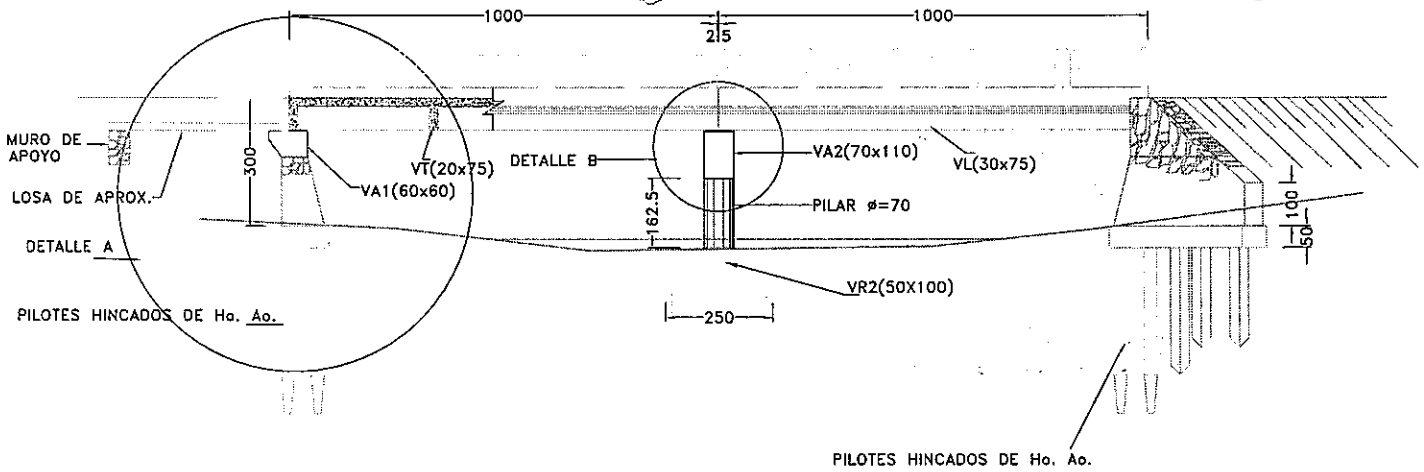
MINISTERIO DE OBRAS PÚBLICAS Y COMUNICACIONES

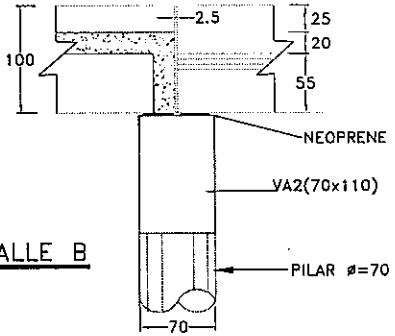
LICITACIÓN PÚBLICA NACIONAL

"CONSTRUCCIÓN DE UN PUENTE ALIVIADERO DE HORMIGÓN ARMADO SOBRE EL RÍO JEJUI"

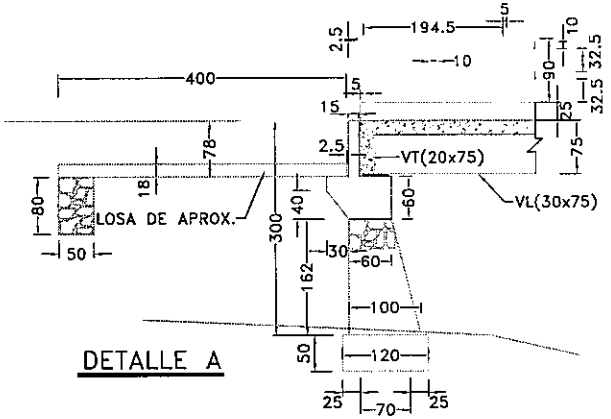
Anexo Planos



DETALLE LONGITUDINAL



DETALLE B



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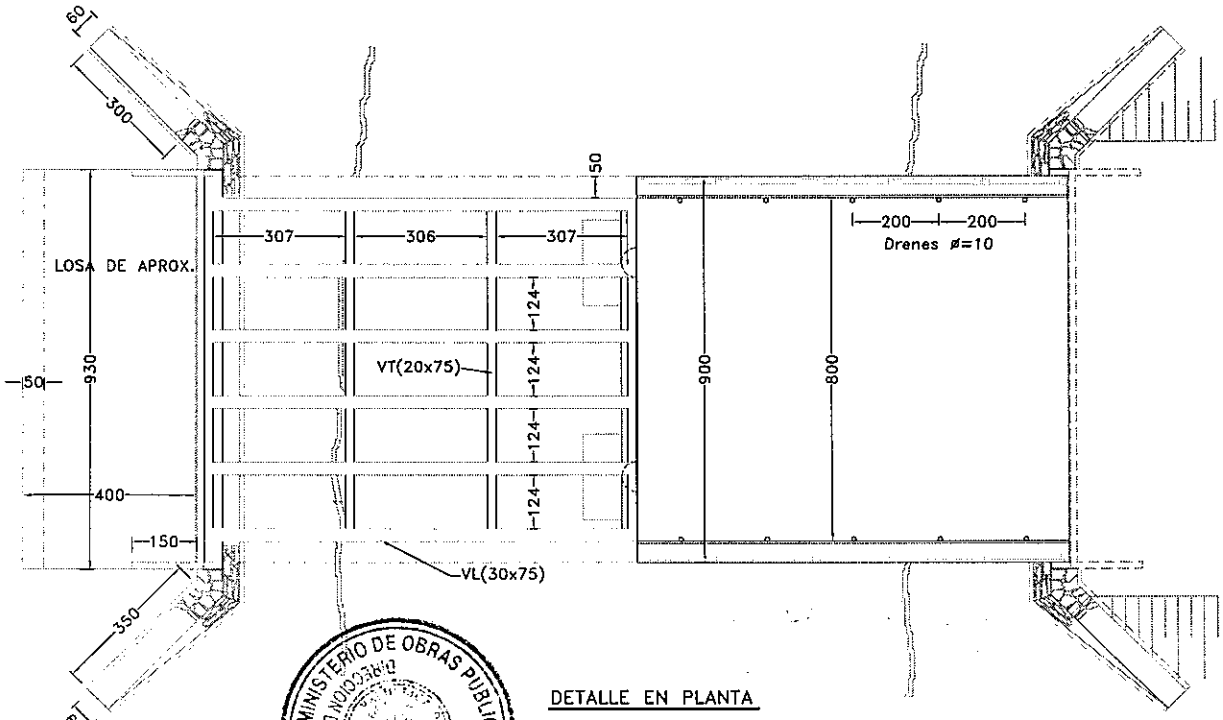


DETALLE EN PLANTA

ESPECIFICACIONES

Ho. 1:1:2 f_{ck} =400 kg/cm (PILOTES HINCADOS)

Ho. 1:2:3 f_{ck} =240 kg/cm^2 (H° ESTRUCTURAL)

MEZCLA 1:3 (MURO DE P.B.C.)

M O P C

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho.Ao.

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente-Asent. Maracana

L=20m

D=9m

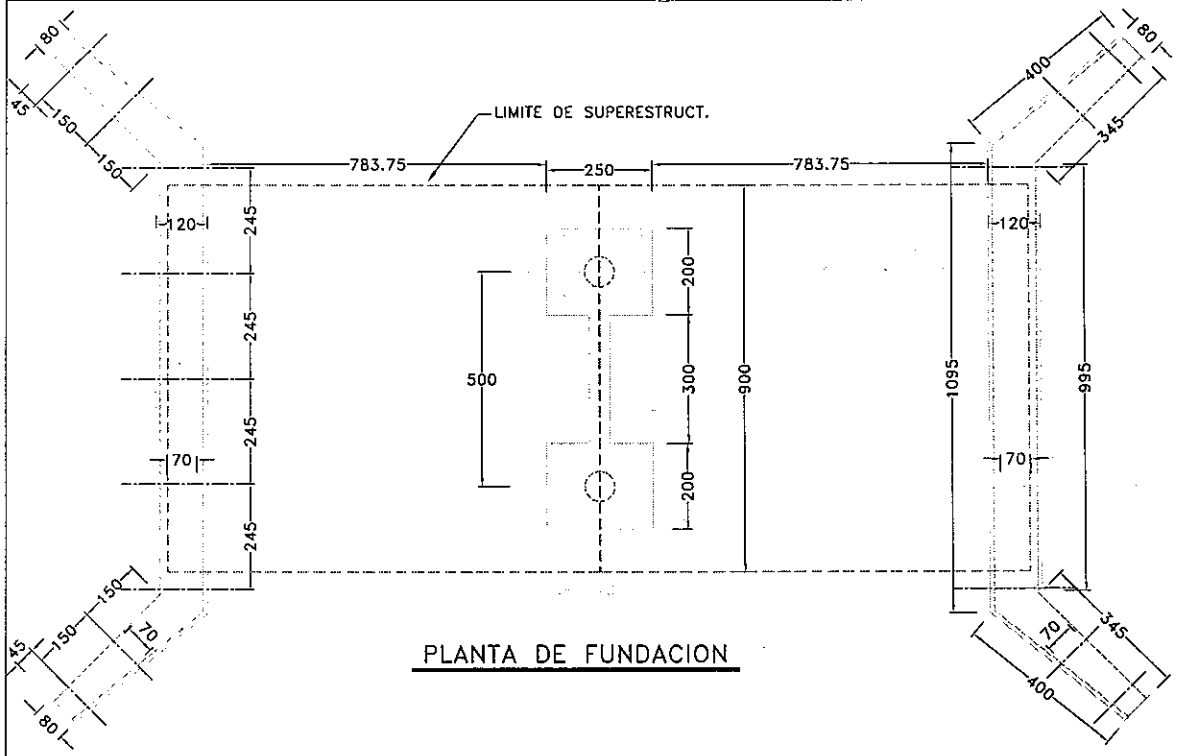
DISEÑO GENERAL

1

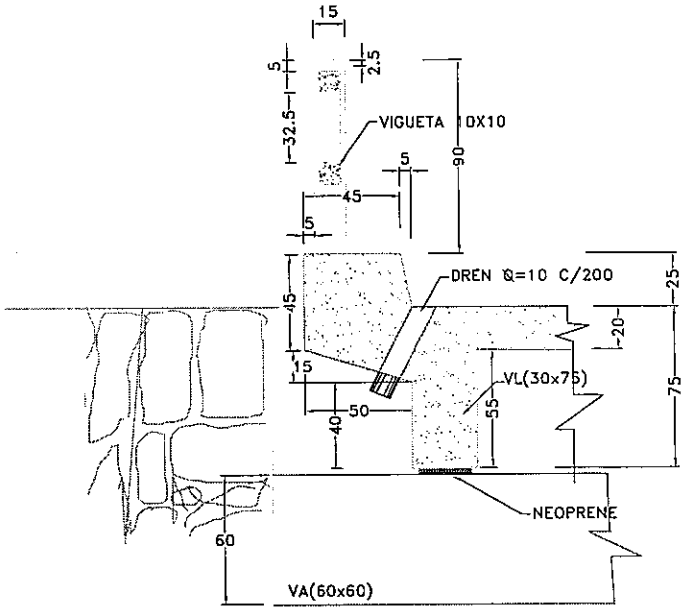
AVFC23X2008

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS

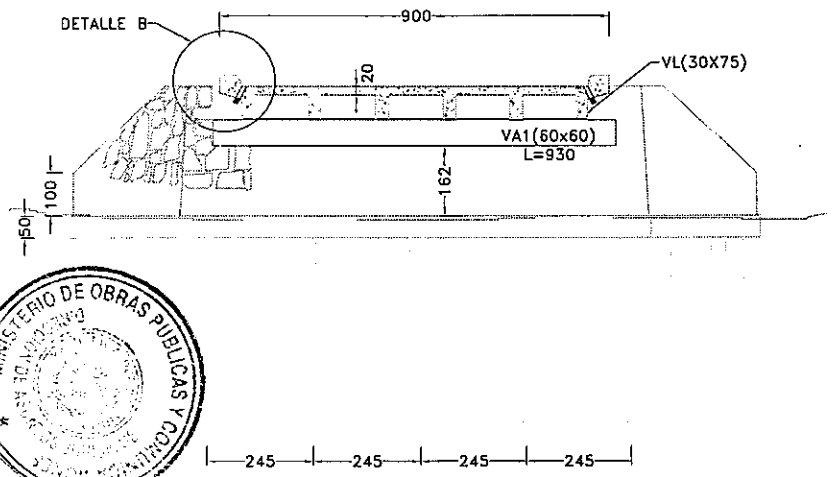
M. O. P. y C.
DIRECCION DE CAMINOS VECINALES



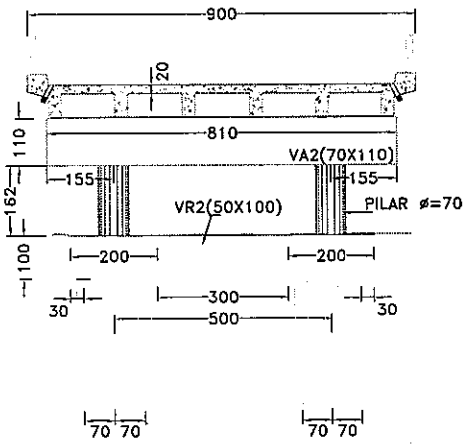
PLANTA DE FUNDACION



CORTE CABECERA



CORTE PILA CENTRAL



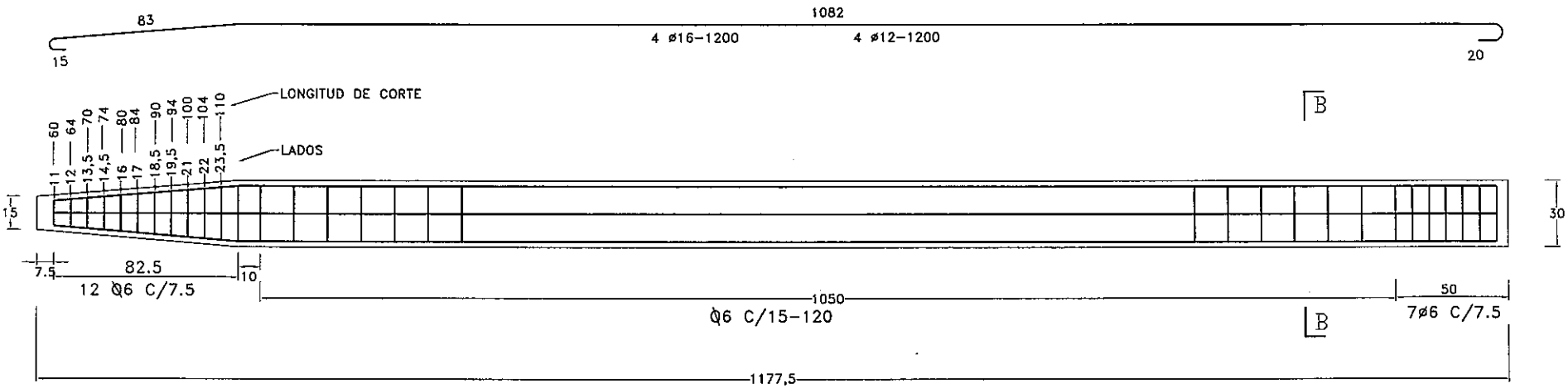
DETALLE B

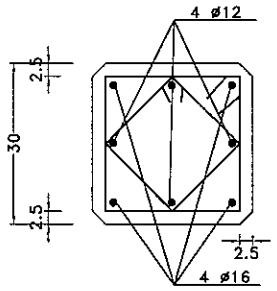
M O P C	
DIVISION DE PUENTES	
PROYECTO PUENTE DE Ho.Ao.	
Puente Aliviadero Rio Jejui	
TRAMO: Col. San Vicente-Asent. Maracana	
L=20m	A=9m
DISEÑO GENERAL	2

AVFC23X2008

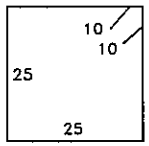
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS
D. T. y C.

PILOTE P/HINCADO 30X30

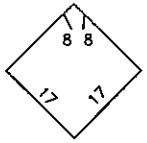




CORTE B–B



ø6 c/15–120



ø6 c/15–84

ESPECIFICACIONES
Ho.1:2:3 f_{ck}=240kg/cm² (estr.)
Ho.1:1:1 f_{ck}=400kg/cm² (pilotes)
Mezcla 1:3 (Muro P.B.C.)

M O P C

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho. Ao.

Puente Aliviadero Río Jejuí C.

TRAMO: Col. San Vicente–Asent. Maracana

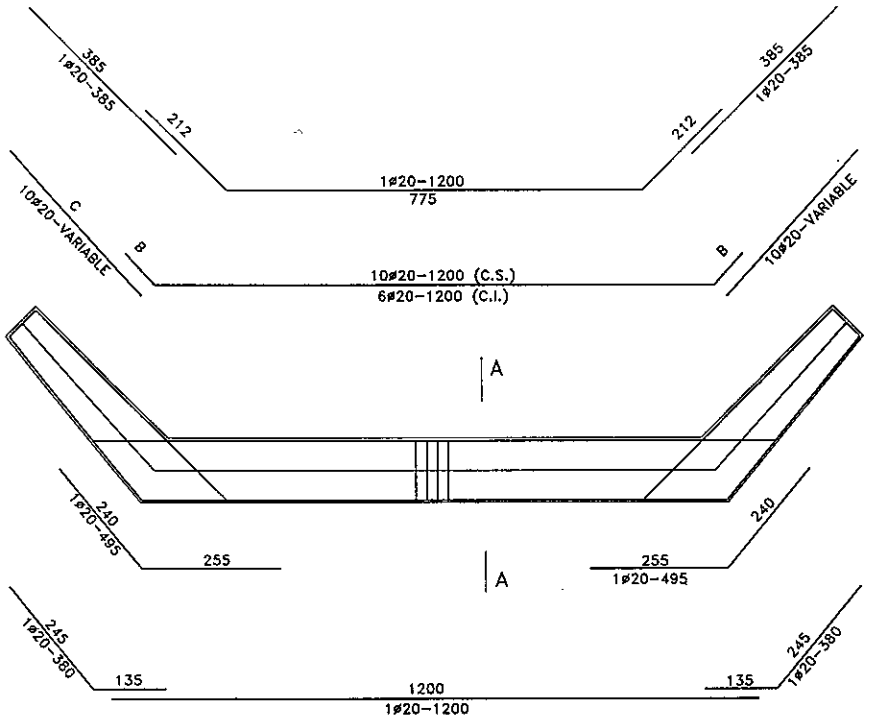
L=20m A=9m.

DISEÑO GENERAL 3

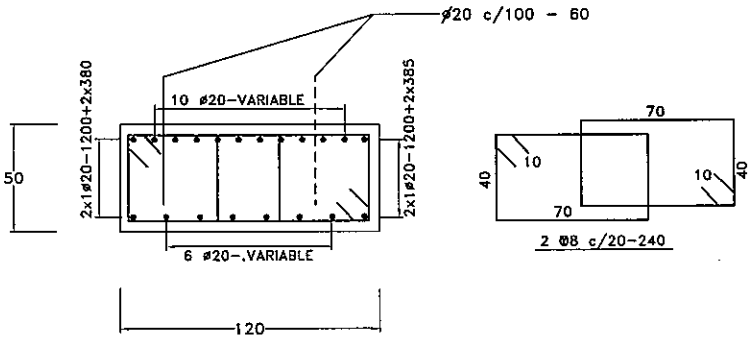
AVFC23X2008

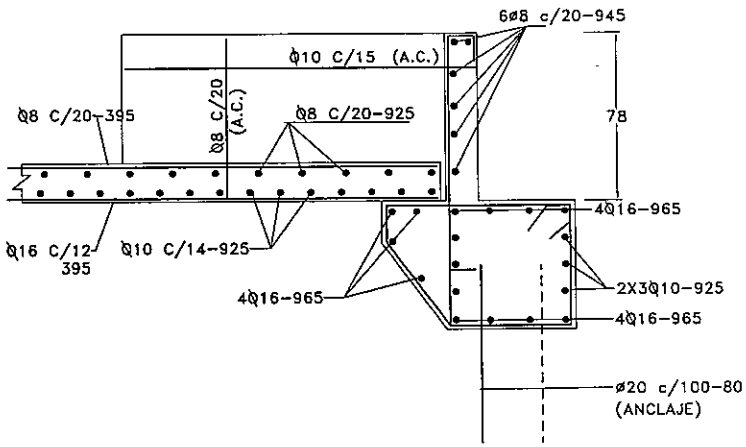
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE PUENTES
DIRECCION DE CAMINOS

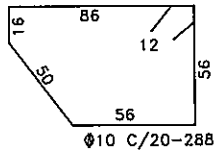
ARMADURAS VIGA VC (120X50)

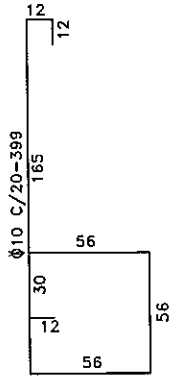


CORTE AA









M O P C

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho.Ao.

Puente Aliviadero Rio Jeju

TRAMO: Col. San Vicente-Asent. Maracana

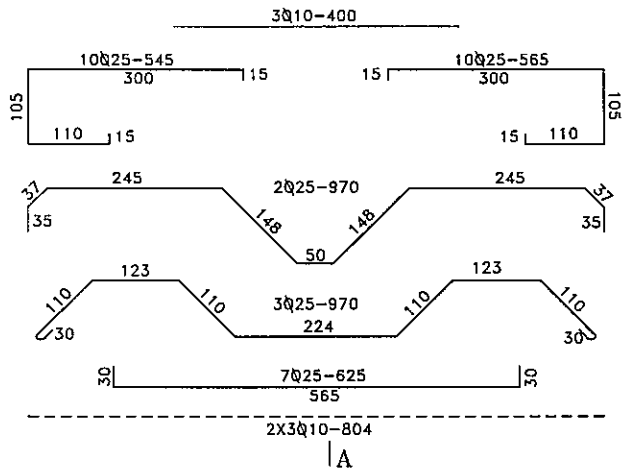
L=20m A=9m

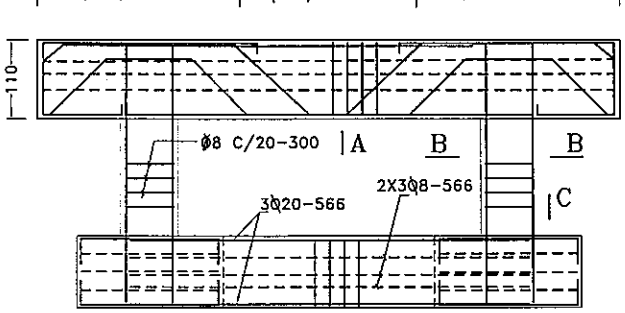
DISEÑO ESTRUCTURAL 4

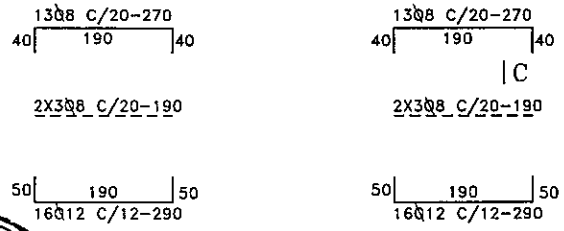
AVFC23X2008

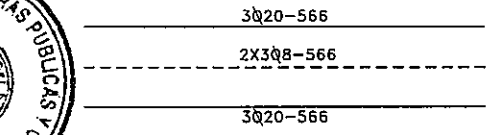
MINISTERIO DE OBRAS PÚBLICAS Y COMUNICACIONES
DIRECCIÓN DE CONSTRUCCIÓN
REPÚBLICA DOMINICANA

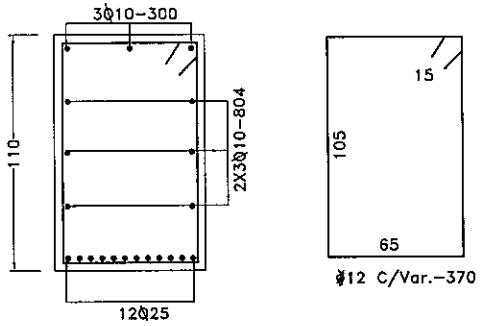
VIGA DE APOYO(70X110)-PILAR-VR(50X100)-CABEZAL



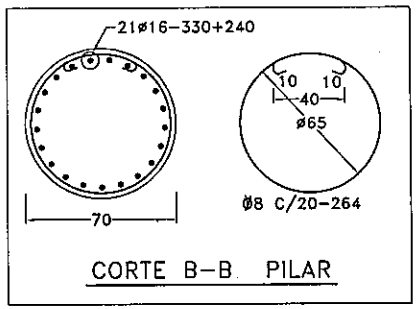




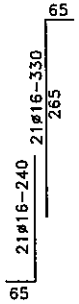




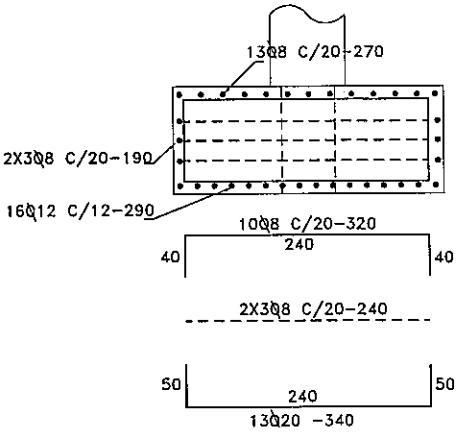
CORTE A-A VA2(70X110)



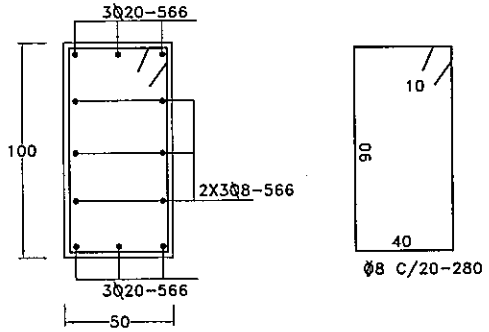
CORTE B-B PILAR



CORTE C-C CABEZAL



CORTE VR(50X100)



M O P C

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho.Ao.

Puente Aliviadero Rio Jejui

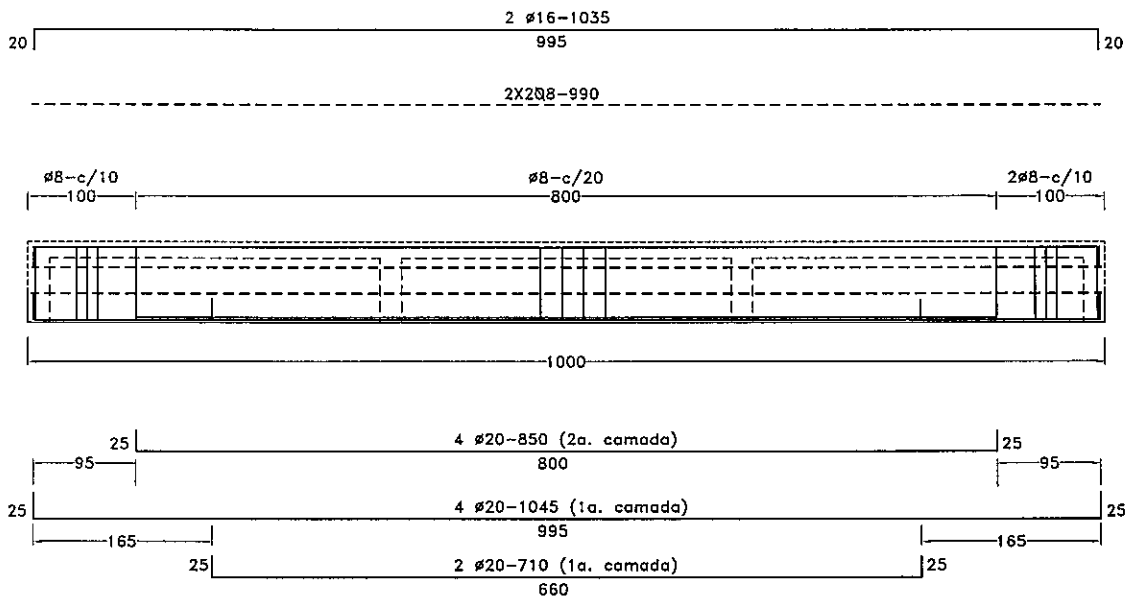
TRAMO: Col. San Vicente-Asent. Maracana

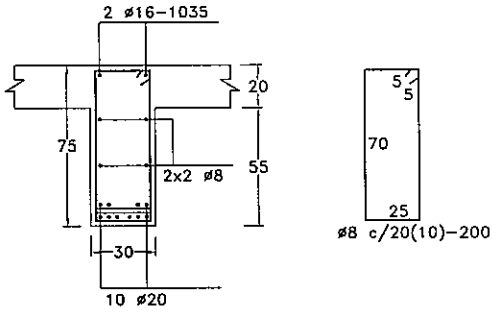
L=20m A=9m

DISEÑO ESTRUCTURAL 5

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
REPUBLICA DEL PARAGUAY

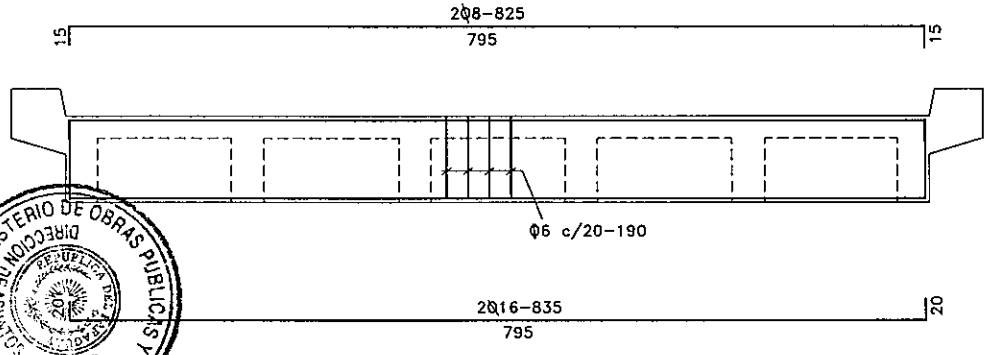
VIGA VL(30x75)

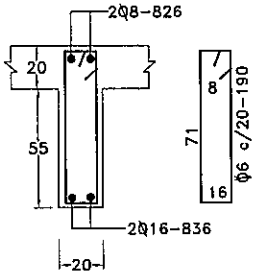




CORTE VIGA VL(30x75)

VIGA TRANSVERSAL VT(20X75)





CORTE VT(20X75)

AVFC23X2008

M O P C

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho.Ao.

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente-Asent. Maracana

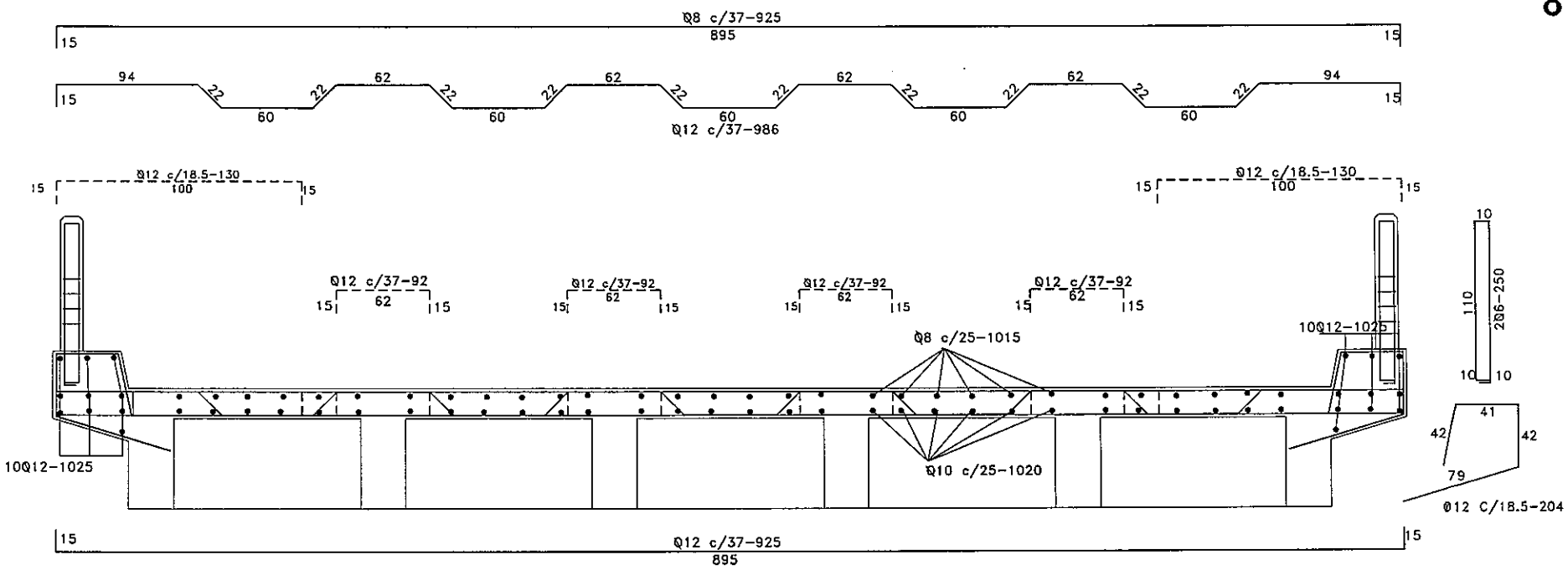
L=20m

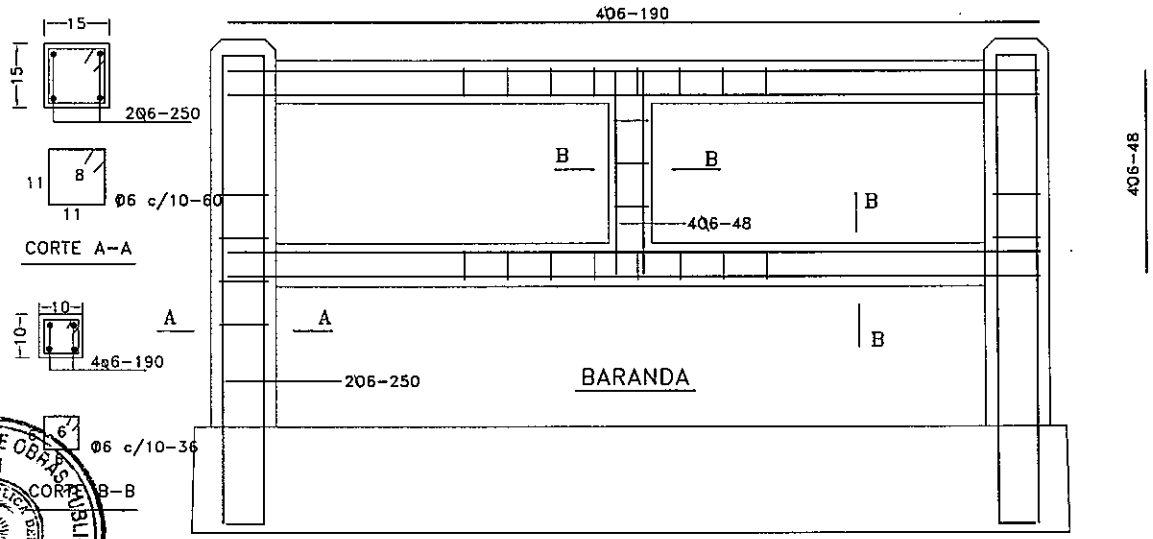
A=9m

DISEÑO ESTRUCTURAL

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
M.O.P.C. DIRECCION DE PROYECTOS

ARMADURA DE LOSA





M O P. G. C.

DIVISION DE PUENTES

PROYECTO PUENTE DE Ho Ao.

Puente Aliviadero Rio Jojui

TRAMO: Col. San Vicente-Asent.-Maracaná

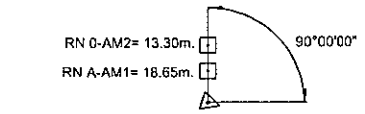
DISEÑO ESTRUCTURAL | 7

AYFC23X2008

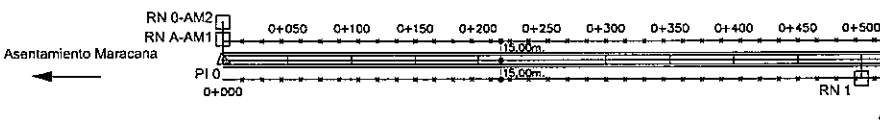
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
DIRECCION DE CAMINOS VECINALES

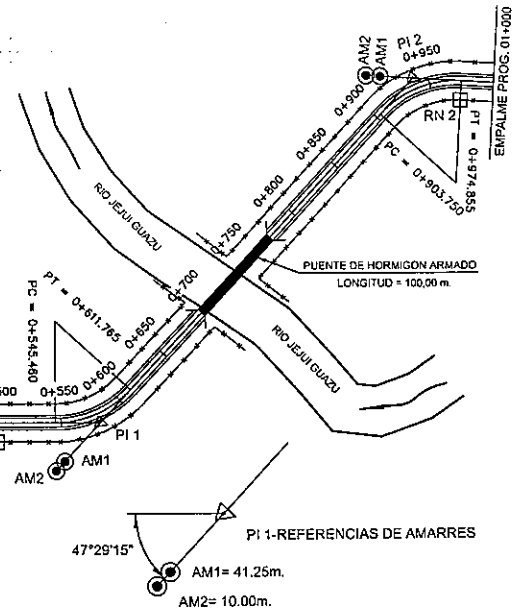
CUADRO DE ELEMENTOS DE CURVAS

PI	AC			SENTIDO	R	T	D	E	dpm			PC	PI	PT	P	sa
Nº	°	'	"		m.	m.	m.	m.	°	'	"				%	m.
0													00+000,00			
1	47	29	15,00	IZQUIERDA	80,0	35,19	66,31	7,40	0	21	29,16	00+545,46	00+580,65	00+611,77	5,00	0,60
2	50	55	30,00	DERECHA	80,0	38,09	71,10	8,61	0	21	29,16	00+903,76	00+941,85	00+974,86	5,00	0,60

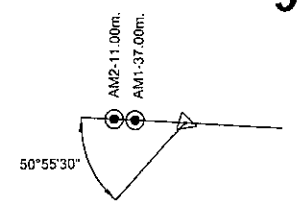


PI 0-REFERENCIAS DE AMARRES





PI 1-REFERENCIAS DE AMARRES



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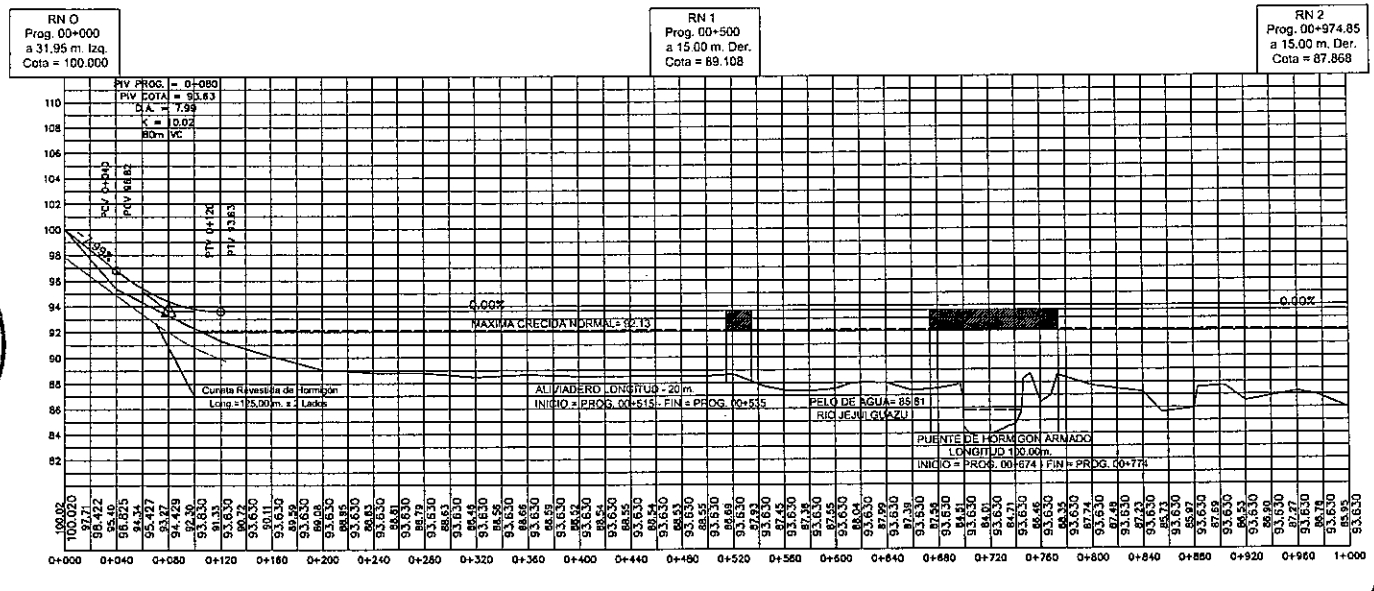
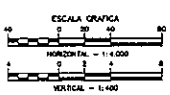




REFERENCIAS

COTA DE TERRENO — 97.18 / 97.729 — COTA DE RASANTE

0+080 —— PROGRESIVA

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

PLANIMETRIA
DE PROG. 00+000 A PROG. 01+000
ESCALAS: H:1:4000 V:1:400
LAMINA Nº DG - 01

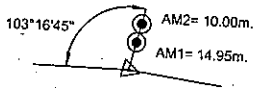
MOPC
MAPA DEL PARAGUAY
BOLIVIA
AREA DEL PROYECTO
ARGENTINA
BRASIL

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
REPUBLICA DEL PARAGUAY

M. O. P. y C.
DIRECCION DE CAMINOS VECINALES

CUADRO DE ELEMENTOS DE CURVAS

PI	AC			SENTIDO	R	T	D	E	dpm			PC	PI	PT	p	sa
Nº	°	'	"		m.	m.	m.	m.	°	'	"				%	m.
3	6	32	5,00	DERECHA	400,0	22,84	45,62	0,65	0	4	17,83	01+411,46	01+434,30	01+457,08	3,00	0,32



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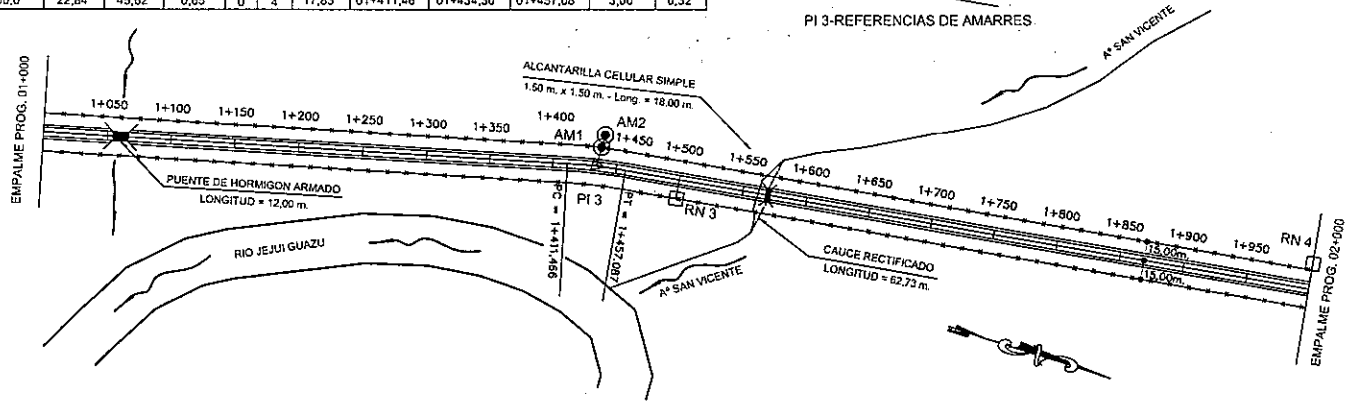
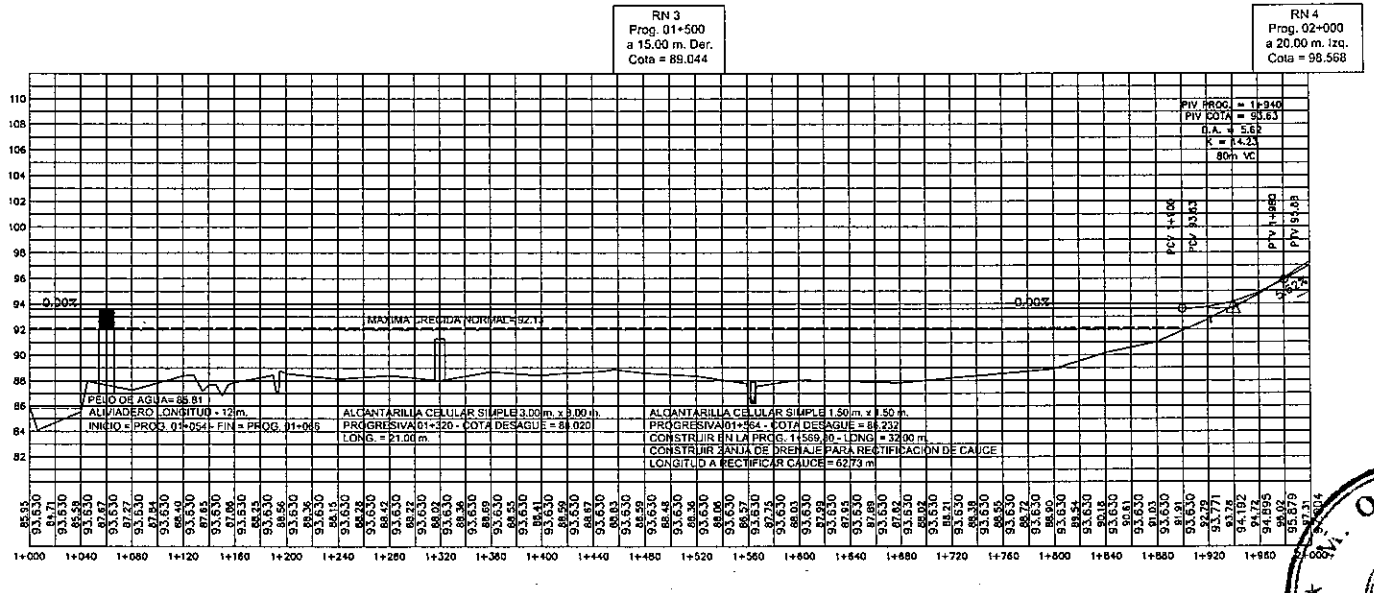




REFERENCIAS

COTA DE TERRENO — 97.18 / 97.729 — COTA DE RASANTE

0+080 —— PROGRESIVA

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

PLANIALTIMETRIA
DE PROG. 01+000 A PROG. 02+000
ESCALAS: H-1:4.000 V-1:400
LAMINA Nº 02

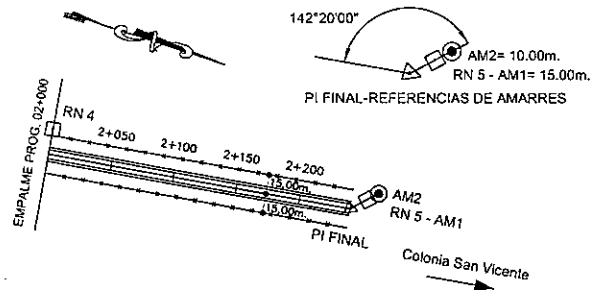
MOPC
MAPA DEL PARAGUAY
BOLIVIA
AREA DEL PROYECTO
ARGENTINA
BRASIL

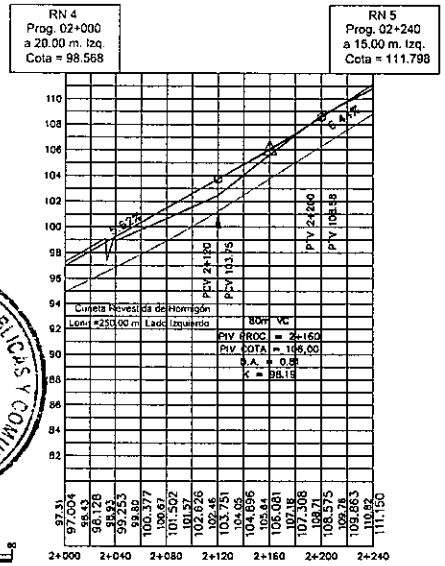
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
REPUBLICA DEL PARAGUAY

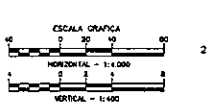
M. O. P. y C.
DIRECCION DE CAMINOS VECINALES

CUADRO DE ELEMENTOS DE CURVAS

PI	AC			SENTIDO	R	T	D	E	dpm			PC	PI	PT	P	sa
Nº	°	'	"		m.	m.	m.	m.	°	'	"				%	m.
P.F													02+240,00			







REFERENCIAS

COTA DE TERRENO 97.18 / 97.729 COTA DE RASANTE

0+080 — PROGRESIVA

REPUBLICA DEL PARAGUAY

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES

DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente–Asent. Maracana

PLANIALTIMETRIA

DE PROG. 02+000 A PROG. 02+240

ESCALAS H:1:1.000 V:1:400

LAMINA Nº

MOPC

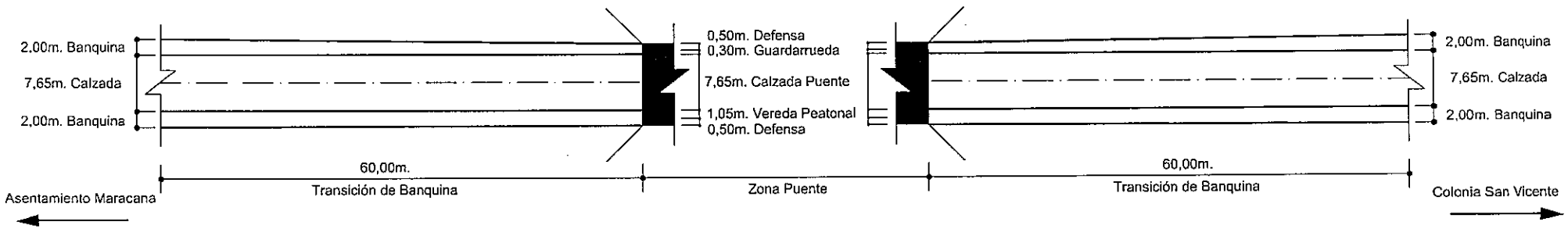
MAPA DE UBICACION

PROYECTO

BRASIL

TRANSICION DE BANQUINAS EN CABECERAS DE PUENTES

Escala: 1:500

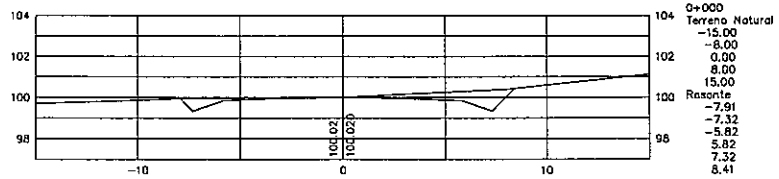


MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
REPUBLICA DEL PARAGUAY

M. O. P. y C.
REPUBLICA DEL PARAGUAY
DIRECCION DE CAMINOS VECINALES

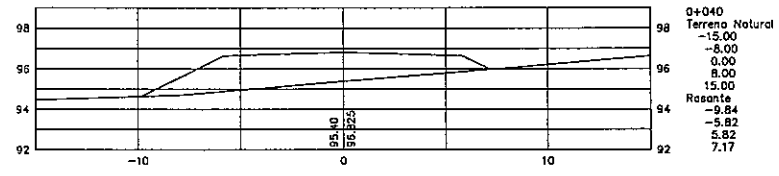
REFERENCIAS		REPUBLICA DEL PARAGUAY MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE CAMINOS VECINALES	Puente Aliviadero Rio Jejui TRAMO: Col. San Vicente–Asent. Maracana	PLANIMETRIA Transiciones en Puentes ESCALA: Indicada DG – 04

0+000



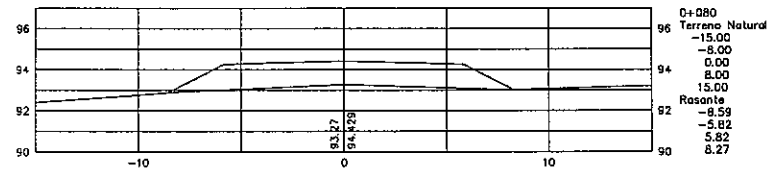
0+000	
Terreno Natural	
-15.00	
-8.00	
0.00	
8.00	
15.00	
Rasante	
-7.91	
-7.32	
-5.82	
5.82	
7.32	
8.41	

0+040



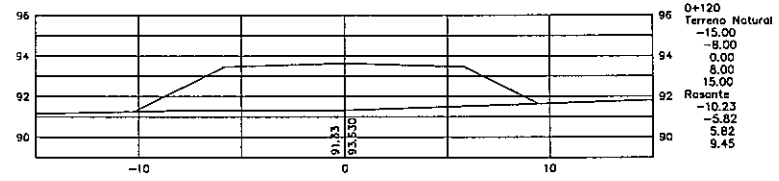
0+040	
Terreno Natural	
-15.00	
-8.00	
0.00	
8.00	
15.00	
Rasante	
-9.84	
-5.82	
5.82	
7.17	

0+080



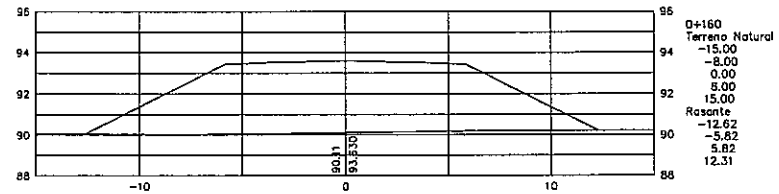
0+080	
Terreno Natural	
-15.00	
-8.00	
0.00	
8.00	
15.00	
Rasante	
-8.59	
-5.82	
5.82	
8.27	

0+120



0+120	
Terreno Natural	
-15.00	
-8.00	
0.00	
8.00	
15.00	
Rasante	
-10.23	
-5.82	
5.82	
9.45	

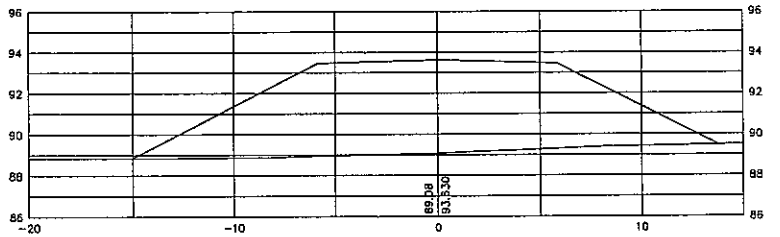
0+160



0+160	
Terreno Natural	
-15.00	
-8.00	
0.00	
8.00	
15.00	
Rasante	
-12.62	
-5.82	
5.82	
12.31	

0+200

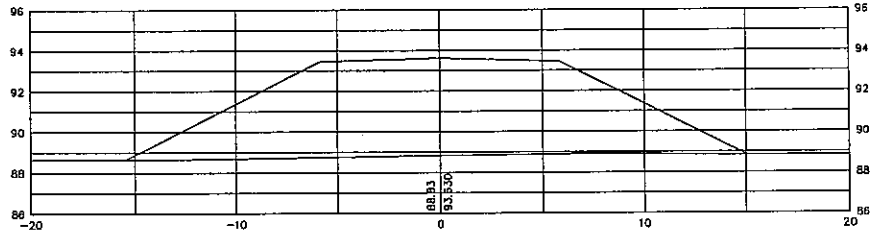
99.71	
99.94	
100.02	
100.40	
101.14	
99.94	
99.35	
99.85	
99.85	
99.35	
100.44	



0+200	
Terreno Natural	
-20.00	88.84
-15.00	88.84
-8.00	88.88
0.00	89.08
8.00	89.38
15.00	89.51
Rasante	
-15.07	88.84
-5.82	93.46
5.82	93.46
13.77	89.49

0+240

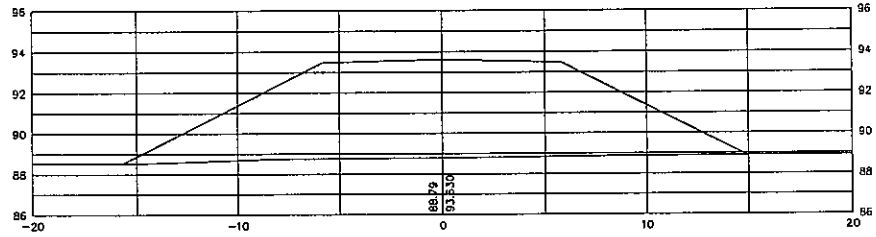
94.48	
94.71	
95.40	
96.05	
96.65	
94.65	
96.66	
96.66	
95.98	



0+240	
Terreno Natural	
-20.00	88.63
-15.00	88.63
-8.00	88.71
0.00	88.83
8.00	88.91
15.00	88.84
20.00	88.84
Rasante	
-15.49	88.63
-5.82	93.46
5.82	93.46
15.07	88.84

0+280

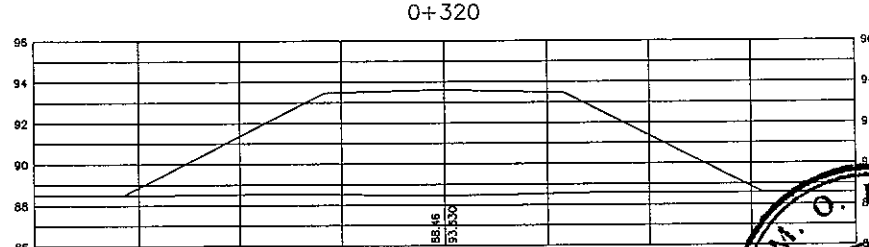
92.88	
94.26	
94.26	
93.04	
91.26	
93.46	
93.46	
91.65	



0+280	
Terreno Natural	
-20.00	88.52
-15.00	88.52
-8.00	88.74
0.00	88.79
8.00	88.87
15.00	88.91
20.00	88.91
Rasante	
-15.71	88.52
-5.82	93.46
5.82	93.46
14.93	88.91

0+320

91.15	
91.31	
91.33	
91.60	
91.84	
90.08	
90.03	
90.11	
90.23	
90.21	
90.06	
93.46	
93.46	
90.22	



0+320	
Terreno Natural	
-20.00	88.50
-15.00	88.50
-8.00	88.56
0.00	88.46
8.00	88.60
15.00	88.58
20.00	88.58
Rasante	
-15.75	88.50
-5.82	93.46
5.82	93.46
15.59	88.58

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

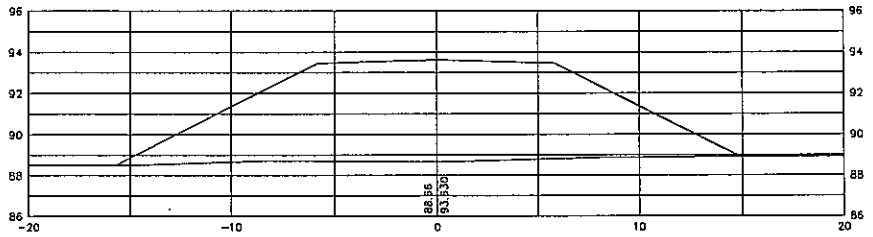
SECCIONES TRANSVERSALES
PROG. 0+000 A PROG. 0+320

ESCALAS:
H:1:250
V:1:250

LAMINA N° :
ST - 01

M. O. P. C.
DIRECCION DE CAMINOS VECINALES
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS

0+360



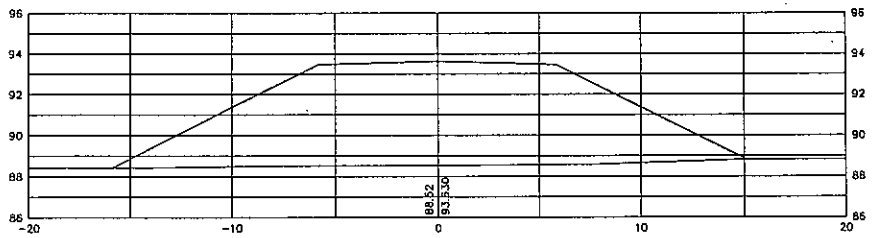
0+360
Terreno Natural

-20.00	88.51
-15.00	88.51
-8.00	88.72
0.00	88.66
8.00	88.87
15.00	88.92
20.00	88.92

Rasante

-15.73	88.51
-5.82	93.46
5.82	93.46
14.91	88.92

0+400



0+400
Terreno Natural

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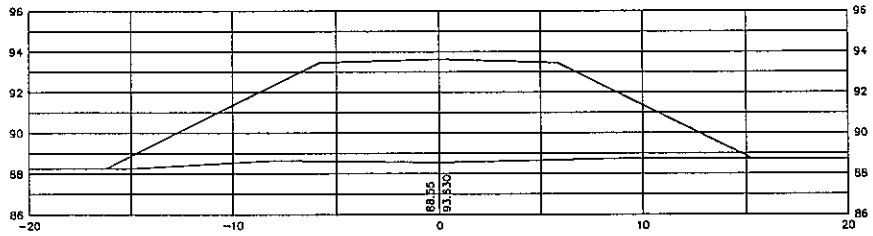
-15.00	88.42
-8.00	88.51
0.00	88.52
8.00	88.58
15.00	88.82
20.00	88.82

Rasante

-15.91	88.42
-5.82	93.46
5.82	93.46
15.11	88.82

0+440



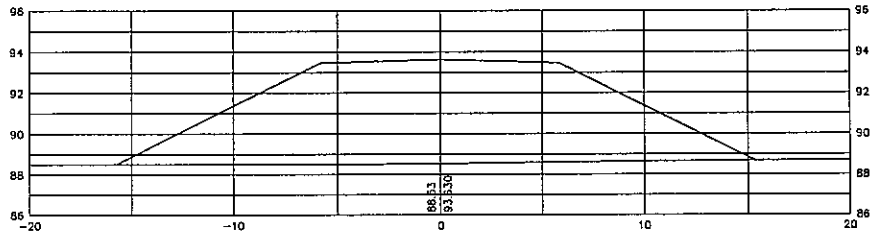
0+440
Terreno Natural

-20.00	88.25
-15.00	88.25
-8.00	88.65
0.00	88.55
8.00	88.73
15.00	88.72
20.00	88.72

Rasante

-16.25	88.25
-5.82	93.46
5.82	93.46
15.31	88.72

0+480



0+480
Terreno Natural

-20.00	88.49
-15.00	88.49
-8.00	88.49
0.00	88.53
8.00	88.64
15.00	88.69
20.00	88.69

Rasante

-15.77	88.49
-5.82	93.46
5.82	93.46
15.37	88.69

REFERENCIAS

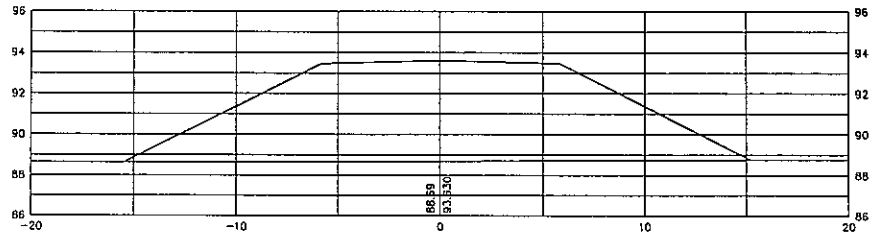
REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

M.O.P. y C. DIRECCION DE CAMINOS VECINALES

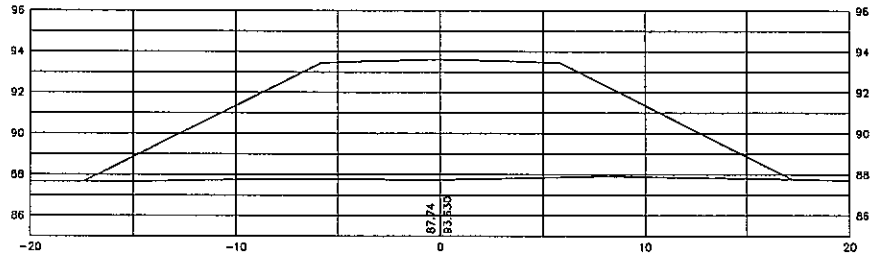
MOPC
DE PROG. 00+360 A PROG. 00+480
ESCALAS: 1:250
LAMINA Nº 12
AREA DEL PROYECTO

0+520



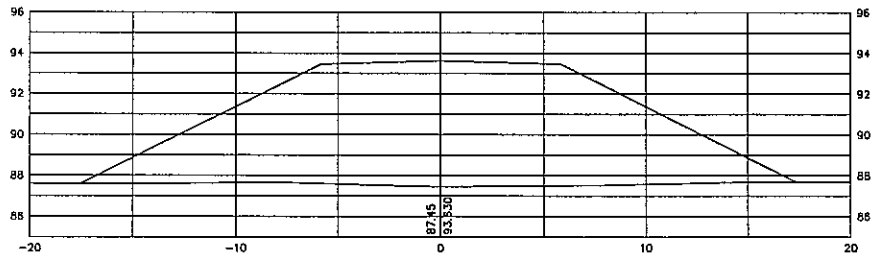
0+520
Terreno Natural
-20.00 88.63
-15.00 88.63
-8.00 88.66
0.00 88.69
8.00 88.75
15.00 88.76
20.00 88.76
Rasante
-15.49 88.63
-5.82 93.46
5.82 93.46
15.23 88.78

0+545



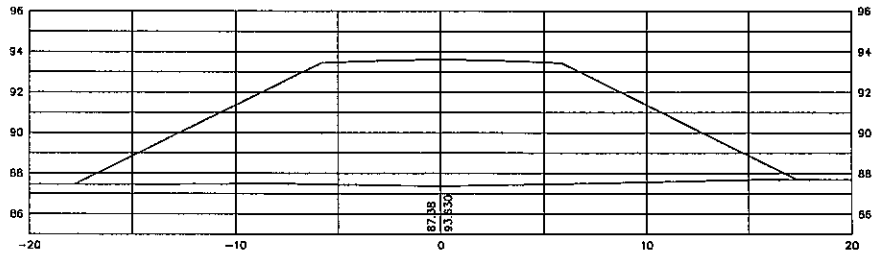
0+545
Terreno Natural
-20.00 87.66
-15.00 87.66
-8.00 87.79
0.00 87.74
8.00 87.91
15.00 87.81
20.00 87.71
Rasante
-17.43 87.66
-5.82 93.46
5.82 93.46
17.21 87.77

0+560



0+560
Terreno Natural
-20.00 87.59
-15.00 87.59
-8.00 87.68
0.00 87.45
8.00 87.53
15.00 87.70
20.00 87.70
Rasante
-17.57 87.59
-5.82 93.46
5.82 93.46
17.35 87.70

0+580



0+580
Terreno Natural
-20.00 87.46
-15.00 87.46
-8.00 87.50
0.00 87.38
8.00 87.53
15.00 87.69
20.00 87.69
Rasante
-17.83 87.45
-5.82 93.46
5.82 93.46
17.37 87.69

M. O. P. y C. DIRECCION DE CAMINOS VECINALES

REFERENCIAS

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE ASUNTOS JURIDICOS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

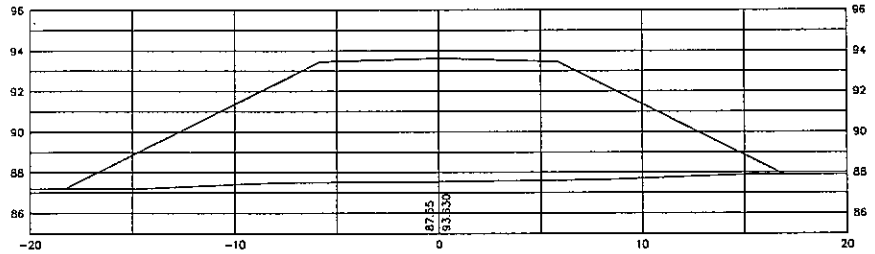
SECCIONES TRANSVERSALES
DE PROG. 00+520 A PROG. 00+600

ESCALAS:
H:1:250
V:1:250

LAMINA N° :
ST - 03

AREA DEL PROYECTO
PARAGUAY
ARGENTINA
BRASIL

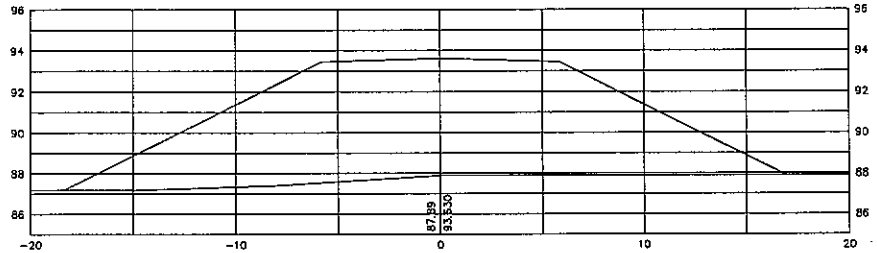
0+600



0+600
Terreno Natural

-20.00	87.20
-15.00	87.20
-8.00	87.50
0.00	87.55
8.00	87.64
15.00	87.90
20.00	87.90
Rasante	
-19.35	87.20
-5.82	93.46
5.82	93.46
16.95	87.90

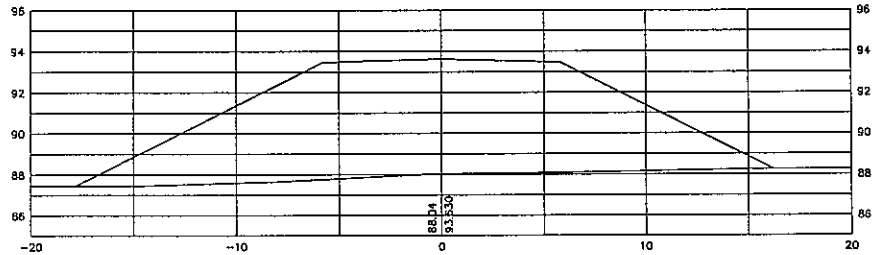
0+610



0+610
Terreno Natural

-20.00	87.17
-15.00	87.17
-8.00	87.41
0.00	87.89
8.00	87.90
15.00	87.89
20.00	87.89
Rasante	
-18.41	87.17
-5.82	93.46
5.82	93.46
16.97	87.89

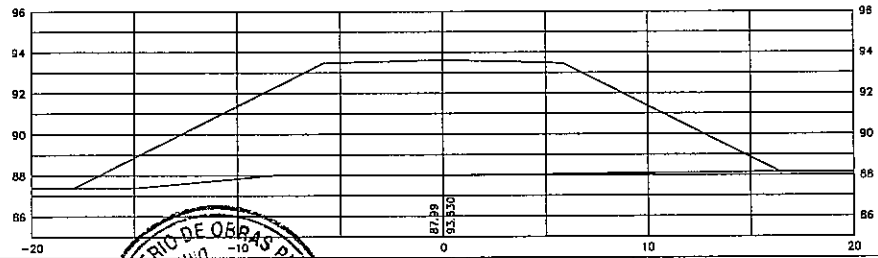
0+620



0+620
Terreno Natural

-20.00	87.45
-15.00	87.45
-8.00	87.65
0.00	88.04
8.00	88.12
15.00	88.25
20.00	88.25
Rasante	
-17.85	87.45
-5.82	93.46
5.82	93.46
16.25	88.25

0+640



0+640
Terreno Natural

-20.00	87.39
-15.00	87.39
-8.00	88.03
0.00	87.99
8.00	88.09
15.00	88.14
20.00	88.14
Rasante	
-17.97	87.39
-5.82	93.46
5.82	93.46
16.47	88.14

M. O. P. y C. REPUBLICA DEL PARAGUAY DIRECCION DE CAMINOS VECINALES

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE ASUNTOS JURIDICOS

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

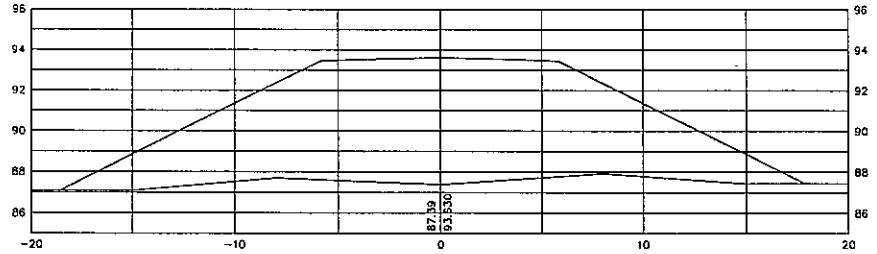
SECCIONES TRANSVERSALES
DE PROG. 00+600 A PROG. 00+720

ESCALAS: H:1:250 V:1:250

LAMINA N° : ST - 04

MOPC
AREA DEL PROYECTO
PARAGUAY
ARGENTINA
BRASIL

0+674



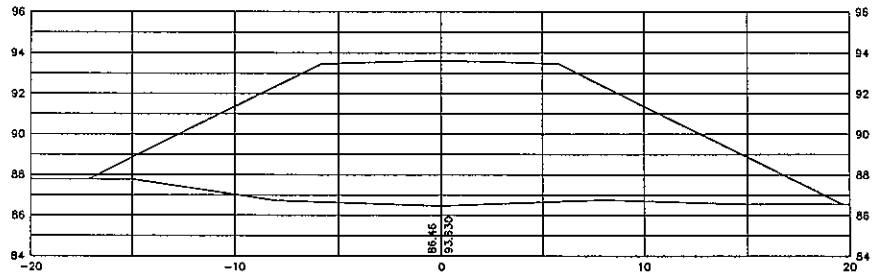
0+674
Terreno Natural

-20.00	87.09
-15.00	87.09
-8.00	87.70
0.00	87.39
8.00	87.92
15.00	87.44
20.00	87.44

Rasante

-18.57	87.09
-5.82	93.46
5.82	93.46
17.87	87.44

0+774



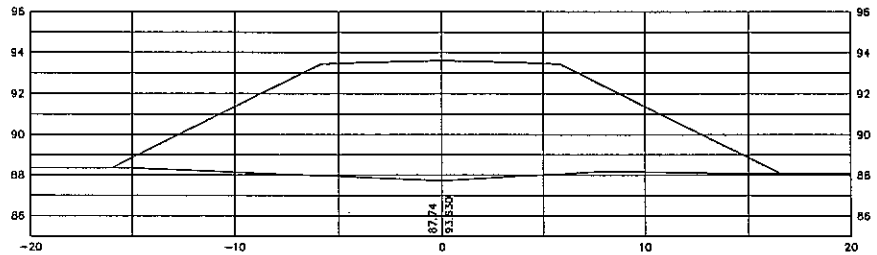
0+774
Terreno Natural

-20.00	87.78
-15.00	87.78
-8.00	86.72
0.00	86.46
8.00	86.76
15.00	86.54
20.00	86.54

Rasante

-17.19	87.78
-5.82	93.46
5.82	93.46
19.67	86.54

0+800



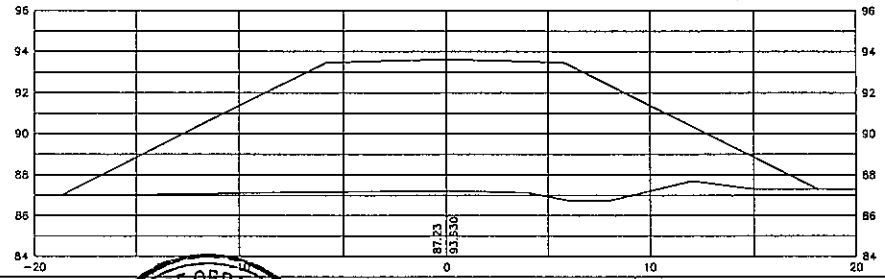
0+800
Terreno Natural

-20.00	88.36
-15.00	88.36
-8.00	88.07
0.00	87.74
8.00	88.19
15.00	88.08
20.00	88.08

Rasante

-16.03	88.36
-5.82	93.46
5.82	93.46
16.59	88.08

0+840



0+840
Terreno Natural

-20.00	87.05
-15.00	87.05
-8.00	87.15
0.00	87.23
4.00	87.13
6.00	86.75
8.00	86.75
12.00	87.70
15.00	87.32
20.00	87.32

Rasante

-18.85	87.05
-5.82	93.46
5.82	93.46
18.11	87.32

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

SECCIONES TRANSVERSALES
DE PROGRESIVA 0+674 A PROG. 0+840

ESCALAS:
H:1:250
V:1:250

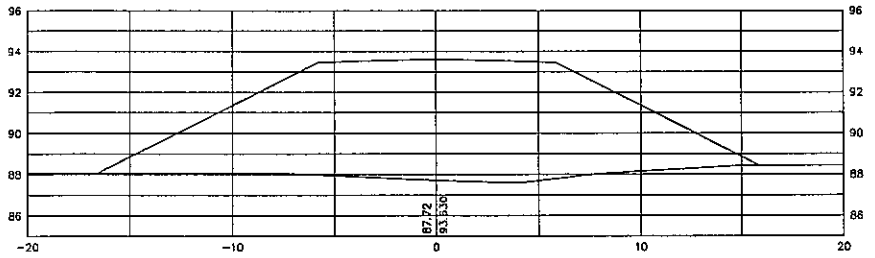
LAMINA N° :
ST - 05

AREA DEL PROYECTO

M. O. P. y C.
DIRECCION DE CAMINOS VECINALES

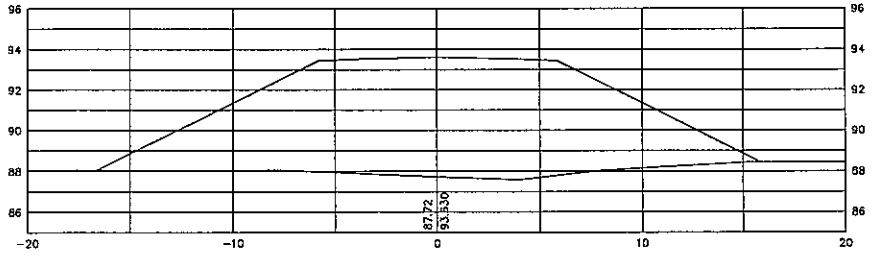
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

0+904



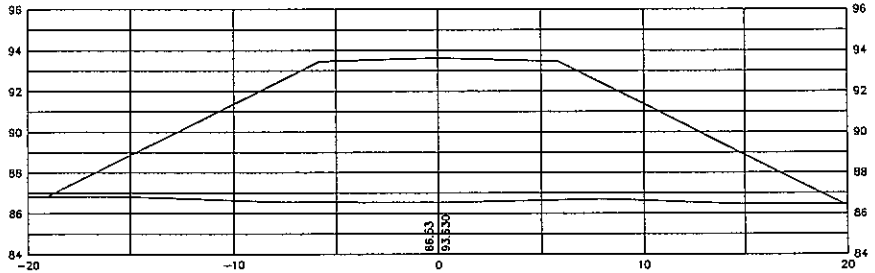
0+904	
Terreno Natural	
-20.00	88.06
-15.00	88.05
-8.00	88.08
0.00	87.72
4.00	87.59
8.00	88.05
15.00	88.44
20.00	88.44
Rasante	
-16.63	88.06
-5.82	93.46
5.82	93.46
15.87	88.44

0+905



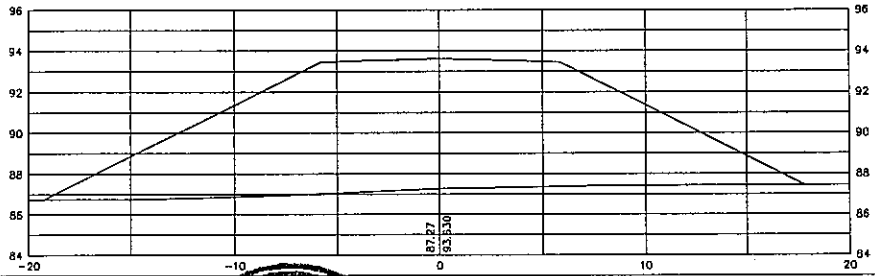
0+905	
Terreno Natural	
-20.00	88.06
-15.00	88.05
-8.00	88.08
0.00	87.72
4.00	87.59
8.00	88.05
15.00	88.44
20.00	88.44
Rasante	
-16.63	88.06
-5.82	93.46
5.82	93.46
15.87	88.44

0+920



0+920	
Terreno Natural	
-20.00	86.82
-15.00	86.82
-8.00	86.56
0.00	86.53
8.00	86.70
15.00	86.46
20.00	86.46
Rasante	
-19.11	86.82
-5.82	93.46
5.82	93.46
19.83	86.46

0+960



0+960	
Terreno Natural	
-20.00	86.74
-15.00	86.74
-8.00	85.93
0.00	87.27
8.00	87.42
15.00	87.45
20.00	87.45
Rasante	
-19.27	86.74
-5.82	93.46
5.82	93.46
17.85	87.45

M. O. P. y C. DIRECCION DE CAMINOS VECINALES

REFERENCIAS

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE CAMINOS VECINALES

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

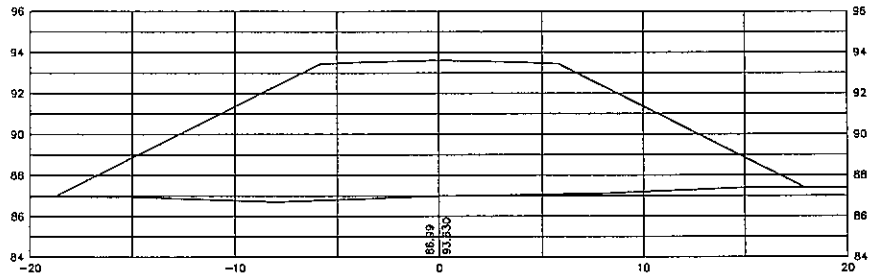
DE PROG. 00+904 A PROG. 00+960

ESCALAS: H:1:250 V:1:250

LAMINA N° : ST - 06

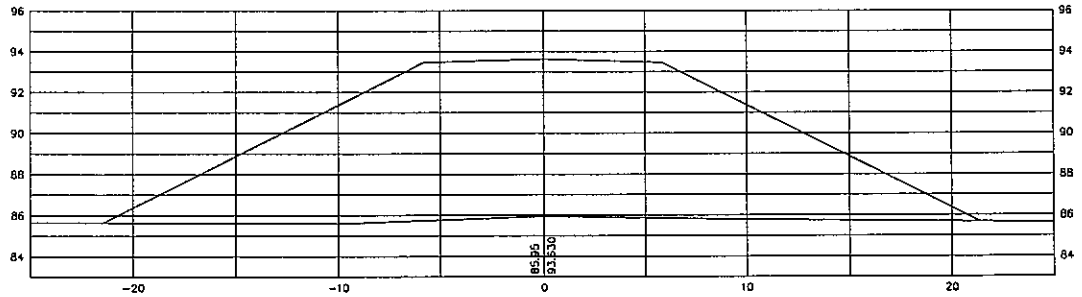
MOPC
MAPA DEL PARAGUAY
AREA DEL PROYECTO
BOLIVIA
ARGENTINA
BRASIL

0+975



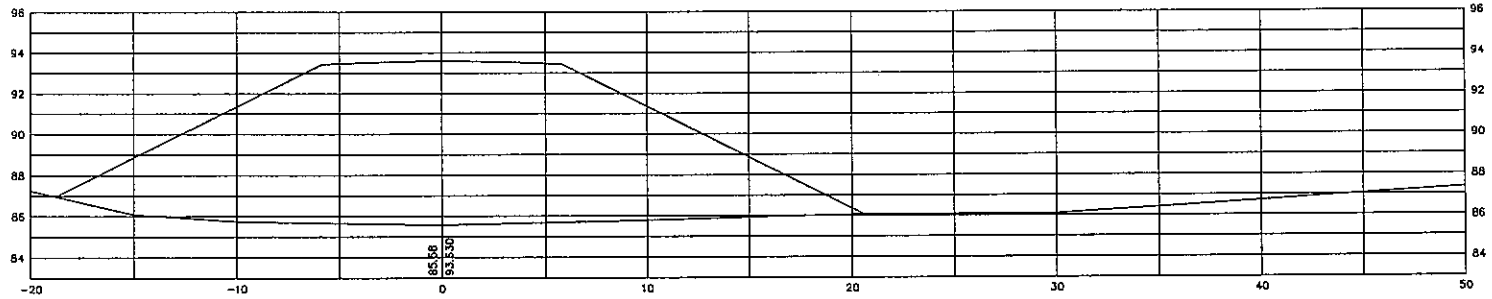
0+975	
Terreno Natural	
−20.00	86.94
−15.00	86.94
−8.00	86.71
0.00	86.99
8.00	87.12
15.00	87.41
20.00	87.41
Rasante	
−18.87	86.94
−5.82	93.46
5.82	93.46
17.93	87.41

1+000



1+000	
Terreno Natural	
−25.00	85.65
−10.00	85.58
0.00	85.95
10.00	85.80
25.00	85.63
Rasante	
−21.47	85.64
−5.82	93.46
5.82	93.46
21.40	85.67

1+054



1+054	
Terreno Natural	
−20.00	87.25
−15.00	86.10
−10.00	85.78
0.00	85.58
10.00	85.80
20.00	86.07
30.00	86.10
50.00	87.35
Rasante	
−18.80	86.97
−5.82	93.46
5.82	93.46
20.80	86.07

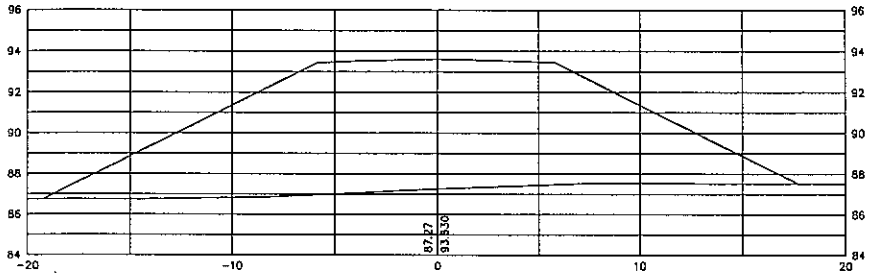
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES — DIRECCION — REPUBLICA DEL PARAGUAY

M. O. P. y C. — DIRECCIÓN DE CAMINOS VECINALES

REFERENCIAS	REPUBLICA DEL PARAGUAY MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE CAMINOS VECINALES	Puente Aliviadero Rio Jejui TRAMO: Col. San Vicente−Asent. Maracana	SECCIONES TRANSVERSALES DE PROG. 00+975 A PROG. 01+054 ESCALAS: H:1:250 V:1:250 LAMINA N°: ST − 07

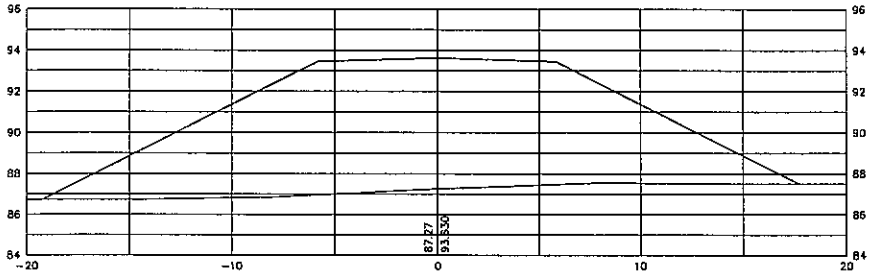
MOPC — MAPA DEL PARAGUAY — AREA DEL PROYECTO — ARGENTINA — BRASIL

1+066



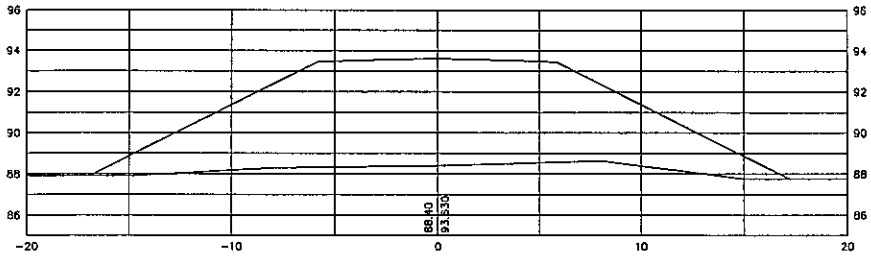
1+066	
Terreno Natural	
-20.00	86.74
-15.00	86.74
-8.00	86.87
0.00	87.27
8.00	87.56
15.00	87.51
20.00	87.51
Rasante	
-19.27	86.74
-5.82	93.46
5.82	93.46
17.73	87.51

1+081



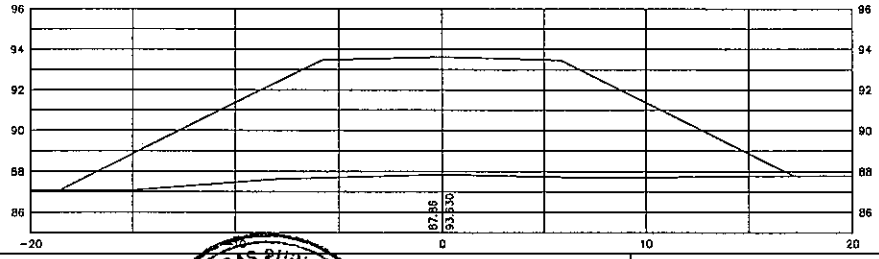
1+081	
Terreno Natural	
-20.00	86.74
-15.00	86.74
-8.00	86.87
0.00	87.27
8.00	87.56
15.00	87.51
20.00	87.51
Rasante	
-19.27	86.74
-5.82	93.46
5.82	93.46
17.73	87.51

1+120



1+120	
Terreno Natural	
-20.00	87.90
-15.00	87.90
-8.00	88.29
0.00	88.40
8.00	88.65
15.00	87.77
20.00	87.77
Rasante	
-16.95	87.90
-5.82	93.46
5.82	93.46
17.21	87.77

1+160



1+160	
Terreno Natural	
-20.00	87.08
-15.00	87.08
-8.00	87.63
0.00	87.86
8.00	87.69
15.00	87.78
20.00	87.78
Rasante	
-18.59	87.08
-5.82	93.46
5.82	93.46
17.19	87.78

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

SECCIONES TRANSVERSALES
PROG. 01+066 A PROG. 01+180

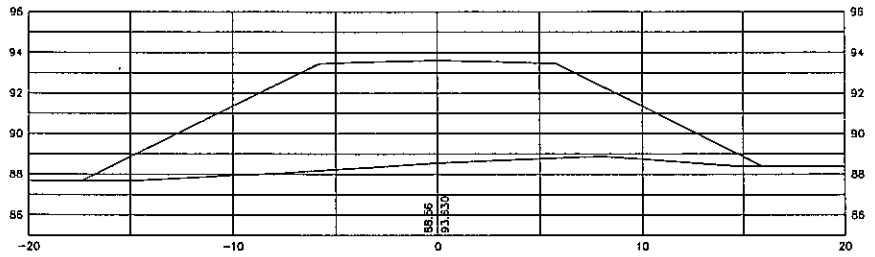
ESCALAS:
H:1:250
V:1:250

LAMINA N° :
ST - 08

M.O.P. y C. DIRECCION DE CAMINOS VECINALES

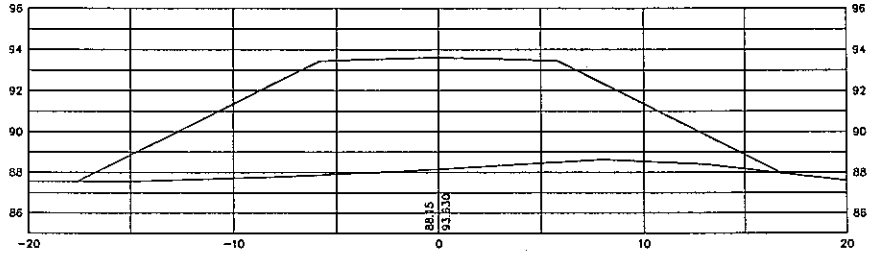
MAPA DEL PARAGUAY
AREA DEL PROYECTO
BOLIVIA
ARGENTINA
BRASIL

1+200



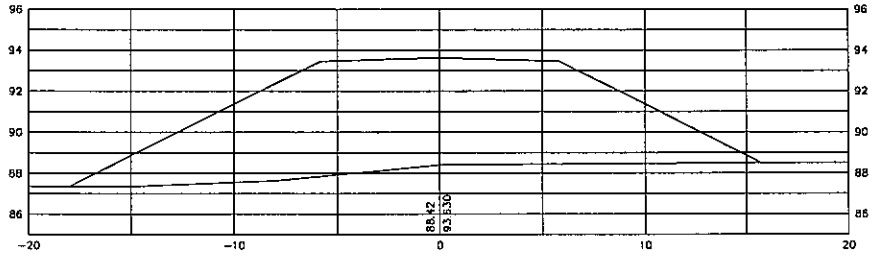
1+200	
Terreno Natural	
-20.00	87.68
-15.00	87.88
-8.00	88.04
0.00	88.56
8.00	88.89
15.00	88.39
20.00	88.39
Rasante	
-17.39	87.68
-5.82	93.46
5.82	93.46
15.97	88.39

1+240



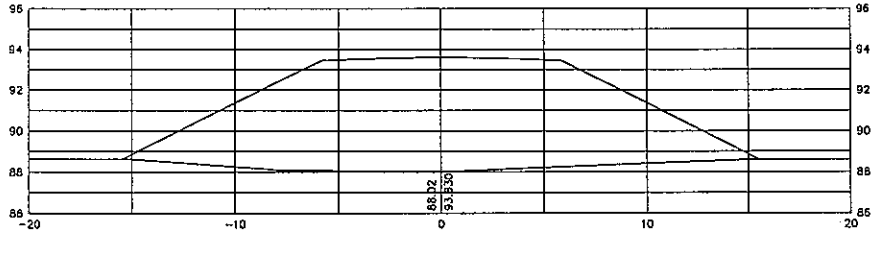
1+240	
Terreno Natural	
-20.00	87.56
-15.00	87.56
-8.00	87.77
0.00	88.15
8.00	88.64
13.00	88.40
20.00	87.60
Rasante	
-17.63	87.56
-5.82	93.46
5.82	93.46
16.82	87.96

1+280



1+280	
Terreno Natural	
-20.00	87.36
-15.00	87.36
-8.00	87.64
0.00	88.42
8.00	88.48
15.00	88.51
20.00	88.51
Rasante	
-18.03	87.36
-5.82	93.46
5.82	93.46
15.73	88.51

1+320



1+320	
Terreno Natural	
-20.00	88.63
-15.00	88.63
-8.00	88.11
0.00	88.02
8.00	88.35
15.00	88.61
20.00	88.61
Rasante	
-15.49	88.63
-5.82	93.46
5.82	93.46
15.53	88.61

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente–Asent. Maracana

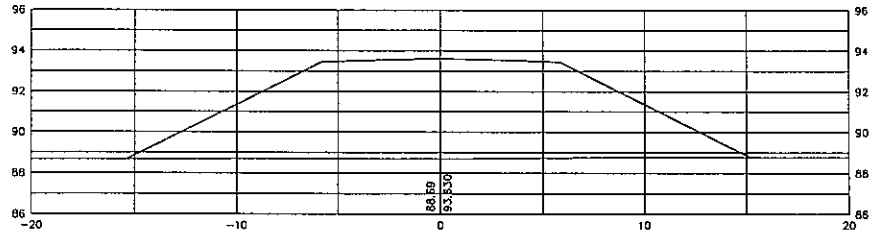
SECCIONES TRANSVERSALES

ESCALAS: H:1:250 V:1:250

LAMINA N° : ST – 09

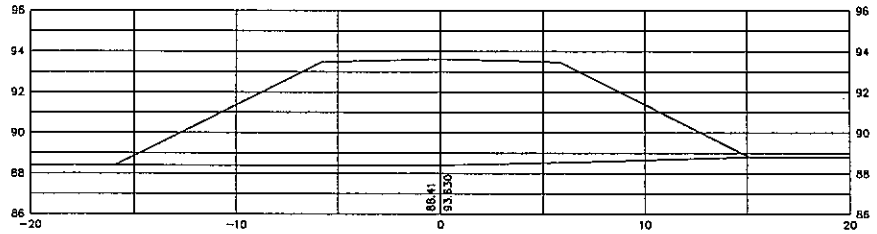
AREA DEL PROYECTO

1+360



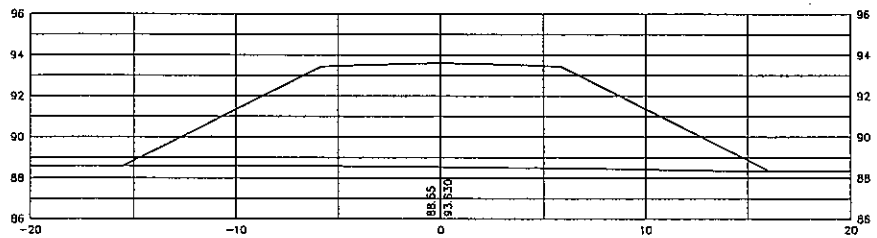
1+360	
Terreno Natural	
-20.00	88.67
-15.00	88.67
-8.00	88.72
0.00	88.69
8.00	88.77
15.00	88.77
20.00	88.77
Rasante	
-15.41	88.67
-5.82	93.46
5.82	93.46
15.21	88.77

1+400



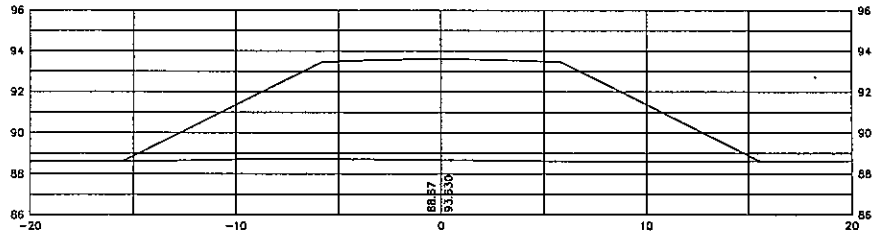
1+400	
Terreno Natural	
-20.00	88.41
-15.00	88.41
-8.00	88.39
0.00	88.41
8.00	88.59
15.00	88.81
20.00	88.81
Rasante	
-15.93	88.41
-5.82	93.46
5.82	93.46
15.13	88.81

1+411



1+411	
Terreno Natural	
-20.00	88.60
-15.00	88.60
-8.00	88.62
0.00	88.55
8.00	88.47
15.00	88.34
20.00	88.34
Rasante	
-15.65	88.60
-5.82	93.46
5.82	93.46
16.07	88.34

1+440



1+440	
Terreno Natural	
-20.00	88.59
-15.00	88.59
-8.00	88.75
0.00	88.67
8.00	88.59
15.00	88.60
20.00	88.60
Rasante	
-15.57	88.59
-5.82	93.46
5.82	93.46
15.55	88.60

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

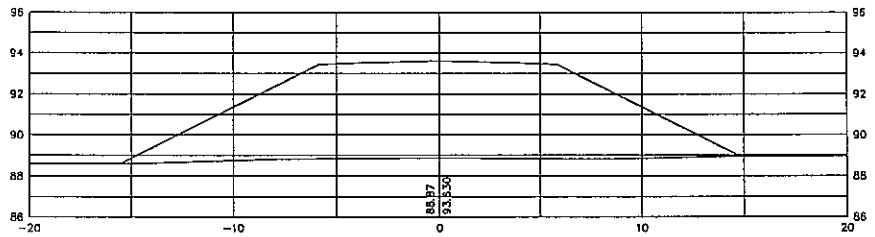
DE PROG. 01+360 A PROG. 01+440

ESCALAS: H:1:250 V:1:250

LAMINA N° : ST - 10

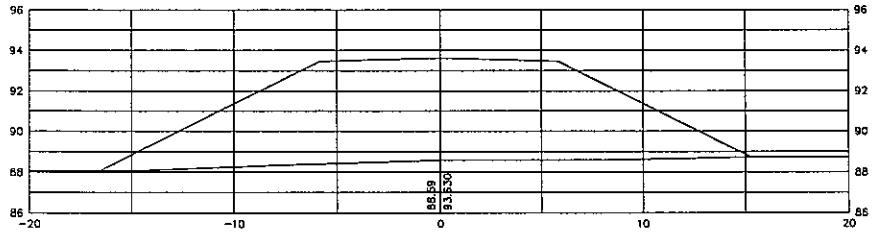
AREA DEL PROYECTO

1+457



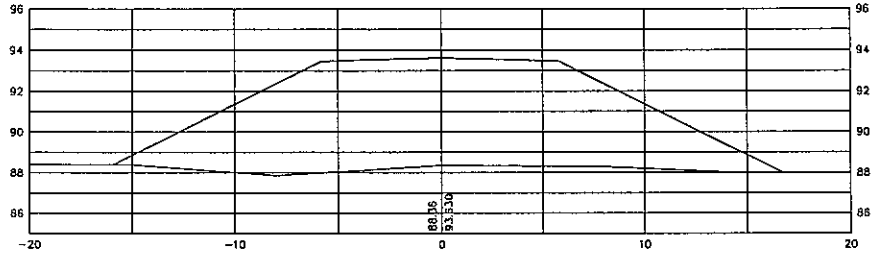
1+457	
Terreno Natural	
−20.00	88.59
−15.00	88.59
−8.00	88.82
0.00	88.87
8.00	88.81
15.00	88.96
20.00	88.96
Rasante	
−15.57	88.59
−5.82	93.46
5.82	93.46
14.83	88.96

1+480



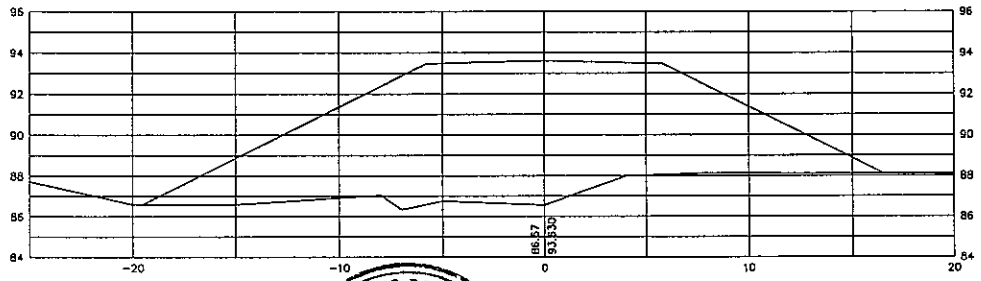
1+480	
Terreno Natural	
−20.00	88.07
−15.00	88.07
−8.00	88.34
0.00	88.59
8.00	88.59
15.00	88.73
20.00	88.73
Rasante	
−16.61	88.07
−5.82	93.46
5.82	93.46
15.29	88.73

1+520



1+520	
Terreno Natural	
−20.00	88.39
−15.00	88.39
−8.00	87.86
0.00	88.36
8.00	88.29
15.00	87.99
20.00	87.99
Rasante	
−15.97	88.39
−5.82	93.46
5.82	93.46
16.77	87.99

1+560



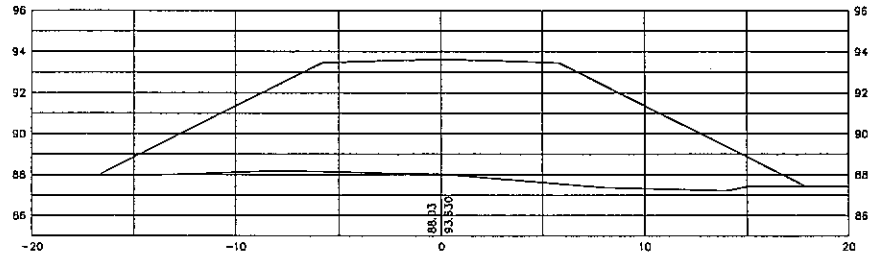
1+560	
Terreno Natural	
−25.00	87.73
−20.00	86.60
−15.00	86.60
−8.00	87.05
−7.00	86.34
−5.00	86.77
0.00	86.57
4.00	87.99
8.00	88.14
15.00	88.10
20.00	88.10
Rasante	
−19.55	86.60
−5.82	93.46
5.82	93.46
16.55	88.10

M.O.P.y C. DIRECCION DE CAMINOS VECINALES

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE ASUNTOS JURIDICOS

REFERENCIAS	REPUBLICA DEL PARAGUAY MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE CAMINOS VECINALES	Puente Aliviadero Rio Jejui TRAMO: Col. San Vicente–Asent. Maracana	SECCION TRANSVERSAL DE CAMINOS DE PROG. 01+457 A PROG. 01+560 ESCALAS: H:1:250 V:1:250 LAMINA N° : ST – 11 AREA DEL PROYECTO

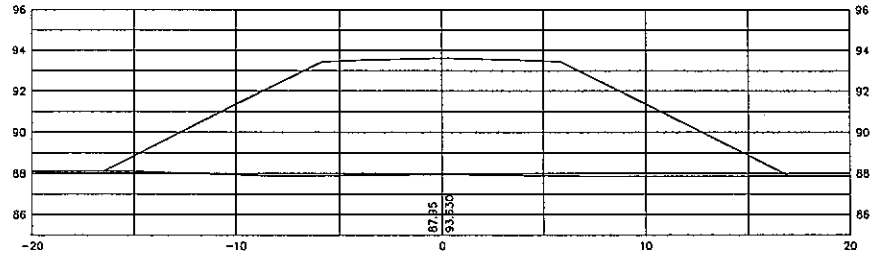
1+600



1+600
Terreno Natural

-20.00	87.95
-15.00	87.95
-8.00	88.21
0.00	88.03
8.00	87.38
14.00	87.23
15.00	87.43
20.00	87.43
Rasante	
-16.85	87.95
-5.82	93.46
5.82	93.46
17.89	87.43

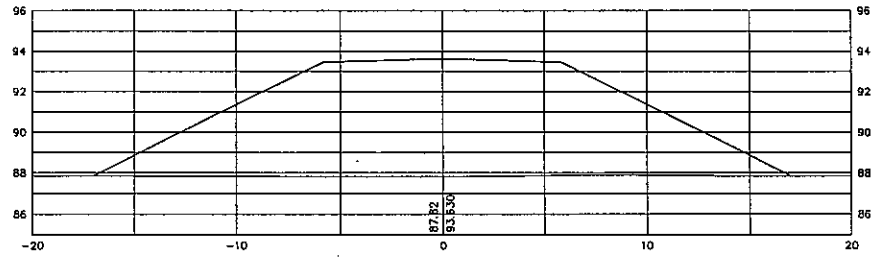
1+640



1+640
Terreno Natural

-20.00	88.11
-15.00	88.11
-8.00	87.86
0.00	87.95
8.00	87.85
15.00	87.86
20.00	87.86
Rasante	
-16.53	88.11
-5.82	93.46
5.82	93.46
17.03	87.86

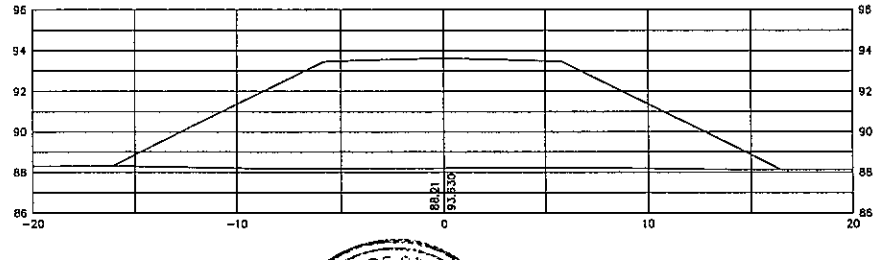
1+680



1+680
Terreno Natural

-20.00	87.85
-15.00	87.85
-8.00	87.83
0.00	87.82
8.00	87.91
15.00	87.85
20.00	87.85
Rasante	
-17.05	87.85
-5.82	93.46
5.82	93.46
17.05	87.85

1+720



1+720
Terreno Natural

-20.00	88.30
-15.00	88.30
-8.00	88.18
0.00	88.21
8.00	88.22
15.00	88.13
20.00	88.13
Rasante	
-16.15	88.30
-5.82	93.46
5.82	93.46
16.49	88.13

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

SECCIONES TRANSVERSALES
DE PROG. 01+600 A PROG. 01+720

ESCALA
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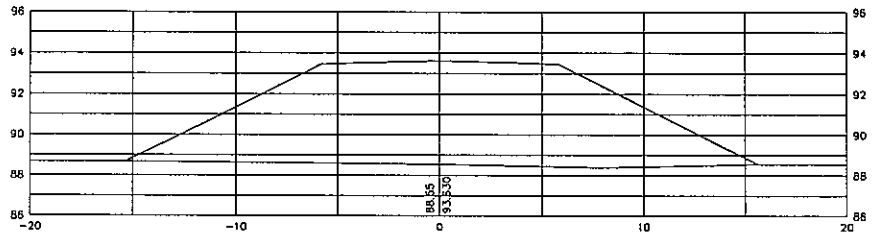
LAMINA N°:
ST - 12

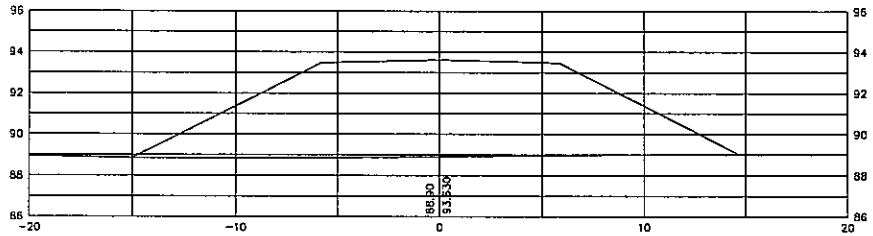
AREA DEL PROYECTO

1+760



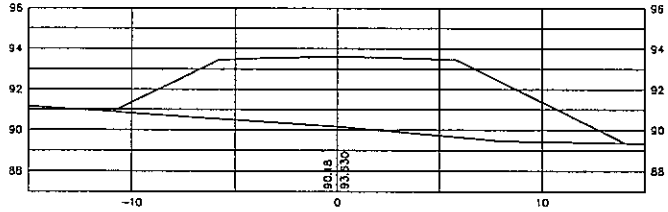
1+760	
Terreno Natural	
-20.00	88.68
-15.00	88.68
-8.00	88.63
0.00	88.55
8.00	88.39
15.00	88.55
20.00	88.55
Rasante	
-15.39	88.68
-5.82	93.46
5.82	93.46
15.65	88.55

1+800



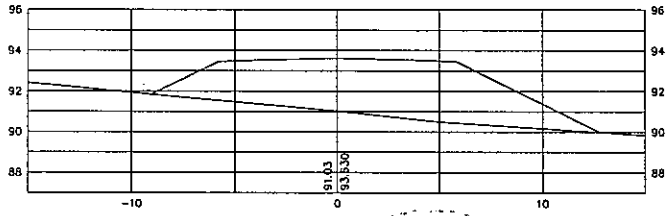
1+800	
Terreno Natural	
-20.00	88.96
-15.00	88.86
-8.00	88.85
0.00	88.90
8.00	89.00
15.00	89.04
20.00	89.04
Rasante	
-15.02	88.86
-5.82	93.46
5.82	93.46
14.67	89.04

1+840



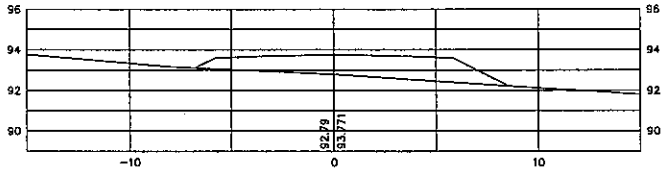
1+840	
Terreno Natural	
-15.00	91.18
-8.00	90.70
0.00	90.18
8.00	89.47
15.00	89.34
Rasante	
-10.94	90.90
-5.82	93.46
5.82	93.46
14.03	89.36

1+880



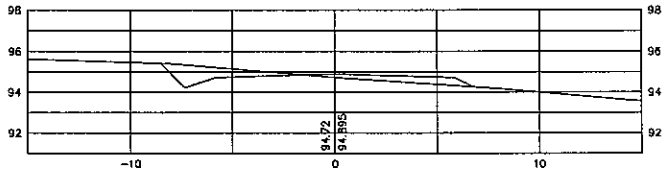
1+880	
Terreno Natural	
-15.00	92.42
-8.00	91.75
0.00	91.03
8.00	90.49
15.00	89.83
Rasante	
-9.04	91.85
-5.82	93.46
5.82	93.46
12.79	89.98

1+920



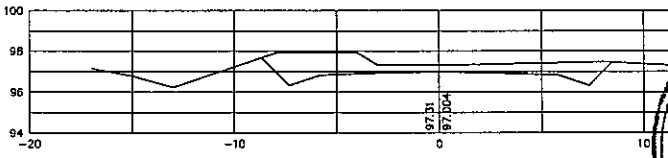
1+920	
Terreno Natural	
-15.00	93.76
-8.00	93.17
0.00	92.79
8.00	92.26
15.00	91.81
Rasante	
-6.80	93.11
-5.82	93.60
5.82	93.60
8.58	92.22

1+960



1+960	
Terreno Natural	
-15.00	95.64
-8.00	95.40
0.00	94.72
8.00	94.17
15.00	93.57
Rasante	
-8.51	95.42
-7.32	94.23
-5.82	94.73
5.82	94.73
6.77	94.25

2+000



2+000	
Terreno Natural	
-17.00	97.16
-15.00	96.78
-13.00	96.23
-8.00	97.92
-4.00	97.93
-3.00	97.31
0.00	97.31
8.00	97.49
15.00	97.13
Rasante	
-7.68	97.69
-6.32	96.33
-5.82	96.83
5.82	96.83
-7.32	96.33
8.95	97.47

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS

REFERENCIAS

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DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

M.O.P.C. y C.
DIRECCION DE CAMINOS VECINALES

SECCIONES TRANSVERSALES
PROG. 01+760 A PROG. 02+000

ESCALAS
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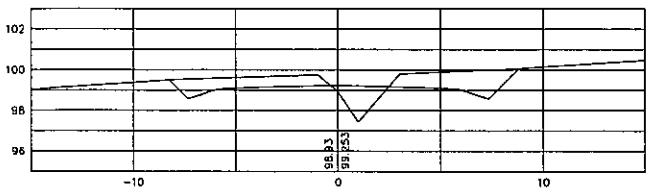
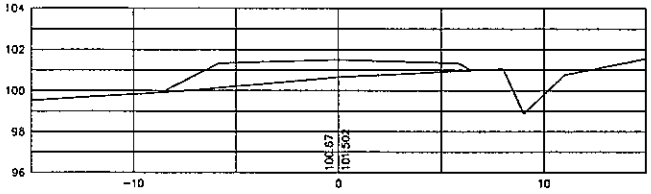
ST - 13

2+040



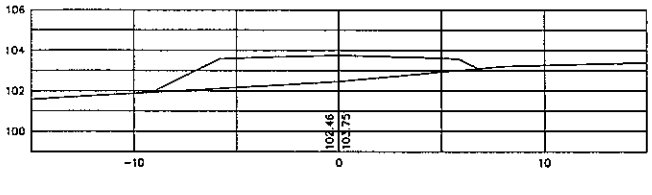
2+040 Terreno Natural	
-15.00	99.05
-8.00	99.52
-1.00	99.75
0.00	98.93
1.00	97.45
3.00	99.81
8.00	100.03
15.00	100.49
Rasante	
-8.24	99.50
-7.32	98.58
-5.82	99.08
5.82	99.08
7.32	98.58
8.82	100.08

2+080



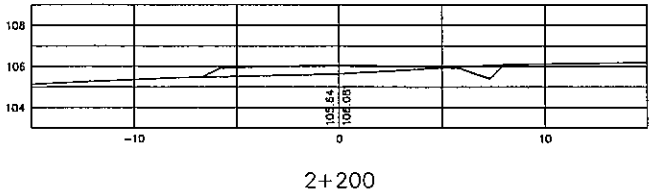
2+080 Terreno Natural	
-15.00	99.53
-8.00	99.96
0.00	100.67
8.00	101.07
9.00	98.87
11.00	100.77
15.00	101.56
Rasante	
-8.65	99.92
-5.82	101.33
5.82	101.33
6.50	100.99

2+120



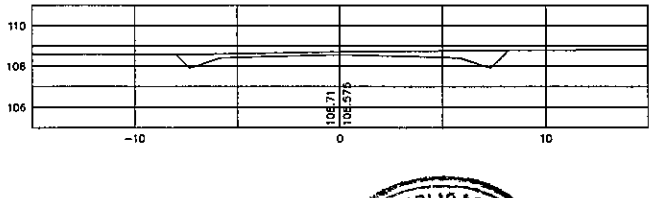
2+120 Terreno Natural	
-15.00	101.59
-8.00	101.99
0.00	102.46
8.00	103.21
15.00	103.40
Rasante	
-9.14	101.93
-5.82	103.58
5.82	103.58
6.79	103.10

2+160



2+160 Terreno Natural	
-15.00	105.14
-8.00	105.45
0.00	105.64
8.00	106.10
15.00	106.20
Rasante	
-6.59	105.48
-5.82	105.91
5.82	105.91
7.32	105.41
8.01	106.10

2+200



2+200 Terreno Natural	
-15.00	108.60
-8.00	108.57
0.00	108.71
8.00	108.78
15.00	108.82
Rasante	
-7.99	108.57
-7.32	107.91
-5.82	108.41
5.82	108.41
7.32	107.91
8.20	108.78

PROG.	AREA CORTE	AREA CARGA	VOLUMEN CORTE	VOLUMEN CARGA	VOLUMEN ACUMULADO CORTE	VOLUMEN ACUMULADO CARGA
0+000	3.91	0.00				
			78.15	398.40	78.15	398.40
0+040	0.00	19.92	0.00	737.72	78.15	1136.12
0+080	0.00	16.97	0.00	1009.60	78.15	2145.71
0+120	0.00	33.51	0.00	1913.47	78.15	4059.18
0+160	0.00	52.16	0.00	3030.10	78.15	7089.28
0+200	0.00	89.35	0.00	3764.76	78.15	10854.05
0+240	0.00	98.89	0.00	3967.72	78.15	14821.76
0+280	0.00	99.49	0.00	4126.51	78.15	18948.27
0+320	0.00	106.83	0.00	4150.47	78.15	23098.74
0+360	0.00	100.69	0.00	4139.83	78.15	27238.57
0+400	0.00	106.30	0.00	4226.67	78.15	31465.24
0+440	0.00	105.03	0.00	4222.72	78.15	35687.96
0+480	0.00	106.10	0.00	4159.63	78.15	39847.59
0+520	0.00	101.88	0.00	2918.47	78.15	42766.06
0+545	0.00	131.60	0.00	2024.65	78.15	44790.71
0+560	0.00	138.60	0.00	2796.92	78.15	47587.64
0+580	0.00	141.37	0.00	2799.41	78.15	50387.04
0+600	0.00	139.71	0.00	1368.35	78.15	51755.39
0+610	0.00	135.98	0.00	1318.05	78.15	53073.44
0+620	0.00	127.63	0.00	2539.61	78.15	55613.05
0+640	0.00	126.33	0.00	4542.38	78.15	60155.43
0+674	0.00	140.87	0.00	0.00	78.15	60155.43

PROG.	AREA CORTE	AREA CARGA	VOLUMEN CORTE	VOLUMEN CARGA	VOLUMEN ACUMULADO CORTE	VOLUMEN ACUMULADO CARGA
0+774	0.00	166.50				
			0.00	3753.75	0.00	3753.75
0+800	0.00	122.25	0.00	5519.96	0.00	9273.71
0+840	0.00	153.75	0.00	8897.90	0.00	18171.61
0+904	0.00	124.31	0.00	124.53	0.00	18296.14
0+905	0.00	124.31	0.00	2241.20	0.00	20537.34
0+920	0.00	174.63	0.00	6589.25	0.00	27126.59
0+960	0.00	153.89	0.00	2361.23	0.00	29487.82
0+975	0.00	158.77	0.00	4610.11	0.00	34097.93
1+000	0.00	210.04	0.00	11169.19	0.00	45267.12
1+054	0.00	203.64	0.00	0.00	0.00	45267.12

PROG.	AREA CORTE	AREA CARGA	VOLUMEN CORTE	VOLUMEN CARGA	VOLUMEN ACUMULADO CORTE	VOLUMEN ACUMULADO CARGA
1+066	0.00	152.91				
			0.00	2293.67	0.00	2293.67
1+081	0.00	152.91	0.00	5240.54	0.00	7534.21
1+120	0.00	115.83	0.00	5064.37	0.00	12598.58
1+160	0.00	137.38	0.00	5002.14	0.00	17600.72
1+200	0.00	112.72	0.00	4683.67	0.00	22284.39
1+240	0.00	121.46	0.00	4856.86	0.00	27141.24
1+280	0.00	121.38	0.00	4726.54	0.00	31867.79
1+320	0.00	114.95	0.00	4320.59	0.00	36188.38
1+360	0.00	101.08	0.00	4183.39	0.00	40371.77
1+400	0.00	108.09	0.00	1184.40	0.00	41556.18
1+411	0.00	107.26	0.00	3052.65	0.00	44608.83
1+440	0.00	103.35	0.00	1713.72	0.00	46322.55
1+457	0.00	98.24	0.00	2382.59	0.00	48705.14
1+480	0.00	108.94	0.00	4547.63	0.00	53252.76
1+520	0.00	118.44	0.00	5356.46	0.00	58609.22
1+560	0.00	149.38	0.00	5615.16	0.00	64224.39
1+600	0.00	131.38	0.00	5168.68	0.00	69393.06
1+640	0.00	127.05	0.00	5127.05	0.00	74520.12
1+680	0.00	129.30	0.00	4935.21	0.00	79455.33
1+720	0.00	117.46	0.00	4480.31	0.00	83935.64
1+760	0.00	106.55	0.00	4032.49	0.00	87968.13
1+800	0.00	95.07	0.00	3164.25	0.00	91132.38
1+840	0.00	63.14	0.00	2128.27	0.00	93260.65
1+880	0.00	43.27	0.00	1120.02	0.00	94380.68
1+920	0.00	12.73	57.95	295.66	57.95	94676.34
1+960	2.90	2.05	286.62	41.08	344.57	94717.42
2+000	11.43	0.00	413.14	48.38	757.72	94765.79
2+040	9.22	2.42	184.47	273.05	942.19	95038.85
2+080	0.00	11.23	0.00	549.19	942.19	95588.04
2+120	0.00	16.23	15.57	401.44	957.75	95989.48
2+160	0.78	3.85	106.09	76.92	1063.85	96066.40
2+200	4.53	0.00	0.00	0.00	1063.85	96066.40

REFERENCIAS

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
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Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente–Asent. Maracana

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS
REPUBLICA DEL PARAGUAY

M.O.P. y C.
DIRECCION DE CAMINOS VECINALES
SECCIONES TRANSVERSALES
DE PROG. 02+040 A PROG. 04+200
LAMINA N°

MAPA DEL PARAGUAY
UBICACION DEL PROYECTO
ARGENTINA
BRASIL

ALCANTARILLAS CELULARES

TABLAS DE DIMENSIONES Y CANTIDAD DE MATERIALES

ALCANTARILLA CELULAR DE 1.50 x 1.50

fs ≥ MPa		0.09	0.10	0.10
MEDIDAS	UNID.	SIMPLE	DOBLE	TRIPLE
A	cm.	180	345	510
B	cm.	180	180	180
C	cm.	210	375	540
a	cm.	10	10	10
b	cm.	—	30	30
d	cm.	15	15	15
CONTRAPISO	m³	0.21	0.38	0.54
ENCOFRADO	m²	8.10	12.20	16.50
HORMIGON	m³	1.01	1.79	2.57

ALCANTARILLA CELULAR DE 2.50 x 2.50

fs ≥ MPa		0.10	0.21	0.21
MEDIDAS	UNID.	SIMPLE	DOBLE	TRIPLE
A	cm.	290	545	810
B	cm.	290	280	280
C	cm.	320	575	840
a	cm.	15	15	15
b	cm.	—	45	45
d	cm.	20	15	15
CONTRAPISO	m³	0.32	0.58	0.84
ENCOFRADO	m²	13.20	20.00	27.20
HORMIGON	m³	2.21	2.94	4.25

ALCANTARILLA CELULAR DE 2.00 x 2.00

fs ≥ MPa		0.09	0.13	0.13
MEDIDAS	UNID.	SIMPLE	DOBLE	TRIPLE
A	cm.	230	445	660
B	cm.	230	230	230
C	cm.	260	475	690
a	cm.	10	10	10
b	cm.	—	30	30
d	cm.	15	15	15
CONTRAPISO	m³	0.26	0.48	0.69
ENCOFRADO	m²	10.60	16.60	22.00
HORMIGON	m³	1.31	2.32	3.32

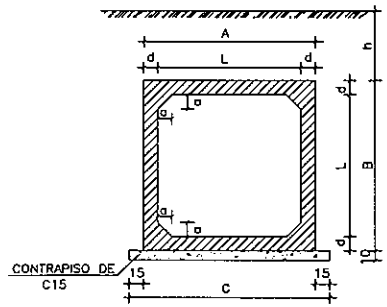
ALCANTARILLA CELULAR DE 3.00 x 3.00

fs ≥ MPa		0.12	0.21	0.21
MEDIDAS	UNID.	SIMPLE	DOBLE	TRIPLE
A	cm.	350	660	980
B	cm.	350	340	340
C	cm.	380	690	1010
a	cm.	15	15	15
b	cm.	—	45	45
d	cm.	25	20	20
CONTRAPISO	m³	0.38	0.69	1.01
ENCOFRADO	m²	15.90	24.20	32.90
HORMIGON	m³	3.30	4.82	6.84

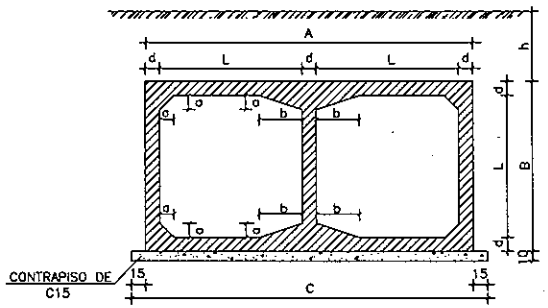
DETALLE DE ENCOFRADOS

ESC. 1:25

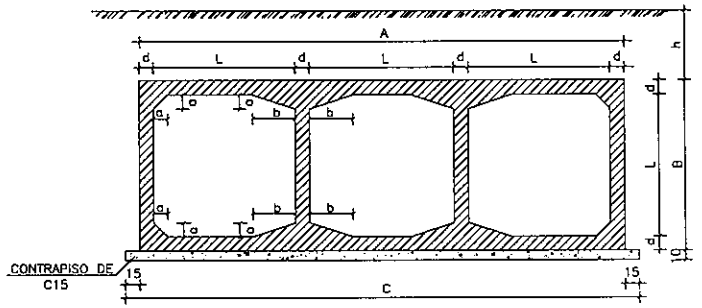
ALCANTARILLA SIMPLE



ALCANTARILLA DOBLE



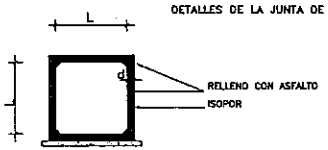
ALCANTARILLA TRIPLE



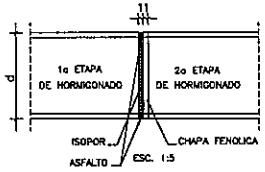
OBSERVACIONES:

1- HORMIGON fck ≥ 18 MPa
2- CONTRAPISO DE HORMIGON SIMPLE fck ≥ 15 MPa
3- VEHICULO TIPO TB 36
4- NOMENCLATURA: h = ALTURA DEL TERRAPLEN SOBRE LA GALERIA
fs = TENSION ADMISIBLE DEL SUELO BAJO LA GALERIA
5- REALIZAR JUNTA DE DILATACION EN ALCANTARILLAS CON LONGITUD MAYOR A 40 m.

DETALLES DE LA JUNTA DE DILATACION



ESC. 1:50



ESC. 1:5

NOTA:

DESPUES DEL HORMIGONADO DE LA 1a ETAPA DEBERAN RETIRARSE LAS CHAPAS FENOLICAS DE LA JUNTA.

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS JURIDICOS

REPUBLICA DEL PARAGUAY

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES

DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente–Asent. Maracana

ALCANTARILLAS CELULARES
ENCOFRADOS

Escala: VARIABLE

Lamina N°

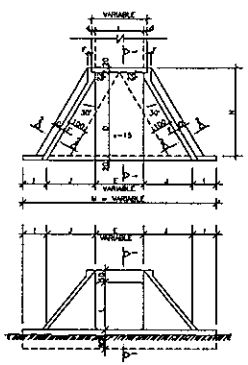
MAPA DEL PARAGUAY

M.O.P. y C.
DIRECCION DE CAMINOS VECINALES

CABECERAS NORMALES PARA ALCANTARILLAS CELULARES

ALCANTARILLA SIMPLE

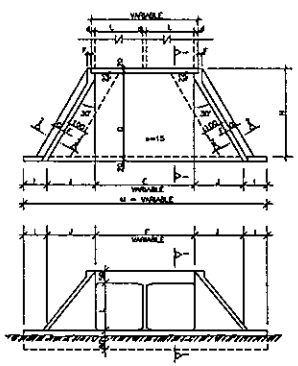
PLANTA



VISTA FRONTAL

ALCANTARILLA DOBLE

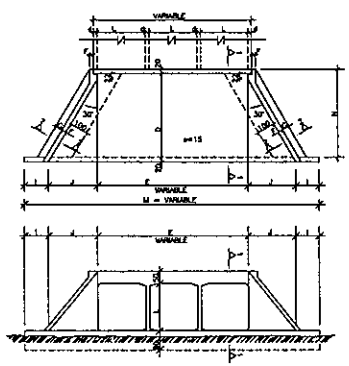
PLANTA



VISTA FRONTAL

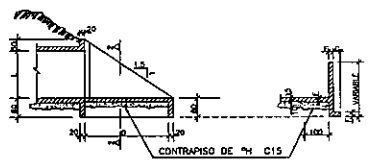
ALCANTARILLA TRIPLE

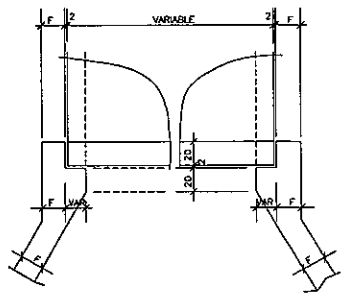
PLANTA



VISTA FRONTAL

CORTE 1-1 CORTE 2-2





DETALLE DE VISTA EN PLANTA

TABLA DE DIMENSIONES Y CANTIDAD DE MATERIALES PARA AMBAS CABECERAS

MEDIDAS (cm)	ALCANTARILLA SIMPLE			
	1.50x1.50m. fs > 0.09 MPa	2.00x2.00m. fs > 0.09 MPa	2.50x2.50m. fs > 0.10 MPa	3.00x3.00m. fs > 0.12 MPa
D	280.0	355.0	430.0	505.0
E	150.0	200.0	250.0	300.0
F	15.0	20.0	20.0	25.0
G	30.0	30.0	50.0	50.0
I	100.0	100.0	100.0	100.0
J	160.5	204.0	247.0	290.5
L	150.0	200.0	250.0	300.0
M	671.0	808.0	944.0	1081.0
N	320.0	395.0	470.0	545.0

MEDIDAS (cm)	ALCANTARILLA DOBLE			
	1.50x1.50m. fs > 0.10 MPa	2.00x2.00m. fs > 0.13 MPa	2.50x2.50m. fs > 0.21 MPa	3.00x3.00m. fs > 0.21 MPa
D	280.0	355.0	430.0	505.0
E	2L + d (VER LAMINA No. 10)			
F	15.0	20.0	20.0	25.0
G	30.0	30.0	50.0	50.0
I	100.0	100.0	100.0	100.0
J	160.5	204.0	247.0	290.5
L	150.0	200.0	250.0	300.0
M	200 + 2J + E			
N	320.0	395.0	470.0	545.0

MEDIDAS (cm)	ALCANTARILLA TRIPLE			
	1.50x1.50m. fs > 0.10 MPa	2.00x2.00m. fs > 0.13 MPa	2.50x2.50m. fs > 0.21 MPa	3.00x3.00m. fs > 0.21 MPa
D	280.0	355.0	430.0	505.0
E	3L + 2d (VER LAMINA No. 10)			
F	15.0	20.0	20.0	25.0
G	30.0	30.0	50.0	50.0
I	100.0	100.0	100.0	100.0
J	160.5	204.0	247.0	290.5
L	150.0	200.0	250.0	300.0
M	200 + 2J + E			
N	320.0	395.0	470.0	545.0

DESCRIPCION	UNID	ALCANTARILLA SIMPLE			
		1.50x1.50m.	2.00x2.00m.	2.50x2.50m.	3.00x3.00m.
CONTRAPISO	m²	2.46	4.35	6.30	8.70
ENCOFRADO	m²	83.50	113.00	144.00	181.00
HORMIGON	m³	10.85	17.85	24.35	38.53

DESCRIPCION	UNID	ALCANTARILLA DOBLE			
		1.50x1.50m.	2.00x2.00m.	2.50x2.50m.	3.00x3.00m.
CONTRAPISO	m²	3.93	6.45	9.75	13.65
ENCOFRADO	m²	92.00	120.80	155.00	193.00
HORMIGON	m³	12.35	20.85	30.05	44.43

DESCRIPCION	UNID	ALCANTARILLA TRIPLE			
		1.50x1.50m.	2.00x2.00m.	2.50x2.50m.	3.00x3.00m.
CONTRAPISO	m²	5.40	8.85	13.20	18.45
ENCOFRADO	m²	104.00	138.00	174.00	217.00
HORMIGON	m³	16.40	26.26	35.75	52.43

NOTAS

1- EL PROYECTO DE LAS CABECERAS SE APLICA A TODOS LOS TIPOS DE ALCANTARILLAS CELULARES NORMALES, ESTANDO REPRESENTADA LA ALCANTARILLA DE 2.00 x 2.00 m. PLANTA, VISTA FRONTAL Y CORTES EN ESCALA 1:50 Y DETALLE EN ESCALA 1:20.
2- LAS CANTIDADES INDICADAS EN LAS TABLAS SON PARA DOS CABECERAS COMPLETAS, ESTANDO COMPUTADAS: LAS ALAS (4x); LOSA DE PISO ENTRE ALAS (2x); VIGA DE BORDE INFERIOR DEL CUERPO DE LA ALCANTARILLA (2x).
3- EL CONTRAPISO BAJO LA LOSA DE PISO ENTRE ALAS ES DE Hº C 15 fck > 15 MPa DE UN ESPESOR DE 10 cm.
4- HORMIGON PARA CABECERAS fck > 18 MPa.
5- NOMENCLATURA: fs = TENSION ADMISIBLE DEL SUELO BAJO LA GALERIA.

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE ASUNTOS VECINALES

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente-Asent. Maracana

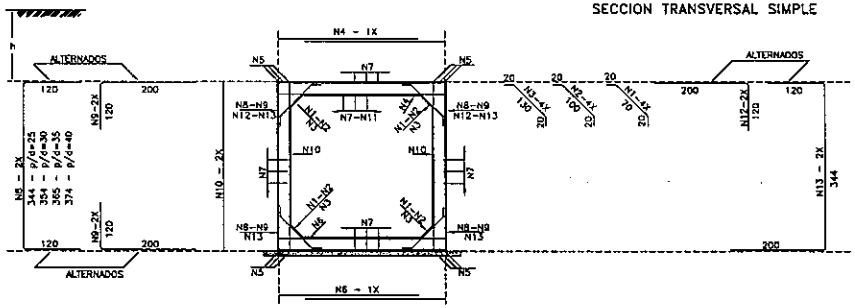
ALCANTARILLAS CELULARES
CABECERAS NORMALES ENCOFRADO

Escalas
VARIABLE

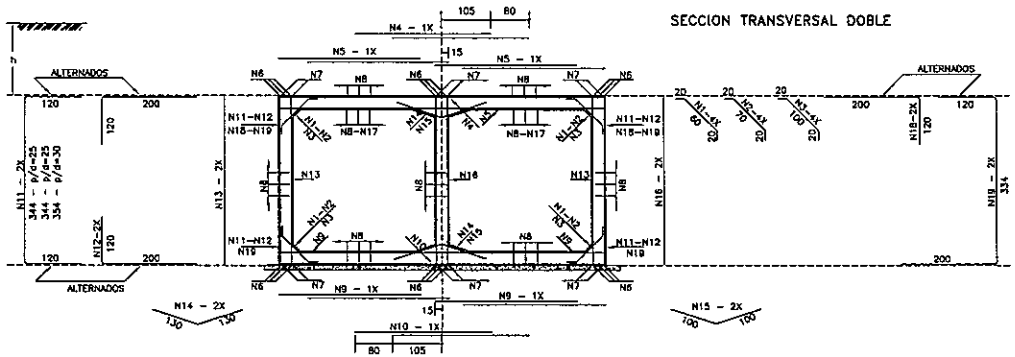
M. O. P. C.
DIRECCION DE CAMINOS VECINALES

ALCANTARILLAS CELULARES DE 3.00 x 3.00

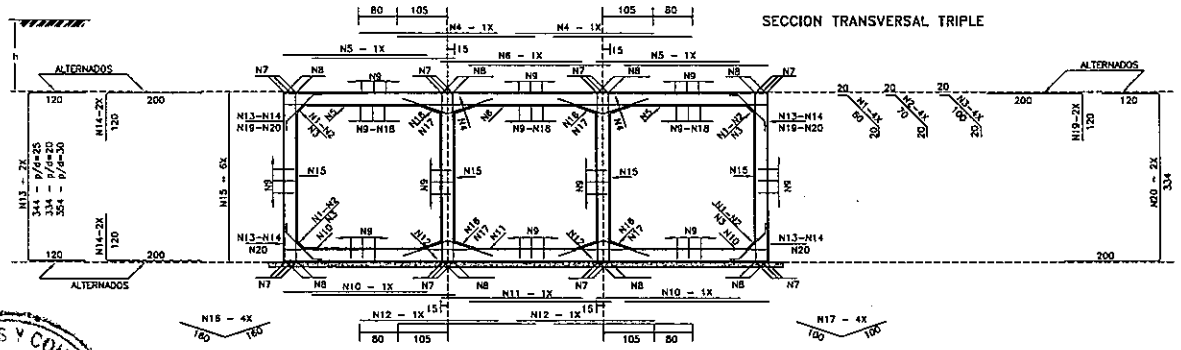
SECCION TRANSVERSAL SIMPLE



SECCION TRANSVERSAL DOBLE



SECCION TRANSVERSAL TRIPLE



TABLAS DE ARMADURAS POR METRO DE GALERIA

$\bar{\tau}s \geq 0.12$ MPa				
No.	ø	C	LONG.	SEP.
1	6.0	20	110	c/20cm
4	12.0	6	310	c/15cm
5	16.0	12	CORR.	—
6	12.0	6	310	c/15cm
7	6.0	98	CORR.	c/20cm
10	6.0	16	345	c/12cm
11	6.0	29	CORR.	c/10cm
12	12.0	8	320	c/24cm
13	12.0	8	564	c/24cm

RESUMEN		
ø	Kg/m	PESO(Kg)
6.0	0.220	55
12.0	0.890	115
16.0	1.580	21
TOTAL		191 Kg

$\bar{\tau}s \geq 0.21$ MPa				
No.	ø	C	LONG.	SEP.
1	6.0	20	100	c/20cm
4	12.0	10	290	c/10cm
5	10.0	20	290	c/10cm
7	12.0	12	CORR.	—
8	6.0	168	CORR.	c/20cm
9	10.0	14	290	c/13cm
10	12.0	5	290	c/20cm
13	10.0	8	335	c/25cm
15	6.0	10	200	c/20cm
16	10.0	8	335	c/30cm
17	10.0	32	CORR.	c/18cm
18	12.0	10	320	c/20cm
19	12.0	10	654	c/20cm

RESUMEN		
ø	Kg/m	PESO(Kg)
6.0	0.220	57
10.0	0.620	117
12.0	0.890	153
TOTAL		327 Kg

$\bar{\tau}s \geq 0.21$ MPa				
No.	ø	C	LONG.	SEP.
1	6.0	20	100	c/20cm
2	—	—	—	—
3	—	—	—	—
4	12.0	20	290	c/19cm
5	12.0	12	290	c/15cm
6	12.0	6	280	c/15cm
7	—	—	—	—
8	12.0	16	CORR.	—
9	6.0	238	CORR.	c/20cm
10	8.0	20	290	c/10cm
11	8.0	10	280	c/10cm
12	8.0	20	290	c/10cm
13	—	—	—	—
14	—	—	—	—
15	8.0	30	335	c/30cm
16	—	—	—	—
17	6.0	20	200	c/20cm
18	8.0	66	CORR.	c/13cm
19	12.0	10	320	c/20cm
20	12.0	10	654	c/20cm

RESUMEN		
ø	Kg/m	PESO(Kg)
6.0	0.220	91
8.0	0.390	125
12.0	0.890	122
TOTAL		428 Kg

M.O.P. y C. DIRECCION DE CAMINOS VECINALES

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES DIRECCION DE CAMINOS VECINALES

REPUBLICA DEL PARAGUAY

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES

DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente–Asent. Maracana

ALCANTARILLAS CELULARES - ARMADURAS

SECCION: 3.00 x 3.00

MAPA DEL PARAGUAY

Escalas: VARIABLE

Lamina N°

RESUMEN DE LAS ARMADURAS PARA DOS CABECERAS

ø	2.50 x 2.50			3.00 x 3.00		
TIPO	SIMPLE	DOBLE	TRIPLE	SIMPLE	DOBLE	TRIPLE
6.0	621	852	1.217	178	233	273
8.0	505	568	644	1.485	1.891	2.296
10.0	345	344	433	560	652	748
12.0	210	198	223	240	229	250
16.0	75	237	339	53	245	390
20.0				88	102	198
TOTAL	1.756 Kg	2.199 Kg	2.856 Kg	2.604 Kg	3.352 Kg	4.153 Kg

ARMADURAS DE CABECERAS – ALCANTARILLA CELULAR DE 2.50 x 2.50

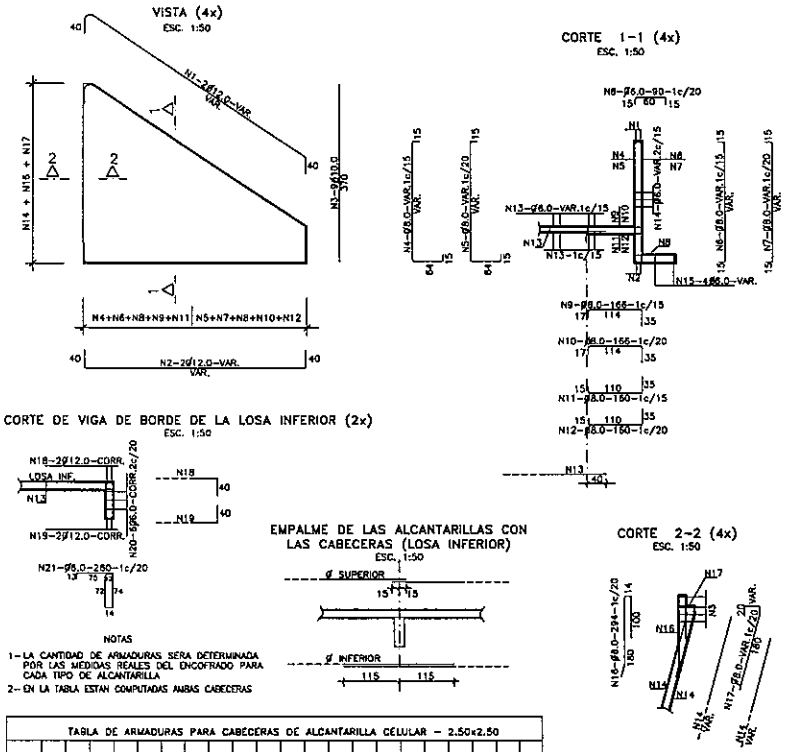


TABLA DE ARMADURAS PARA CABECERAS DE ALCANTARILLA CELULAR – 2.50x2.50

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
ø	12.0	12.0	10.0	10.0	8.0	8.0	8.0	6.0	8.0	8.0	10.0	8.0	6.0	6.0	6.0	8.0	8.0	12.0	12.0	6.0	6.0
C	8	8	36												16			4	4	12	
LONG.	VAR.	VAR.	370	VAR.	VAR.	VAR.	VAR.	90	165	165	160	160	VAR.	VAR.	VAR.	294	VAR.	CORR.	CORR.	CORR.	260

ARMADURAS DE CABECERAS – ALCANTARILLA CELULAR DE 3.00 x 3.00

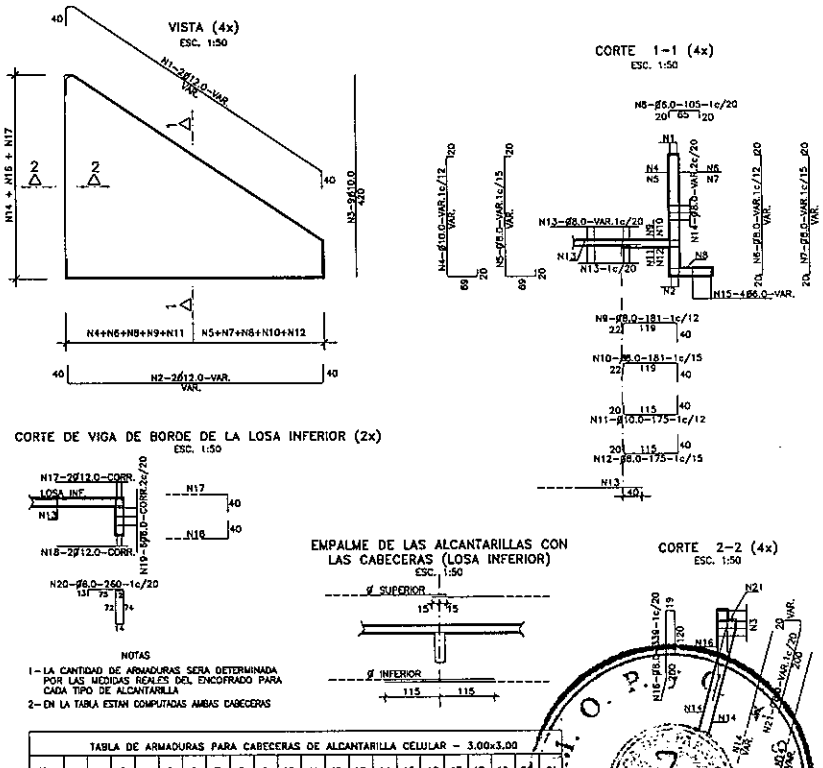


TABLA DE ARMADURAS PARA CABECERAS DE ALCANTARILLA CELULAR – 3.00x3.00

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
ø	12.0	12.0	10.0	10.0	8.0	8.0	8.0	6.0	8.0	8.0	10.0	8.0	8.0	8.0	8.0	5.0	8.0	12.0	12.0	6.0	6.0	8.0
C	8	8	36												16	16		4	4	12		
LONG.	VAR.	VAR.	420	VAR.	VAR.	VAR.	VAR.	105	181	181	175	175	VAR.	VAR.	VAR.	339	CORR.	CORR.	CORR.	260	VAR.	

M.O.P.C. DIRECCION DE CAMINOS VECINALES

REPUBLICA DEL PARAGUAY
MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui
TRAMO: Col. San Vicente–Asent. Maracana

ALCANTARILLAS CELULARES DE HORMIGON ARMADO
CABECERAS NORMALES
SECCIONES 2.50m Y 3.00m

Escalas: VARIABLE

Lamina N°

MAPA DEL PARAGUAY

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES
DIRECCION DE INGENIERIA

ALCANTARILLA CELULAR SIMPLE

VIGAS DE BORDE DE LA LOSA SUPERIOR

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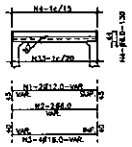

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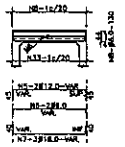

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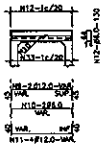

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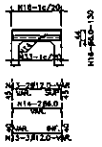

VIGAS DE BORDE DE LA LOSA INFERIOR

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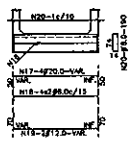

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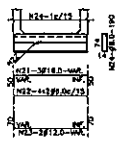

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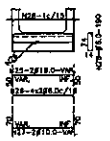

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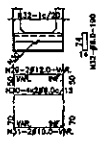


MENSULA

VISTA

VIGA DE BORDE SUPERIOR

CORTE

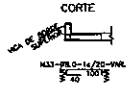
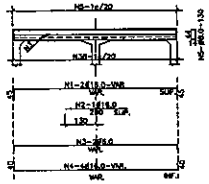


TABLA DE ARMADURAS PARA VIGAS DE BORDE DE LOSA SUPERIOR E INFERIOR – CELULAR SIMPLE																															
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
Ø	12.0	6.0	16.0	8.0	12.0	6.0	16.0	8.0	12.0	6.0	12.0	8.0	12.0	6.0	12.0	8.0	20.0	6.0	12.0	8.0	16.0	6.0	12.0	8.0	16.0	6.0	10.0	6.0	12.0	6.0	10.0	6.0	8.0
C	4	4	8		4	4	8		4	4	8		4	4	8		8	15	4		6	15	4		4	16	4		4	15	4		
LONG.	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.

ALCANTARILLA CELULAR DOBLE

VIGAS DE BORDE DE LA LOSA SUPERIOR

L=300 (2x)



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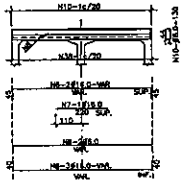
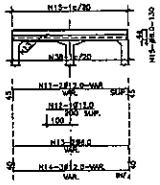
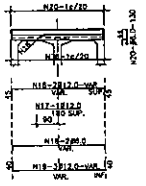


L=200 (2x)

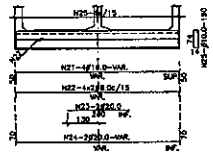


L=150 (2x)

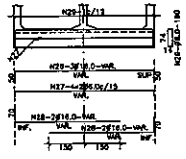


VIGAS DE BORDE DE LA LOSA INFERIOR

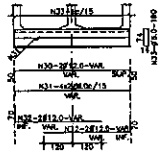
L=300 (2x)



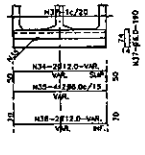
L=250 (2x)



L=200 (2x)



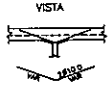
L=150 (2x)



MENSULAS

VISTA

VISTA



VIGA DE BORDE SUPERIOR

CORTE

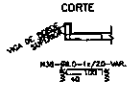


TABLA DE ARMADURAS PARA VIGAS DE BORDE DE LOSA SUPERIOR E INFERIOR – CELULAR DOBLE																																	
No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Ø	16.0	16.0	8.0	16.0	8.0	16.0	16.0	8.0	16.0	8.0	12.0	12.0	6.0	12.0	8.0	12.0	12.0	6.0	12.0	8.0	16.0	6.0	20.0	20.0	10.0	16.0	8.0	16.0	8.0	12.0	6.0	12.0	6.0	12.0	6.0	12.0	6.0	8.0
C	4	2	4	8		4	2	4	8		4	2	4	8		4	2	4	8		8	16	4	4		8		4	16	8		4	16	8				
LONG.	VAR.	250	VAR.	VAR.	130	VAR.	220	VAR.	VAR.	130	VAR.	200	VAR.	VAR.	130	VAR.	180	VAR.	VAR.	130	VAR.	260	VAR.	150	VAR.	VAR.	200	VAR.	VAR.	190	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.

REPUBLICA DEL PARAGUAY

MINISTERIO DE OBRAS PUBLICAS Y COMUNICACIONES

DIRECCION DE CAMINOS VECINALES

Puente Aliviadero Rio Jejui

TRAMO: Col. San Vicente–Asent. Maracana

ALCANTARILLAS SIMPLES Y DOBLES

VIGAS DE BORDE

Escala: VARIABLE

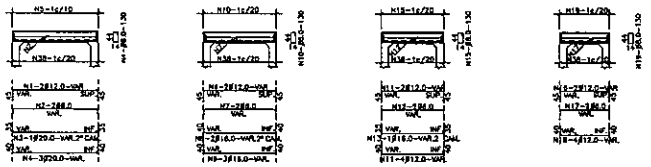
Lamina N°

MAPA DEL PARAGUAY

ALCANTARILLA CELULAR SIMPLE

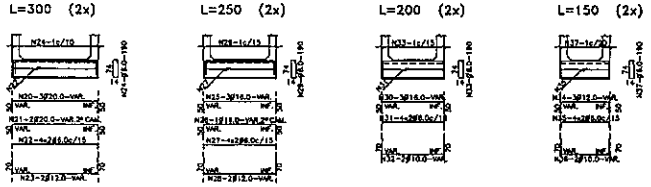
VIGAS DE BORDE DE LA LOSA SUPERIOR – CC = 30° A 45°

L=300 (2x) L=250 (2x) L=200 (2x) L=150 (2x)



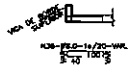
VIGAS DE BORDE DE LA LOSA INFERIOR – CC = 30° A 45°

L=300 (2x) L=250 (2x) L=200 (2x) L=150 (2x)



MENSULA VISTA

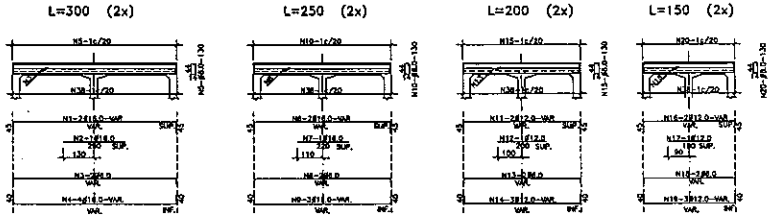
VIGA DE BORDE SUPERIOR CORTE



ALCANTARILLA CELULAR DOBLE

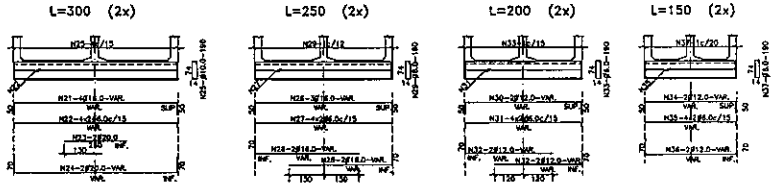
VIGAS DE BORDE DE LA LOSA SUPERIOR – CC = 30° A 45°

L=300 (2x) L=250 (2x) L=200 (2x) L=150 (2x)

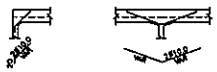


VIGAS DE BORDE DE LA LOSA INFERIOR – CC = 30° A 45°

L=300 (2x) L=250 (2x) L=200 (2x) L=150 (2x)



MENSULAS VISTA VISTA



VIGA DE BORDE SUPERIOR CORTE

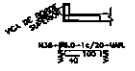


TABLA DE ARMADURAS PARA VIGAS DE BORDE DE LOSA SUPERIOR E INFERIOR – CELULAR SIMPLE

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Ø	12.0	6.0	20.0	20.0	12.0	6.0	16.0	8.0	12.0	6.0	12.0	8.0	12.0	6.0	12.0	8.0	20.0	6.0	12.0	8.0	16.0	6.0	12.0	8.0	16.0	6.0	10.0	6.0	12.0		6.0	10.0	6.0	12.0	6.0	10.0	6.0	8.0
C	4	4	2		4	4	6		4	4	8		4	4	6		8	16	4		8	16	4		4	16	4		4		16	4		6	16	4		
LONG	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	130	VAR.	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.		VAR.	VAR.	190	VAR.	VAR.	VAR.	190	VAR.

TABLA DE ARMADURAS PARA VIGAS DE BORDE DE LOSA SUPERIOR E INFERIOR – CELULAR DOBLE

No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Ø	16.0	16.0	6.0	16.0	8.0	16.0	16.0	6.0	16.0	8.0	12.0	12.0	6.0	12.0	8.0	12.0	12.0	6.0	12.0	8.0	16.0	6.0	20.0	20.0	10.0	16.0	6.0	16.0	8.0	12.0	6.0	12.0	6.0	12.0	6.0	12.0	6.0	8.0
C	4	2	4	8		4	2	4	8		4	2	4	8		4	2	4	8		8	16	4	4		6	16		4	16	16		4	16	4			
LONG	VAR.	260	VAR.	VAR.	130	VAR.	220	VAR.	VAR.	130	VAR.	200	VAR.	VAR.	130	VAR.	180	VAR.	VAR.	130	VAR.	260	VAR.	260	VAR.	190	VAR.	VAR.	190	VAR.	VAR.	190	VAR.	VAR.	190	VAR.	VAR.	190	VAR.

OBRAS PUBLICAS Y COMUNICACIONES SOCIOS

P. Y C. DIRECCION DE CAMINOS VECINALES

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Puente Aliviadero Río Jejui

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ALCANTARILLAS SIMPLES Y DOBLES

VIGAS DE BORDE

Escalas: VARIABLE

Lamina N°

MAPA DEL PARAGUAY