)	47.488	47.488	47.488	56.763 (254 088)	56.763	56.763	56.763	38.213 (178 447)	47.488	455.217 (650.255)
Vigas	20 m	Hormigon Tipo-P	m	——	——	——	——	——	——	——	82.40	——	82.40
	25 m			102.40	102.40	102.40	——	——	——	——	——	102.40	409.60
	30 m			——	——	——	122.40	122.40	122.40	122.40	——	——	489.60
Acero de Refuerzo	Ø 10 (No. 3)	Grado 60	kg	16.800	16.800	16.800	20.160	20.160	20.160	20.160	13.440	16.800	161.280
	Ø 13 (No. 4)	Grado 60	kg	3,726.796	3,726.796	3,726.796	4,403.856	4,403.856	4,403.856	4,403.856	2,919.192	3,726.796	35,441.800
	Ø 16 (No. 5)	Grado 60	kg	5,145.424	5,145.424	5,145.424	6,169.574	6,169.574	6,169.574	6,169.574	4,148.124	5,145.424	49,408.116
	Ø 19 (No. 6)	Grado 60	kg	23.544	23.544	23.544	24.136	24.136	24.136	24.136	20.024	23.544	210.744
	Ø 22 (No. 7)	Grado 60	kg	721.208	721.208	721.208	720.488	720.488	720.488	720.488	597.464	721.208	6,364.248
	Ø 25 (No. 8)	Grado 60	kg	——	——	——	——	——	——	——	——	——	——
	Sub total		kg	9,633.772	9,633.772	9,633.772	11,338.214	11,338.214	11,338.214	11,338.214	7,698.244	9,633.772	91,586.188
Barandad		Hormigen Tipo-A	m	51.20	51.20	51.20	61.20	61.20	61.20	61.20	41.20	51.20	490.80
Expansion		Goma	m	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00	144.00
Apoyo		Goma	Dm³	14.40	14.40	14.40	20.16	20.16	20.16	20.16	11.20	14.40	149.44

CUADRO DE MATERIALES PARA INFRAESTRUCTURA

		TAMAÑO Y TIPO	UNIDAD	SAN JUAN	SAN GREGORIO	PUELTO ALMACEN	AMISTAD	SICRI	TAJIBO	MURURITA	CURIRABITA	CRIRABA	TOTAL
Excavacion			m³	1,241.8	1,241.8	947.1	2,270.3	2,082.7	832.3	1,259.8	522.3	1,047.3	11,445.4
Excavacion de mano			m³	31.2	31.2	31.2	31.2	31.2	29.6	31.2	29.6	29.6	276.0
Relleno			m³	538.3	538.3	502.9	808.8	871.7	198.7	577.0	338.6	248.1	4,622.4
Relleno de acomponamiento		A4	m³	436.8	436.8	457.8	623.3	647.6	309.2	467.2	343.0	317.2	4,038.8
Hormigon		Tipo-A	m³	101.484	101.484	100.584	106.312	106.312	82.334	103.356	82.838	84.786	869.490
Encofrado			m²	275.252	275.252	269.858	304.272	304.272	235.650	288.910	236.788	240.876	2,431.130
Hormigon de Niveracion (Encofrado)		Tipo-F	m³ (m²)	5.888 (4.960)	5.888 (4.960)	5.888 (4.960)	5.888 (4.960)	5.888 (4.960)	5.520 (4.880)	5.888 (4.960)	5.520 (4.880)	5.520 (4.880)	51.888 (44.400)
Acero de Refuerzo	Ø 10	Grado 60	kg	17.624	17.624	17.624	24.488	24.488	10.760	17.624	13.848	14.192	158.272
	Ø 13	Grado 60	kg	2,127.844	2,127.844	1,841.986	2,061.890	2,061.890	1,962.560	2,229.670	1,902.458	1,981.926	18,298.068
	Ø 16	Grado 60	kg	1,101.912	1,101.912	1,091.298	731.676	731.676	822.004	960.372	1,131.650	995.732	8,668.232
	Ø 19	Grado 60	kg	1,170.686	1,170.686	1,170.686	1,455.518	1,455.518	1,219.850	1,361.114	1,029.422	1,029.422	11,062.902
	Ø 22	Grado 60	kg	1,659.210	1,659.210	1,648.260	1,384.170	1,384.170	1,330.508	1,409.154	1,272.162	1,251.104	12,997.948
	Ø 25	Grado 60	kg	686.520	686.520	650.790	1,479.156	1,479.156	338.496	1,025.016	615.030	531.600	7,492.284
	Sub total		kg	6,763.796	6,763.796	6,420.644	7,136.898	7,136.898	5,684.178	7,002.950	5,964.570	5,803.976	58,677.706
Longitud total de Pilotes			m	192.000	144.000	144.000	360.000	360.000	160.000	288.000	280.000	300.000	2,228.0
Excolladero	Excavacion		m³	195.200	216.800	114.600	229.400	190.600	126.800	246.600	164.400	196.600	1,681.0
	Cordon	Tipo-F	m	123.946	123.946	119.800	136.142	136.142	94.720	126.144	110.604	102.660	1,074.104
	Area	Ladorillo	m²	522.224	522.224	476.152	655.136	655.136	230.882	537.898	389.322	307.322	4,296.296
Propeto de Acceso		Tipo-A		4	4	4	4	4	4	4	4	4	36

CANTIDADES DE FACILIDADES DE TRANSBORDADOR

TIPO DE OBRA	DETALLE	UNIDAD	VOLUMEN
Rampa de hormigón armado	W=9.00 t = 0.25	m	179.84
Capa base	W=9.00 t = 0.25	m	176.84
Juntas transversales		m	144.00
Juntas longitudinales		m	177.34
Entadrillado con marco De hormigón		m²	1.659.31
Cordon de bloque de hormigón	Tipo (F)	m	278.61
Atracadero		Juego	2
Excavación	Total	m³	722.249.00
Excavación	Con agua	m³	288.899.00

CANTIDADES UNITARIAS DE FACILIDADES DE TRANSBORDADOR

TIPO DE OBRA	ITEM	DETALLE	UNIDAD	VOLUMEN
Rampa de hormigón armado (por 10m)	Hormigón	Tipo (A)	m³	22.50
	Acero de refuerzo deformado	Ø 10	Kg	337.68
	Encofrado		m²	7.25
Capa base (por 10m)		W=9.00 t=0.25	m³	22.50
Juntas transversales (por 9m)	Acero liso	Ø 20	Kg	41.614
	Acero para caballete	Ø 13	Kg	21.719
	Acero reticulares	Ø 13	Kg	69.978
	Cartón asfáltico	Elastite t=25mm	m²	1.89
	Material compresible	Asfáltico	m³	0.009
Entadrillado de bloque en hormigon (por m²)	Hormigón	Tipo (A)	m³	0.048
	Armado de acero de refuerzo	Ø 10	Kg	9.594
	Encofrado		m²	0.772
	Entadrillado		Pza	21
	Mortero		m³	0.008
	Antideslizador	Ø 20 L=0.70	Kg	1.726
Cordon de bloque de hormigón (por m)	Hormigón	Tipo (F)	m³	0.173
	Encofrado		m²	1.23
Atracadero (por juego)	Estaca de amarre (madera)	Ø 0.20 L=1.50	Pza	2
	Hormigón	Tipo (A)	m³	1.806
	Tubo de PVC	Ø 250 L=0.75	Pza	14
	Acero de refuerzo deformado	Ø 10	Kg	105.924

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