

EXCAVACIÓN PARA DESPLANTE DE OBRA



EN ALEROS =	6.32	M3
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EN PLANTILLA =	5.72	M3
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EN DENTELLONES =	1.04	M3
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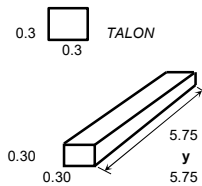
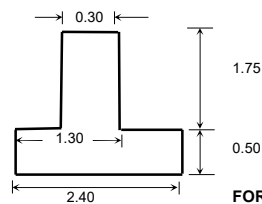
VOLUMEN TOTAL = 37.22 + 6.32 + 5.72 + 1.04

HOJA 1

CAMINO: MONTERREY - COLOMBIA
 TRAMO: LA GLORIA - COLOMBIA
 ALCANTARILLA DE LOSA : DE 3.05 X 1.25 X 15.51
 ESTACION DE OBRA : 215+103.80 ESVIAJE NORMAL EN TANGENTE

CONCRETO SIMPLE DE F'c = 200 KG/CM2

EN MUROS, ALEROS Y DENTELLONES

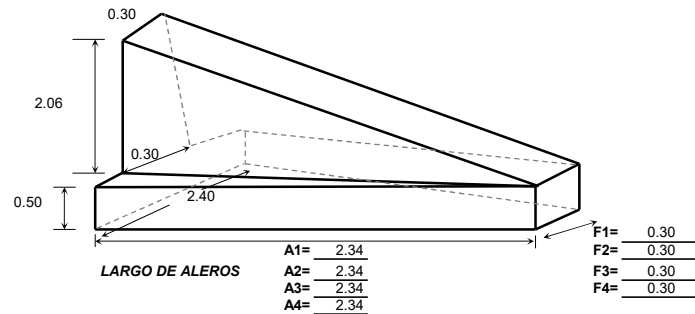


FORMULAS EMPLEADAS

CUBO: $V = L \times L \times L$

RECTANGULO: $V = (b \times h) \times H$

TRIANGULO: $V = (b \times h) / 2 \times H$



EN MUROS = 56.30 M3

VM	=	((2.40	X	0.50)	+	((1.75	X	0.30))	X	15.51	X	2.00	=	53.51	M3
VTAL	=	0.30	X	0.30	X	15.51	X	2.00	=	2.79	M3				

EN ALEROS = 9.20 M3

VA1	=	((2.40	+	0.30)	/	2.00)	X	2.34)	X	0.50)	+	((2.34	X	2.06)	/	2.00)	X	((0.30	+	0.30	+	0.30)	/	3.00)	=	2.30	M3
VA2	=	((2.40	+	0.30)	/	2.00)	X	2.34)	X	0.50)	+	((2.34	X	2.06)	/	2.00)	X	((0.30	+	0.30	+	0.30)	/	3.00)	=	2.30	M3
VA3	=	((2.40	+	0.30)	/	2.00)	X	2.34)	X	0.50)	+	((2.34	X	2.06)	/	2.00)	X	((0.30	+	0.30	+	0.30)	/	3.00)	=	2.30	M3
VA4	=	((2.40	+	0.30)	/	2.00)	X	2.34)	X	0.50)	+	((2.34	X	2.06)	/	2.00)	X	((0.30	+	0.30	+	0.30)	/	3.00)	=	2.30	M3

EN DENTELLONES = 1.04 M3

VI	=	0.30	X	0.30	X	5.75	=	0.52	M3
VD	=	0.30	X	0.30	X	5.75	=	0.52	M3

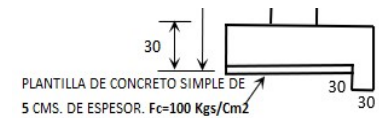
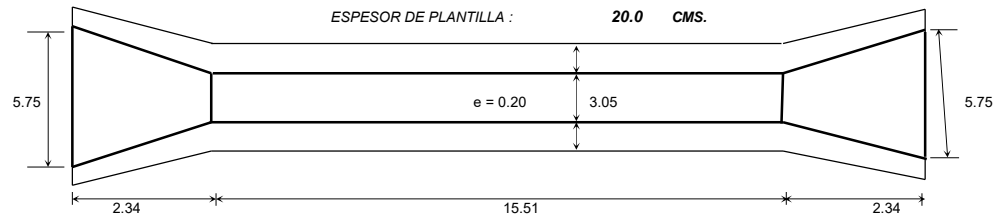
VOLUMEN TOTAL = 56.30 + 9.20 + 1.04

VOLUMEN TOTAL = 66.21 M3

CON DESCUENTO DE ACERO

CAMINO: MONTERREY - COLOMBIA
 TRAMO: LA GLORIA - COLOMBIA
 ALCANTARILLA DE LOSA : DE 3.05 X 1.25 X 15.51
 ESTACION DE OBRA : 215+103.80 ESVIAJE NORMAL EN TANGENTE

CONCRETO SIMPLE DE $F_c = 100 \text{ KGS/CM}^2$

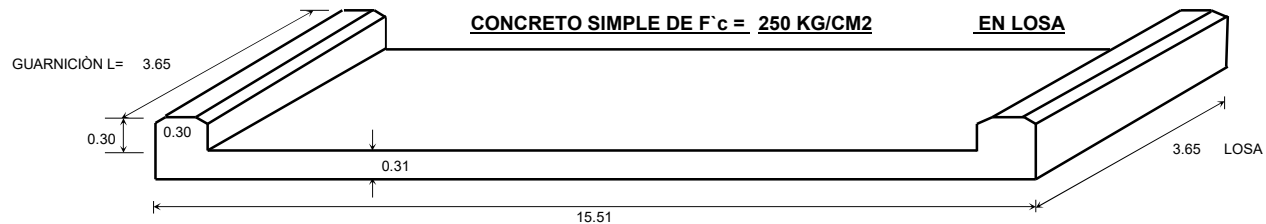


EN PLANTILLA = 18.40 M3												
VAM	=	15.51	X	3.05	X	0.20	=	9.46	M3			
VPLA	=	20.19	X	2.40	X	0.05	X	2.00	=	4.85	M3	
VA1	=	((5.75	+	3.05)	/	2.00)	X	2.34)	X	0.20	=	2.06 M3
VA2	=	((5.75	+	3.05)	/	2.00)	X	2.34)	X	0.20	=	2.06 M3
VOLUMEN TOTAL = 9.46 + 4.85 + 2.06 + 2.06												
VOLUMEN TOTAL = 18.40 M3												

CAMINO: MONTERREY - COLOMBIA
 TRAMO: LA GLORIA - COLOMBIA

ALCANTARILLA DE LOSA :
 ESTACION DE OBRA : 215+103.80

DE 3.05 X 1.25 X 15.51
 ESVAJE NORMAL EN TANGENTE
 CONCRETO SIMPLE DE F'c = 250 KG/CM2 EN LOSA



EN LOSA =	17.55	M3
V	=	15.51 X 3.65 X 0.31 = 17.55 M3

EN GUARNICIONES =	0.66	M3
V	=	0.30 X 0.30 X 3.65 X 2.00 = 0.66 M3

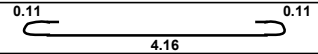
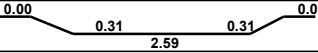
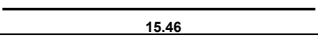
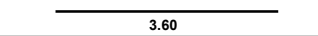
VOLUMEN TOTAL = 17.55 + 0.66

VOLUMEN TOTAL	=	18.21 M3	-	0.20	=	18.01 M3
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CON DESCUENTO DE ACERO

CAMINO: MONTERREY - COLOMBIA
TRAMO: LA GLORIA - COLOMBIA
ALCANTARILLA DE LOSA : DE 3.05 X 1.25 X 15.51
ESTACION DE OBRA : 215+103.80 ESVAJE NORMAL EN TANGENTE

ACERO DE REFUERZO PARA LOSA

LISTA DE VARILLAS Y PESOS						
DESIGNACION	NUMERO	DIAMETRO	CROQUIS	LONGITUD	ESPACIO	PESO (KG)
VARILLAS " A "	83	6		4.38	0.125 Y 0.250	819
VARILLAS " B "	41	6		3.21	0.375	297
VARILLAS " C "	12	6		15.46	0.380	419
VARILLAS " D "	0	0		0.00	0.000	0
VARILLAS " E "	0	0		0.00	0.000	0
VARILLAS " F "	4	4		3.60	0.100	14

VARILLAS	"A"	83	X	4.38	X	2.260	=	819	KGS.
VARILLAS	"B"	41	X	3.21	X	2.260	=	297	KGS.
VARILLAS	"C"	12	X	15.46	X	2.260	=	419	KGS.
VARILLAS	"D"	0	X	0.00	X	0.000	=	0	KGS.
VARILLAS	"E"	0	X	0.00	X	0.000	=	0	KGS.
VARILLAS	"F"	4	X	3.60	X	1.000	=	14	KGS.

VARILLAS	"A"	819	KGS.
VARILLAS	"B"	297	KGS.
VARILLAS	"C"	419	KGS.
VARILLAS	"D"	0	KGS.
VARILLAS	"E"	0	KGS.
VARILLAS	"F"	14	KGS.

PESO TOTAL	1,549	KGS.
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CAMINO: MONTERREY - COLOMBIA
TRAMO: LA GLORIA - COLOMBIA
ALCANTARILLA DE LOSA : DE 3.05 X 1.25 X 15.51
ESTACION DE OBRA : 215+103.80 ES VIAJE NORMAL EN TANGENTE

DESCUENTO DE ACERO DE REFUERZO A CONCRETO SIMPLE EN LOSA DE 250 KG/CM2

VARILLAS	"A"	83	X	4.38	X	2.260	=	819	KGS.
VARILLAS	"B"	41	X	3.21	X	2.260	=	297	KGS.
VARILLAS	"C"	12	X	15.46	X	2.260	=	419	KGS.
VARILLAS	"D"	0	X	0.00	X	0.000	=	0	KGS.
VARILLAS	"E"	0	X	0.00	X	0.000	=	0	KGS.
VARILLAS	"F"	4	X	3.60	X	1.000	=	14	KGS.

VARILLAS	"A"	819	KGS.
VARILLAS	"B"	297	KGS.
VARILLAS	"C"	419	KGS.
VARILLAS	"D"	0	KGS.
VARILLAS	"E"	0	KGS.
VARILLAS	"F"	14	KGS.

PESO TOTAL 1,549 KGS.

Tipo de varillas	Diametro	Area de Acero en (m2)	Numero de Varillas	Longitud (m)	Volumen (m3)
A	6	0.000287	83	4.38	0.10
B	6	0.000287	41	3.21	0.04
C	6	0.000287	12	15.46	0.05
D	0	0.000000	0	0.00	0.00
E	0	0.000000	0	0.00	0.00
F	4	0.000127	4	3.60	0.00

0.20 POR LOSA

VOLUMEN DE ACERO EN MUROS 0.29 EN MUROS

VOLUMEN TOTAL DE DESCUENTO EN LOSA Y MUROS = 0.49 M3

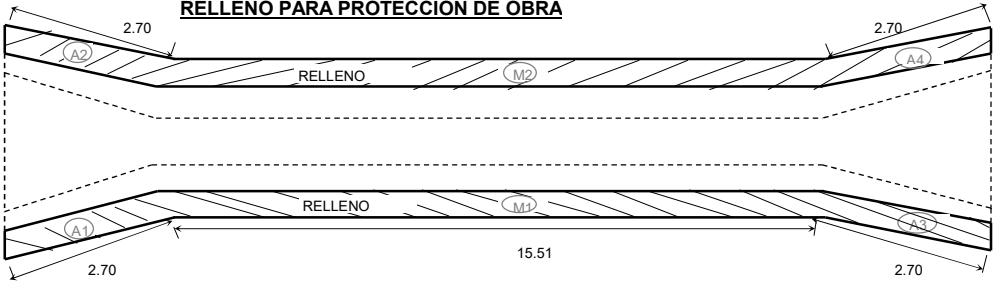
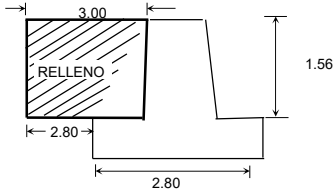
VAR. No.	DIAM.	PLGS.	AREA (CM2)	PESO (KG)
2.5	0.79	5/16"	0.49	0.384
3	0.95	3/8"	0.71	0.560
4	1.27	1/2"	1.27	1.000
5	1.59	5/8"	1.99	1.570
6	1.91	3/4"	2.87	2.260
7	2.22	7/8"	3.87	3.070
8	2.54	1"	5.07	4.000
9	2.86	1 1/8"	6.42	5.100
10	3.18	1 1/4"	7.94	6.300
11	3.49	1 3/8"	9.56	7.600
12	3.81	1 1/2"	11.40	9.000

DENSIDAD DEL ACERO
7,860 KGS/M3

CAMINO: MONTERREY - COLOMBIA
TRAMO: LA GLORIA - COLOMBIA
ALCANTARILLA DE LOSA :
ESTACION DE OBRA :

DE 3.05 X 1.25 X 15.51
ESVIAJE NORMAL EN TANGENTE

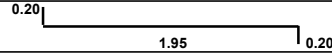
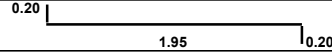
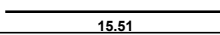
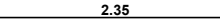
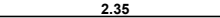
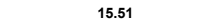
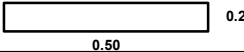
RELLENO PARA PROTECCIÓN DE OBRA



EN MUROS =		140.33	M3
VM 1y2	=	((2.80 + 3.00) / 2.00) X 1.56 X (15.51) X (2.00)	= 140.33 M3
EN ALEROS =		24.17	M3
VA1	=	((2.70 X 1.56) / 2.00) X (3.00 + 2.80 + 2.80) / 3.00	= 6.04 M3
VA2	=	((2.70 X 1.56) / 2.00) X (3.00 + 2.80 + 2.80) / 3.00	= 6.04 M3
VA3	=	((2.70 X 1.56) / 2.00) X (3.00 + 2.80 + 2.80) / 3.00	= 6.04 M3
VA4	=	((2.70 X 1.56) / 2.00) X (3.00 + 2.80 + 2.80) / 3.00	= 6.04 M3
VOLUMEN TOTAL =		140.33 + 24.17	
VOLUMEN TOTAL		= 165	M3

CAMINO: MONTERREY - COLOMBIA
TRAMO: LA GLORIA - COLOMBIA
ALCANTARILLA DE LOSA : DE 3.05 X 1.25 X 15.51
ESTACION DE OBRA : 215+103.80 ESVAJE NORMAL EN TANGENTE

ACERO DE REFUERZO EN MURO

LISTA DE VARILLAS Y PESOS						
DESIGNACION	NUMERO	DIAMETRO	CROQUIS	LONGITUD	ESPACIO	PESO (KG)
VARILLAS " A "	79	5		2.35	0.200	291.00
VARILLAS " B "	63	3		2.35	0.250	83.00
VARILLAS " C "	18	3		15.51	0.250	156.00
VARILLAS " D "	63	4		2.35	0.250	148.00
VARILLAS " E "	79	4		2.35	0.200	186
VARILLAS " F "	23	3		15.51	0.250	200
VARILLAS " G "	79	3		1.40	0.200	62

VARILLAS	"A"	79	X	2.35	X	1.57	=	291	KGS.
VARILLAS	"B"	63	X	2.35	X	0.56	=	83	KGS.
VARILLAS	"C"	18	X	15.51	X	0.56	=	156	KGS.
VARILLAS	"D"	63	X	2.35	X	1.00	=	148	KGS.
VARILLAS	"E"	79	X	2.35	X	1.00	=	186	KGS.
VARILLAS	"F"	23	X	15.51	X	0.56	=	200	KGS.
VARILLAS	"G"	79	X	1.40	X	0.56	=	62	KGS.

VARILLAS	"A"	291	KGS.
VARILLAS	"B"	83	KGS.
VARILLAS	"C"	156	KGS.
VARILLAS	"D"	148	KGS.
VARILLAS	"E"	186	KGS.
VARILLAS	"F"	200	KGS.
VARILLAS	"F"	62	KGS.

PESO TOTAL 1,126 X 2 = 2,252 KGS.