

ปริมาณวัสดุ

งาน PEDESTRIAN BRIDGE

Outside Pier span ≤ 16.00 m type 1

Outside Pier of span (16.00 m. (Type I) ; DWG NO. PS - 01 (Pedestrian Bridge)							
1. Footing (over burden 1.00 m)							
excavation		3.80 x 3.80 x 1.30				=	25.99 m ³
compacted sand		3.0 x 3.0 x 0.10				=	0.90 m ³
lean concrete		3.0 x 3.0 x 0.10				=	0.90 m ³
formwork		2.80 * 4 * 0.60				=	6.72 m ²
concrete		2.80 x 2.80 x 0.60				=	4.70 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(14)	DB 20	3.6	19	2.47	168.95	
	(15)	DB 20	3.6	19	2.47	168.95	
	(16)	DB 20	3.6	15	2.47	133.38	
	(17)	DB 20	3.6	15	2.47	133.38	
2. Pier (height 6.50 m)							
formwork		(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)				=	27.68 m ²
concrete		(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)				=	4.51 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(5)	DB 25	8	44	3.85	1355.20	
	(6)	DB 12	3.05	16	0.89	43.43	
	(7)	DB 12	2.95	16	0.89	42.01	
	(8)	RB 9	2.88	35*2	0.5	100.80	
	(8A)	RB 9	3.46	8	0.5	13.92	
	(9)	RB 9	2.88	35*2	0.5	100.80	
	(9A)	RB 9	3.46	8	0.5	13.92	
	(10)	RB 9	3.88	7	0.5	13.58	
	(11)	RB 9	4.28	7	0.5	14.96	
3. Deck							
formwork		(3.30*2.725)+(1.3+2.725)*2*0.80+(0.70*(3.30+2.725)+(0.70*(2.725-1.60)+(0.80*4)				=	23.64 m ²
concrete		(3.30*2.525*0.80)+(1.0*1.0*0.10)+(1.20*1.20*0.10)+(0.25*0.10*(3.30+2.525+(2.525-1.60)))				=	7.52 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(1)	DB 25	3.3	15	3.85	190.58	
	(2)	DB 25	3.84	18	3.85	266.11	
	(3)	DB 25	3.3	12	3.85	152.46	
	(4)	DB 25	3.64	12	3.85	177.81	
	(12)	RB 9	4.09+4.88	2	0.5	8.96	
	(13)	DB 25	1.5	8	3.85	46.26	
	(18)	DB 16	7.24+4.54*2	18	1.58	464.14	
	(19)	RB 9	4.57	16	0.5	36.56	
	(20)	RB 9	1.21	26	0.5	15.99	
	(20A)	RB 9	1.43	4	0.5	2.86	
	(21)	RB 9	1.62	26	0.5	13.26	
	(22)	RB 9	3.4	26	0.5	42.20	
	(23)	DB 25	1.15	6	3.85	26.57	
excavation				38.98	m ³		
compacted sand				0.90	m ³		
lean concrete				0.90	m ³		
formwork				58.64	m ²		
concrete				18.80	m ³		
reinforcement							
		DB		979.85	kg		
		DB 12 & smaller		85.44	kg		
		DB 16 & bigger		3283.22	kg		
wire				68.71	kg		
PVC dia 10 cm.				14	m		
stainless steel strainer dia 12.5 cm.				2	unit		

Outside Pier for span ≤ 16.00 m type II

Outside Pier of span ≤ 16.00 m. (Type II); DWG No. PS-02 (Pedestrian Bridge)							
1. Filling (over burden 1.00 m)							
excavation	3.80 x 3.80 x 1.80						
compacted sand	3.0 x 3.0 x 0.10						
lean concrete	3.0 x 3.0 x 0.10						
formwork	2.80 x 4 x 0.60						
concrete	2.80 x 2.80 x 0.60						
reinforcement							
bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)		
①	DB 20	3.6	15	2.47	133.28		
②	DB 20	3.6	15	2.47	133.38		
③	DB 20	3.6	23	2.47	204.52		
④	DB 20	3.6	23	2.47	204.52		
2. Pier (height 6.50 m)							
formwork	$(1.20 \times 4 \times 2.50) + (1.5 \times 4 \times 0.20) + (0.80 \times 4 \times 4.50)$						
concrete	$(1.20 \times 4 \times 2.50) + (1.5 \times 4 \times 0.20) + (0.80 \times 4 \times 4.50)$						
reinforcement							
bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)		
⑤	DB 20	8	44	2.47	369.44		
⑥	DB 12	3.25	15	0.89	46.28		
⑦	DB 12	3.15	15	0.89	44.86		
⑧	RB 9	2.68	35*2	0.5	93.80		
⑨	RB 9	2.68	35*2	0.5	93.80		
⑩	RB 9	3.48	35*2	0.5	121.80		
⑪	RB 9	3.48	35*2	0.5	121.80		
⑫	RB 9	4.28	35*2	0.5	149.80		
⑬	RB 9	4.28	35*2	0.5	149.80		
3. Deck							
formwork	$(3.30 \times 2.725) + ((3.3 + 2.725) \times 2 \times 0.80) + (0.70 \times (3.30 + 2.725)) + (0.70 \times 2.725 \times 1.60) + (0.80 \times 4)$						
concrete	$(3.30 \times 2.525 \times 0.80) + (1.0 \times 1.0 \times 0.10) + (1.20 \times 1.20 \times 0.10) + (0.25 \times 0.10 \times (3.30 + 2.725 + (2.525 - 1.60))) + (0.1 \times 0.2 \times (3.3 + 2.525 + (2.525 - 1.60))) \times 2 + (0.1 \times (3.3 + 2.525 + (2.525 - 1.60))) \times 2 + (0.70 \times 0.25 \times (2.62 + 1.05 + 0.5)) + (0.3 \times 0.5 \times 4.5)$						
reinforcement							
bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)		
⑭	RB 9	7.4	16	0.5	59.20		
⑮	RB 9	3.46	30	0.5	51.90		
⑯	RB 9	1.06	30	0.5	15.90		
⑰	RB 9	1.32	30	0.5	19.80		
⑰A	RB 9	1.44	4	0.5	2.88		
⑱	DB 25	3.80; 1.15	14; 6	3.85	231.39		
⑲	DB 25	3.84	18	3.85	266.11		
⑲	DB 25	3.8	12	3.85	175.50		
⑲	DB 25	3.84	12	3.85	177.41		
⑲	DB 25	1.2	8	3.85	36.96		
⑲	RB 9	4.08; 4.88	2	0.5	8.96		
⑲	DB 16	7.24; 4.54*2	18	1.58	293.76		
3. Rails							
stainless steel pipe handrail dia. 2 1/2"	thickness (mm)	length, m	quantity	unit wt. (kg)	unit wt. (kg)		
stainless steel pipe post dia. 2 1/2"	1.5	7					
stainless steel plate 10 x 10 cm.	1.5	0.23	9				
RB 6	6		9				
excavation		6.09	36	0.22	0.71		
compacted sand			26.99	m ³			
lean concrete			0.90	m ³			
formwork			88.04	m ²			
concrete			18.80	m ³			
reinforcement							
RB			800.16	kg			
DB 12 & smaller			93.12	kg			
DB 16 & bigger			2726.48	kg			
wire			92.89	kg			
stainless steel pipe dia. 5 1/2"			0.07	m			
stainless steel plate 10 x 10 cm, 8mm. thick			9	off			
PVC dia 10 cm.			14	off			
stainless steel circular dia 19.5 cm.			2	off			

Outside Pier for span 16.01 - 21.00 m (type I) .

Outside Pier span 16.01 - 21.00 m (type I) : DWG No. PS - 02 (Pedestrian Bridge)						
1. Footing (over batten 1.00 m)						
excavation	3.80 x 3.80 x 1.80					
compacted sand	3.0 x 3.0 x 0.10					25.99 m ³
lean concrete	3.0 x 3.0 x 0.10					0.90 m ³
formwork	2.80 * 4 * 0.60					0.90 m ²
concrete	2.80 x 2.80 x 0.60					0.72 m ³
reinforcement						4.70 m ³
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(14)	DB 20	3.6	15	2.47	133.38
	(15)	DB 20	3.6	15	2.47	133.38
	(16)	DB 20	3.6	23	2.47	204.52
	(17)	DB 20	3.6	23	2.47	204.52
2. Pier (height 6.50 m)						
formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)					27.68 m ²
concrete	(1.20*1.40*2.50)+(0.10*3.10*4*2.50)+(0.12*0.20)*(0.10*3.10*5.50)+(0.80*1.0*1.00*0.10*4.80)					7.98 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(5)	DB 25	8	44	3.85	1355.20
	(6)	DB 12	3.25	16	0.89	46.28
	(7)	DB 12	3.15	16	0.89	44.86
	(8)	RB 9	2.83	35*2	0.5	100.80
	(8A)	RB 9	4.28	8	0.5	17.12
	(9)	RB 9	2.68	35*2	0.5	93.80
	(9A)	RB 9	3.58	8	0.5	15.52
	(10)	RB 9	4.68	7	0.5	16.38
	(11)	RB 9	4.68	7	0.5	16.38
	(12)	RB 9	4.088; 4.88	2	0.5	8.96
	(13)	DB 25	1.2	8	3.85	36.96
3. Deck						
formwork	(3.30*2.725)+(3.3+2.725)*2*(0.80)+(0.70*(3.30+2.725))+(0.70*(2.725-1.60))+(0.80*4)					23.64 m ²
concrete	(3.30*2.525*0.80)+(1.0*1.0*0.10)+(1.20*1.20*0.10)+(0.25*0.10*(3.30+2.525*(2.525-1.60)))+(0.1*0.2*(3.3+2.525*(2.525-1.60))*2*(0.1*3.1*(3.3+2.525*(2.525-1.60)))+(0.70*0.25*(2.01+2.05+0.5))+(0.2*0.5*4.51)					7.52 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(1)	DB 25	3.3	15	3.85	190.58
	(2)	DB 25	3.85	18	3.85	266.11
	(3)	DB 25	3.3	12	3.85	152.46
	(4)	DB 25	3.84	12	3.85	177.61
	(18)	DB 16	7.24+4.54*2	18	1.58	464.14
	(19)	RB 9	4.57	16	0.5	36.56
	(20)	RB 9	1.2	26	0.5	15.99
	(20A)	RB 9	1.23	4	0.5	7.86
	(21)	RB 9	1.02	26	0.5	13.26
	(22)	RB 9	3.6	26	0.5	44.20
	(23)	DB 25	1.15	6	3.85	26.57
***	excavation			25.99	m ³	
***	compacted sand			0.90	m ³	
***	lean concrete			0.90	m ³	
***	formwork			68.04	m ²	
***	concrete			20.20	m ³	
***	reinforcement					
		RB		861.85	kg	
		DB 12 & smaller		97.14	kg	
		DB 16 & bigger		2545.21	kg	
***	wire			95.45	kg	
***	PVC dia 10 cm.			14	m	
***	stainless steel strainer dia 13.5 cm.			2	off	
***	concrete strength 210 ksc ; cement content 350 kg / m ³					

Outside Pier for span 16.01 - 21.00 m (type II)

Outside Pier span 16.01 - 21.00 m (type II) ; DWG No. PS - 04 (Pedestrian Bridge)							
1. Footing (over burden 1.80 m)							
excavation	3.80 x 3.80 x 1.80					=	25.99 m ³
compacted sand	3.0 x 3.0 x 0.10					=	0.90 m ³
lean concrete	3.0 x 3.0 x 0.10					=	0.90 m ³
formwork	2.80 x 4 x 0.60					=	6.72 m ²
concrete	2.80 x 2.80 x 0.60					=	4.70 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(1)	DB 20	3.6	15	2.47	133.38	
	(2)	DB 20	3.6	15	2.47	133.38	
	(3)	DB 20	3.6	23	2.47	204.52	
	(4)	DB 20	3.6	23	2.47	204.52	
2. Pier (height 6.50 m)							
formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)					=	27.68 m ²
concrete	(1.20*1.40*2.50)+(0.10*0.10*4*2.50)+(0.1*0.30*4*1.0)+(0.10*4*0.20)+(0.80*1.0*4.80)+(0.10*0.10*4*4.80)					=	7.98 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(5)	DB 20	8	14	2.47	869.44	
	(6)	DB 12	3.25	16	0.89	46.28	
	(7)	DB 12	3.15	16	0.89	44.86	
	(8)	RB 9	2.68	35*2	0.5	100.80	
	(9)	RB 9	2.88	35*2	0.5	100.80	
	(10)	RB 9	3.88	8	0.5	15.52	
	(11)	RB 9	3.88	8	0.5	15.52	
	(12)	RD 9	4.68	7	0.5	16.38	
	(13)	RD 9	5.08	7	0.5	17.78	
3. Deck							
formwork	(3.30*2.725)+(3.3+2.725)*2*0.80+(0.70*(3.30+2.725))+(0.70*(2.725+1.60)+(0.80*4)					=	23.64 m ²
concrete	(3.30*2.525*0.80)+(1.0*1.0*0.10)+(1.20*1.20*0.10)+(0.25*0.10*(3.30+2.525+(2.525-1.60)))+(0.1*0.2*(3.3+2.525+(2.525-1.60))*2*(0.1*(3.3+2.525+(2.525-1.60))*2+(0.70*0.25*(1.02+2.05+0.5)))+(0.2*0.5*4.57)					=	7.51 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(14)	RB 9	7.4	16	0.5	59.20	
	(15)	RB 9	3.46	30	0.5	51.90	
	(16)	RB 9	1.06	30	0.5	15.90	
	(17)	RB 9	1.32	30	0.5	19.80	
	(17A)	RB 9	1.44	4	0.5	2.88	
	(18)	DB 25	3.80 ; 1.15	14 ; 6	3.85	231.39	
	(19)	DB 25	3.84	18	3.85	266.11	
	(20)	DB 25	3.8	12	3.85	175.56	
	(21)	DB 25	3.84	12	3.85	177.41	
	(22)	DB 25	1.2	8	3.85	36.96	
	(23)	RB 9	4.08 ; 4.88	2	0.5	8.96	
	(24)	DB 16	7.24 ; 4.54*2	18	1.58	293.76	
3. Rails							
	thickness (mm)	length, m	quantity	unit wt. (kg)	unit wt. (kg)		
stainless steel pipe handrail dia. 2 1/2"	1.5	7					
stainless steel pipe post dia. 2 1/2"	1.5	0.23	9				
stainless steel plate 10 x 10 cm.	6		9				
RB 6		0.09	36	0.22	0.71		
*** excavation				25.99	m ³		
*** compacted sand				0.90	m ³		
*** lean concrete				0.90	m ³		
*** formwork				68.04	m ²		
*** concrete				20.20	m ³		
*** reinforcement							
	RB			125.44	kg		
	DB 12 & smaller			91.14	kg		
	DB 16 & bigger			2726.62	kg		
*** wire				91.07	kg		
*** stainless steel pipe dia. 2 1/2"				9.07	m		
*** stainless steel plate 10 x 10 cm, 6mm. thick				9	off		
*** P.V.C dia 10 cm.				14	m		
*** stainless steel stirruter dia 18.5 cm.				2	off		

Outside Pier span 21.01 - 26.00 m (type I) ; DWG No. PS - 05 (Pedestrian Bridge)							
1. Footing (over burden 1.00 m)							
excavation		3.80 x 3.80 x 1.80					= 25.99 m ³
compacted sand		3.0 x 3.0 x 0.10					= 0.90 m ³
lean concrete		3.0 x 3.0 x 0.10					= 0.90 m ³
formwork		2.80 * 4 * 0.60					= 6.72 m ²
concrete		2.80 x 2.80 x 0.60					= 4.70 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(14)	DB 20	3.6	15	2.47	133.38	
	(15)	DB 20	3.6	15	2.47	133.38	
	(16)	DB 20	3.6	23	2.47	264.52	
	(17)	DB 20	3.6	23	2.47	264.52	
2. Pier (height 6.50 m)							
formwork		(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.30)					= 27.68 m ²
concrete		(1.40*1.40*2.50)+(0.10*0.10*4*2.50)+(1.2*1.2*0.20)+(0.10*0.10*4*0.20)+(1.0*1.0*4*0.20)+(0.10*0.10*4*0.20)					= 9.60 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(3)	DB 25	8	44	3.85	1355.20	
	(6)	DB 12	3.25	16	0.89	46.28	
	(7)	DB 12	3.15	16	0.89	44.86	
	(8)	RB 9	3.48	35*2	0.5	121.80	
	(8A)	RB 9	4.23	8	0.5	17.12	
	(9)	RB 9	3.08	35*2	0.5	107.80	
	(9A)	RB 9	4.28	8	0.5	17.12	
	(10)	RB 9	5.08	7	0.5	17.78	
	(11)	RB 9	5.08	7	0.5	17.78	
	(12)	RB 9	4.08; 4.85	2	0.5	8.96	
	(13)	DB 25	1.5	8	3.85	46.20	
3. Deck							
formwork		(3.30*2.725)+((3.3+2.725)*2*0.85)+(0.75*(3.30+2.725))+((0.70*(2.725-1.60)+(0.80*4)					= 23.64 m ²
concrete		(3.30*2.525*0.85)+(1.0*1.0*0.10)+(1.20*1.20*0.10)+(0.25*0.16*(3.30+2.525+(2.525-1.60)))+(0.1*0.2*(3.3+2.525-(2.525-1.60)))*2+(0.1*0.1*(3.3+2.525-(2.525-1.60)))*2+(0.75*0.25*(2.02+2.05+0.5))+((0.2*0.05*4.57)					= 7.52 m ³
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(1)	DB 25	3.3	15	3.85	190.58	
	(2)	DB 25	3.84	16	3.85	266.11	
	(3)	DB 25	3.3	12	3.85	152.46	
	(4)	DB 25	3.84	12	3.85	177.41	
	(18)	DB 16	7.24+4.54*2	18	1.58	464.14	
	(19)	RB 9	4.57	16	0.5	36.56	
	(20)	RB 9	1.23	26	0.5	15.99	
	(20A)	RB 9	1.43	4	0.5	2.86	
	(21)	RB 9	1.02	26	0.5	13.26	
	(22)	RB 9	3.4	26	0.5	44.29	
	(23)	DB 25	1.15	6	3.85	26.57	
***	excavation			25.99		m ³	
***	compacted sand			0.90		m ³	
***	lean concrete			0.90		m ³	
***	formwork			68.04		m ²	
***	concrete			21.91		m ³	
***	reinforcement						
		RB		421.23		kg	
		DB 12 & smaller		91.14		kg	
		DB 16 & bigger		3554.45		kg	
***	wire			96.67		kg	
***	PVC dia 10 cm.			24		m	
***	stainless steel strainer dia 12.5 cm.			2		off	
***	concrete strength 210 knc ; cement content 350 kg / m ³						

Outside Pier for span 21.01 - 25.00 m (type II)

Outside Pier span 21.01 - 25.00 m (type II) : DWG No. PS - 06 (Pedestrian Bridge)						
1. Footing (over burden 1.00 m)						
excavation	3.80 x 3.80 x 1.80					m ³
compacted sand	3.0 x 3.0 x 0.10					m ³
lean concrete	3.0 x 3.0 x 0.10					m ³
formwork	2.80 * 4 * 0.60					m ²
concrete	2.80 x 2.80 x 0.60					m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(14)	DB 20	3.6	15	2.47	133.38
	(15)	DB 20	3.6	15	2.47	133.38
	(16)	DB 20	3.6	23	2.47	204.52
	(17)	DB 20	3.6	23	2.47	204.52
2. Pier (height 6.50 m)						
formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)					m ²
concrete	(1.40*1.40*2.50)+(0.10*0.10*4*2.50)+(1.2*1.2*0.20)+(0.10*0.10*4*0.20)+(1.0*1.0*4.80)+(0.10*0.10*4*4.80)					m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(5)	DB 25	5	44	3.85	1355.20
	(6)	DB 12	3.25	16	0.39	46.28
	(7)	DB 12	3.15	16	0.39	44.86
	(8)	RB 9	3.08	35*2	0.5	107.80
	(8A)	RB 9	4.28	8	0.5	17.12
	(9)	RB 9	3.08	35*2	0.5	107.80
	(9A)	RB 9	4.28	8	0.5	17.12
	(10)	RB 9	5.08	7	0.5	17.78
	(11)	RB 9	5.08	7	0.5	17.78
	(12)	RB 9	4.08; 4.88	2	0.5	8.96
	(13)	DB 25	1.5	8	3.85	46.20
3. Deck						
formwork	(3.30*2.725)+(3.3+2.725)*2*0.80+(0.70*(3.30+2.725))+(0.70*(2.725-1.60)+(0.80*4)					m ²
concrete	(3.30*2.525*0.80)+(1.0*1.0*0.10)+(1.20*1.20*0.10)+(0.45*0.10*(3.30+2.525+(2.525-1.60)))					m ³
reinforcement	(0.1*0.2*(3.3+2.525+(2.525-1.60))*2+(0.1*(3.3+2.525+(2.525-1.60))*2+(0.70*0.25*(2.02+2.05+0.5)))+(0.2*0.5*4.57)					m ³
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(1)	DB 25	3.3	15	3.85	190.58
	(2)	DB 25	3.84	16	3.85	266.11
	(3)	DB 25	3.3	12	3.85	152.46
	(4)	DB 25	3.84	12	3.85	177.41
	(18)	DB 16	7.24+4.54*2	18	1.58	464.14
	(19)	RB 9	4.57	16	0.5	36.56
	(20)	RB 9	1.43	26	0.5	18.59
	(21)	RB 9	1.12	26	0.5	14.56
	(22)	RB 9	3.2	26	0.5	41.60
	(23)	DB 25	1.15	6	3.85	26.57
3. Rails						
	thickness (mm)	length, m	quantity	unit wt. (kg)	unit wt. (kg)	
stainless steel pipe handrail dia. 2 1/2"	1.5	7				
stainless steel pipe post dia. 2 1/2"	1.5	0.23	9			
stainless steel plate 10 x 10 cm.	6		9			
RB 6		0.09	36	0.22	0.71	
***	excavation			25.90	m ³	
***	compacted sand			0.90	m ³	
***	lean concrete			0.90	m ³	
***	formwork			58.04	m ²	
***	concrete			21.81	m ³	
***	reinforcement					
	RB			405.87	kg	
	DB 12 & smaller			91.14	kg	
	DB 16 & bigger			8854.45	kg	
***	wire			96.25	kg	
***	stainless steel pipe dia. 5 1/8"			0.07	m	
***	stainless steel plate 10 x 10 cm, 8mm. thick			0	off	
***	PVC dia 10 cm.			14	m	
***	stainless steel studier dia 12.5 cm.			2	off	
***	concrete strength 210 ksc : cement content 350 kg / m ³					

Inside Pier span ≤16.00 m : DWG No. PS - 07 (Pedestrian Bridge)									
1. Footing (over burden 1.00 m)									
	excavation	3.80 x 3.80 x 1.80					=	25.99	m³
	compacted sand	3.0 x 3.0 x 0.10					=	0.90	m³
	lean concrete	3.0 x 3.0 x 0.10					=	0.90	m³
	formwork	2.80 * 4 * 0.60					=	6.72	m²
	concrete	2.80 x 2.80 x 0.60					=	4.70	m³
	reinforcement								
	bar mark	size	length, m	quantity	unit w t (kg)	weight (kg)			
	(14)	DB 20	3.6	10	2.7	88.92			
	(15)	DB 20	3.6	10	2.7	88.92			
	(16)	DB 20	3.6	19	2.7	168.95			
	(17)	DB 20	3.6	19	2.7	168.95			
2. Pier (height 6.50 m)									
	formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)					=	27.68	m²
	concrete	(1.20*1.20*2.50)+(0.10*0.10*4*2.30)+(1.0*1.0*0.20)+(0.10*0.10*4*3.20)+(0.8*0.8*4.80)+(0.10*0.10*4*4.80)					=	6.57	m³
	reinforcement								
	bar mark	size	length, m	quantity	unit w t (kg)	weight (kg)			
	(3)	DB 25	8	36	3.15	1108.80			
	(6)	DB 12	3.25	16	0.39	46.28			
	(7)	DB 12	3.15	16	0.39	44.86			
	(8)	RB 9	2.68	35*2	0.5	93.80			
	(8A)	RB 9	3.48	8	0.5	13.92			
	(9)	RB 9	2.68	35*2	0.5	93.80			
	(9A)	RB 9	3.48	8	0.5	13.92			
	(10)	RB 9	4.28	7	0.5	14.58			
	(11)	RB 9	4.28	7	0.5	14.58			
	(12)	RB 9	4.08; 4.88	2	0.5	8.96			
	(13)	DB 25	1.5	8	3.85	46.20			
3. Dock									
	formwork	(4.25*3.30)-(1.20*1.20)+((4.25+2.90)*2*0.70)+(0.40*4.25*2)					=	26.00	m²
	concrete	(3.1*4.25*0.70)					=	9.22	m³
	reinforcement								
	bar mark	size	length, m	quantity	unit w t (kg)	weight (kg)			
	(1)	DB 25	5.15	29	3.85	456.03			
	(2)	DB 25	3.8	17	3.85	248.71			
	(3)	DB 25	3.3	12	3.85	152.46			
	(4)	DB 25	3.84	17	3.85	251.33			
	(18)	DB 16	9.54+6.44*2	53	1.58	1108.98			
	(19)	RB 9	4.3	16*2	0.5	68.80			
	(20)	RB 9	1.32	36	0.5	23.76			
	(21)	RB 9	1.92	36	0.5	18.36			
	(22)	RB 9	3.4	36	0.5	61.20			
	(23)	DB 25	1.15	6	3.85	26.57			
***	excavation			25.99		m³			
***	compacted sand			0.90		m³			
***	lean concrete			0.90		m³			
***	formwork			60.40		m²			
***	concrete			20.50		m³			
***	reinforcement								
		RB		426.48		kg			
		DB 12 & smaller		9		kg			
		DB 16 & bigger		8974.61		kg			
***	wire			112.31		kg			
***	galvanised steel pipe dia. 2 1/2"			36.04		m			
***	stainless steel plate 10 x 10 cm, 6mm. thick			8		off			
***	PVC dia 10 cm.			14		m			
***	stainless steel strainer dia 12.5 cm.			8		off			
***	concrete strength 210 kpa : cement content 350 kg / m³								

Inside Pier for span 16.01 - 21.00 m.

Inside Pier span 16.01 - 21.00 m ; DWG No. PS - 08 (Pedestrian Bridge)										
1. Footing (over burden 1.00 m)										
excavation	3.80 x 3.80 x 1.20								25.99	m ³
compacted sand	3.0 x 3.0 x 0.10								0.90	m ³
lean concrete	3.0 x 3.0 x 0.10								0.90	m ³
formwork	2.80 x 4 x 0.60								6.72	m ²
concrete	2.80 x 2.80 x 0.60								4.70	m ³
reinforcement										
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)				
	(14)	DB 20	3.6	10	2.47	88.92				
	(15)	DB 20	3.6	10	2.47	88.92				
	(16)	DB 20	3.6	10	2.47	108.95				
	(17)	DB 20	3.6	10	2.47	108.95				
2. Pier (height 6.50 m)										
formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.30)								27.68	m ²
concrete	(1.40*1.20*2.50)+(0.10*2.10*4*2.50)+(1.2*1.0*0.20)+(0.10*1.0*4*0.20)+(1.0*0.8*4.30)+(0.10*1.0*4*4.30)								7.08	m ³
reinforcement										
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)				
	(5)	DB 25	2	35	3.85	1108.80				
	(6)	DB 12	3.25	16	0.89	46.28				
	(7)	DB 12	3.125	16	0.89	44.86				
	(8)	RB 9	2.48	35*2	0.5	86.80				
	(8A)	RB 9	13.88	8	0.5	15.52				
	(9)	RB 9	2.88	35*2	0.5	100.80				
	(9A)	RB 9	3.88	8	0.5	15.52				
	(10)	RB 9	4.68	7	0.5	16.38				
	(11)	RB 9	4.68	7	0.5	16.38				
	(12)	RB 9	4.08	2	0.5	8.96				
	(13)	DB 25	1.5	8	3.85	46.20				
3. Deck										
formwork	(4.25*2.30)-(1.20*1.20)+((4.25+2.90)*2*0.70)+(0.40*1.25*2)								26.00	m ²
concrete	(3.1*4.25*0.70)								9.22	m ³
reinforcement										
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)				
	(1)	DB 25	5.15	29	3.85	573.00				
	(2)	DB 25	3.6	21	3.85	307.23				
	(3)	DB 25	3.3	15	3.85	190.58				
	(4)	DB 25	3.84	21	3.85	310.46				
	(18)	DB 16	9.54+6.44*2	23	1.58	1168.98				
	(19)	RB 9	4.3	16*2	0.5	68.80				
	(20)	RB 9	1.32	36	0.5	23.76				
	(21)	RB 9	1.02	36	0.5	18.36				
	(22)	RB 9	3.4	36	0.5	61.20				
	(23)	DB 25	1.15	6	3.85	26.57				
***	excavation								25.99	m ³
***	compacted sand								0.90	m ³
***	lean concrete								0.90	m ³
***	formwork								60.40	m ²
***	concrete								21.91	m ³
***	reinforcement									
		RB				432.48	kg			
		DB 12 & smaller				91.14	kg			
		DB 16 & bigger				4249.66	kg			
***	wire					119.53	kg			
***	stainless steel pipe standard 2 1/2"					7.6	m			
***	stainless steel pipe post 2 1/2"					2	m			
***	PVC dia 10 cm.					14	m			
***	stainless steel strainer dia 12.5 cm.					2	off			
***	concrete strength 210 ksc : cement content: 350 kg / m ³									

Inside Pier for span 21.01 - 25.00 m.

Inside Pier span 21.01 - 25.00 m ; DWG No. PS - 08 (Pedestrian Bridge)						
1. Footing (over burden 1.00 m)						
excavation	3.80 x 3.80 x 1.80				=	25.99 m ³
compacted sand	3.0 x 3.0 x 0.10				=	0.90 m ³
lean concrete	3.0 x 3.0 x 0.10				=	0.90 m ³
formwork	2.80 * 4 * 0.60				=	6.72 m ²
concrete	2.80 x 2.80 x 0.60				=	4.70 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(14)	DB 20	3.6	10	2.47	88.92
	(15)	DB 20	3.6	10	2.47	88.92
	(16)	DB 20	3.6	19	2.47	168.95
	(17)	DB 20	3.6	19	2.47	168.95
2. Pier (height 6.50 m)						
formwork	(1.20*4*2.50)+(1.0*4*0.20)+(0.80*4*4.80)				=	27.68 m ²
concrete	(1.40*1.20*2.50)+(0.10*0.10*2.50)+(1.2*1.0*0.20)+(0.10*0.10*0.20)+(1.0*0.8*4.80)+(0.10*0.10*4.80)				=	7.88 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(5)	DB 25	8	40	3.85	1232.00
	(6)	DB 12	3.25	16	0.89	46.28
	(7)	DB 12	3.15	16	0.89	44.86
	(8)	RB 9	3.78	35*2	0.5	114.80
	(8A)	RB 9	4.28	8	0.5	17.12
	(9)	RB 9	2.68	35*2	0.5	93.80
	(9A)	RB 9	4.28	8	0.5	17.12
	(10)	RB 9	3.08	7	0.5	17.78
	(11)	RB 9	5.08	7	0.5	17.78
	(12)	RB 9	4.08; 4.88	2	0.5	8.96
	(13)	DB 25	1.5	8	3.85	46.20
3. Deck						
formwork	(4.25*3.30)-(1.20*1.20)+((4.25+2.90)/2*0.70)+(0.40*4.25*2)				=	26.00 m ²
concrete	(3.1*4.25*0.70)				=	9.22 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	(1)	DB 25	5.15	29	3.85	575.00
	(2)	DB 25	5.8	21	3.85	307.23
	(3)	DB 25	3.3	15	3.85	190.58
	(4)	DB 25	3.84	21	3.85	310.46
	(18)	DB 16	9.54+6.54*2	33	1.58	1168.98
	(19)	RB 9	4.3	16*2	0.5	68.80
	(20)	RB 9	1.22	76	0.5	23.76
	(21)	RB 9	1.02	36	0.5	18.36
	(22)	RB 9	3.4	36	0.5	61.20
	(23)	DB 25	1.15	6	3.85	26.57
***	excavation			25.99	m ³	
***	compacted sand			0.90	m ³	
***	lean concrete			0.90	m ³	
***	formwork			60.40	m ²	
***	concrete			21.81	m ³	
***	reinforcement					
		RB		459.48	kg	
		DB 12 & smaller		91.14	kg	
		DB 16 & bigger		4372.76	kg	
***	wire			123.00	kg	
***	stainless steel pipe bandroll 3 1/2"			7.6	m	
***	stainless steel pipe post 3 1/2"			2	m	
***	PVC dia 10 cm.			14	m	
***	stainless steel strainer dia 12.5 cm.			2	off	

Pedestrian Bridge Stair (type I)

Pedestrian Bridge Stair (type I) ; DWG No. PS - 10						
1. Footing (over burden 0.50 m)						
excavation	3.80 x 2.50 x 1.30				=	12.35 m ³
compacted sand	3.0 x 1.7 x 0.10				=	0.51 m ³
lean concrete	3.0 x 1.7 x 0.10				=	0.51 m ³
formwork	$((2.80+1.5) \times 2 \times 0.60) + ((1.4+1.5) \times 0.75 \times 4)$				=	13.86 m ²
concrete	$(2.80 \times 1.50 \times 0.60) + (1.6+1.5) \times 0.75 \times 0.25 \times 2$				=	4.02 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)
	8	DB 16	2.14	19	1.58	64.24
	9	DB 16	2.14	19	1.58	64.24
	10	DB 16	3.44	10	1.58	54.35
	11	DB 16	3.44	10	1.58	54.35
	12	DB 16	1.75 (eve.)	21*2	1.58	116.13
	13	RD 9	1.6 : 1.5	5*2*2	0.5	62.00
2. Stairway and landing ; (pair height = 6.50 m)						
formwork	$((5.35*2)+1.2) \times 1.6 + (5.35 \times 2 \times 0.45 \times 2) + (1.2 \times 0.25 \times 2)$				=	29.27 m ²
concrete	$((5.35 \times 2) + 1.2) \times 1.6 \times 0.25 + (0.5 \times 0.25 \times 0.185 \times 1.60 \times 34)$				=	6.02 m ³
reinforcement						
	bar mark	size	length, m	quantity	unit wt. (kg)	unit wt. (kg)
	1	DB 20	6.77	13	2.47	217.38
	2	DB 25	6.67	13	3.85	333.83
	3	DB 20	4.55	13	3.85	327.83
	4	DB 25	6.82	13	3.85	341.34
	5	RB 9	3.6	86	0.5	144.00
	6	RB 9	6	11	0.5	44.00
	7	RB 9	8.3	11	0.5	45.65
	12	RB 9	1.66	35	0.5	29.05
3. Rails						
		thickness (mm)	length, m	quantity	unit wt. (kg)	unit wt. (kg)
stainless steel pipe handrail dia. 2 1/2"		1.5	$(5.35*2) + (1.2*4)$	8 : 4		
stainless steel pipe post dia. 2 1/2"		1.5	0.93	14		
stainless steel pipe baluster dia. 1 1/2"		1.2	0.83	64		
stainless steel plate 10 x 10 cm.		6		14		
RB 6			0.09	14*4	0.22	1.11
4. Drainage						
PVC dia 10 cm.			7	2		
stainless steel strainer dia 12.5 cm.				2		
***	excavation			12.35	m ³	
***	compacted sand			0.51	m ³	
***	lean concrete			0.51	m ³	
***	formwork			43.13	m ²	
***	concrete			10.04	m ³	
***	reinforcement					
	RB			325.81	kg	
	DB 16 & bigger			1678.71	kg	
***	wire			47.49	kg	
***	stainless steel pipe handrail 2 1/2"			60.82	kg	
***	stainless steel pipe post 1 1/2"			63.12	kg	
***	stainless steel plate 10 x 10 cm, 6mm. thick			14	off	
***	concrete strength 210 ksc ; cement content 350 kg / m ³					

Pedestrian Bridge Stair (type 2) ; DWG No. PS - 11							
1. Footing (over burden 0.50 m)							
excavation		2.40 x 2.50 x 1.30					
compacted sand		1.5 x 1.6 x 0.10				7.80	m ³
lean concrete		1.5 x 1.6 x 0.10				0.24	m ³
formwork		(1.4+1.5) x 2 x 0.60				0.24	m ²
concrete		1.40 x 1.50 x 0.50				3.48	m ³
reinforcement						1.26	m ³
	bar mark	size	length, m	quantity	unit wt. (kg)	weight (kg)	
	(13)	DB 16	2.1	8 + 5	1.58	43.13	
	(14)	DB 16	2	8 + 5	1.58	41.08	
2. Stairway and landings : (pair height = 6.50 m)							
formwork		((0.7*2 + 0.3*2) * 13) + (1.40 * (0.225 + (0.19 * 2) * 37))					46.00
concrete		(0.7 * 0.3 * 13) + (0.12 * 1.50 * 1.40 * 2) + (0.10 * 1.40 * (0.225 + 0.19) * 35)					5.27
reinforcement							
	bar mark	size	length, m	quantity	unit wt. (kg)	unit wt. (kg)	
	(1)	DB 25	5	6	3.85	115.50	
	(2)	DB 25	6	6	3.85	138.60	
	(3)	DB 25	6.8	6	3.85	157.08	
	(4)	DB 25	7	6	3.85	161.70	
	(5)	DB 25	7.5	6	3.85	173.25	
	(6)	DB 25	6.55	6	3.85	151.31	
	(7)	RB 9	1.88	120	0.5	112.80	
	(8)	RB 9	1.52 (ave.)	15	0.5	11.85	
	(9)	DB 12	2.63	103	0.89	189.70	
	(10)	RB 9	4.5	10	0.5	22.50	
	(11)	RB 9	7.1	10	0.5	35.50	
	(12)	RB 9	7.3	10	0.5	36.50	
3. Rails							
		thickness (mm)	length, m	quantity	unit wt. (kg)	unit wt. (kg)	
	stainless steel pipe handrail dia. 2 1/2"	1.5	(2.6x4)+(3.75x4)+(4.05x4)+(1.5x10)				
	stainless steel pipe post dia. 2 1/2"	1.5	0.93	19			
	stainless steel pipe baluster dia. 1 1/2"	1.2	0.83	(69 x 2) + 7			
	stainless steel plate 10 x 10 cm.	6		19			
	RB 6		0.09	19*4	0.22	1.50	
4. Drainage							
	PVC dia 10 cm.		7	2			
	stainless steel strainer dia 12.5 cm.			2			
***	excavation			7.80	m ³		
***	compacted sand			0.24	m ³		
***	lean concrete			0.24	m ³		
***	formwork			49.48	m ²		
***	concrete			6.63	m ³		
***	reinforcement						
		RB		220.66	kg		
		DB 12 & smaller		189.70	kg		
		DB 16 & bigger		981.65	kg		
***	wire			34.80	kg		
***	stainless steel pipe handrail 2 1/2"			74.27	m		
***	stainless steel pipe post 1 1/2"			120.85	m		
***	stainless steel plate 10 x 10 cm, 6mm. thick			19	off		
***	concrete strength 210 ksc ; cement content 350 kg / m ³						

Prestressed Concrete Girder for span 21.01 - 25.00 m (PC - 8801) ; DWG No. PS - 13 (Pedestrian Bridge)									
1. Girder									
formwork	(1.85*0.3*2)+(0.35*0.3*2)+(3.95*1*2)+(4.13*(1-2.6))								
concrete	(((0.35*0.7*0.3)-(0.05*0.1*0.3*2))+(((0.35*1.53)+(0.2*0.15))-1*2))+((0.25*1.50)+(0.10*0.60*2))+((0.05*0.20*2))*0(1-2.6)								
	span (m)		formwork (m ²)		concrete (m ³)				
	22		89.34		11.17				
	23		93.47		11.69				
	24		97.60		12.20				
	25		101.73		12.72				
reinforcement						span (m.)	span (m.)	span (m.)	span (m.)
bar mark	size	length, m	unit wt. (kg)	quantity		22	23	24	25
①	DB 12	3.50	0.89	((1-2.6)/0.7)+1	305.27	320.85	336.42	352.00	
①A	DB 12	3.50	0.89	11*2	68.53	68.53	68.53	68.53	
②	RB 9	1.10	0.5	((1-2.6)/1.0)+1	11.22	11.77	12.32	12.87	
②A	DB 12	3.75	0.89	14*2	92.95	92.95	92.95	92.95	
③	RB 9	1.70	0.5	((1*2)+((1-2.6)/1.0)+1)	36.04	36.89	37.74	38.59	
④	RB 9	1.60	0.5	(9*2)+(((1-2.6)/1.0)+1)	30.72	31.52	32.32	33.12	
⑤	DB 12	1.88	0.89	4*2	13.39	13.39	13.39	13.39	
⑤A	DB 12	1.88	0.89	3*2	10.04	10.04	10.04	10.04	
⑥	RB 9	L : L - 0.3	0.5	10 : 10	218.50	228.50	238.50	248.50	
⑦	DB 20	2.30	2.47	4	22.72	22.72	22.72	22.72	
⑧	DB 25	2.78	3.85	2	22.72	22.72	22.72	22.72	
⑨	DB 12	0.6 : 0.85	0.89	8 : 8	10.32	10.32	10.32	10.32	
dowel bar	DB 20	1.05 : 0.75	2.47	4*7 : 2*7	98.553	98.553	98.553	98.553	
spiral	DB 12	6.5	0.89	4	23.14	23.14	23.14	23.14	
cable						span (m.)	span (m.)	span (m.)	span (m.)
	length, m	quantity	unit wt. (kg)	area mm ² (dia 12.70 mm)		22	23	24	25
strand	L+2 : ((0.25L*2+1.44)*(1/2)*2+2)	12 : 12	0.775	98.71	447.61	466.16	484.71	503.27	
duct sheet	L : ((0.25L*2+1.44)*(1/2)*2	2		dia 75 mm	44.13	46.12	48.12	50.11	
anchorage		2*2							
2. Slab									
formwork	(2.56 x L)								m ²
concrete	((0.1*2)+(0.2*2)+(0.12*2.40))*L								m ³
reinforcement						span (m.)	span (m.)	span (m.)	span (m.)
	size	length (m.)	unit wt (kg)	quantity		22	23	24	25
	RB 9	0.95	0.5	L / 0.30+1	33.31	36.89	38.48	40.06	
	RB 9	2.2	0.5	L / 0.30	81.77	85.43	89.10	92.77	
	RB 9	2.35	0.5	L / 0.30	87.34	91.26	95.18	99.09	
	RB 9	L : L+0.55	0.5	(6+4) : 5	165.00	172.50	180.00	187.50	
	RB 6	0.97	0.22	L / 0.20	23.69	24.75	25.82	26.89	
	DB 12	L	0.89	10	195.80	204.70	213.60	222.50	
	RB 9	0.3 L	0.50	9*6	148.50	155.25	162.00	168.75	
cross beam	DB 20	2.35	0.89	10	20.92	20.92	20.92	20.92	
	RB 6	0.97	0.22	13*7	19.42	19.42	19.42	19.42	
***						span (m.)	span (m.)	span (m.)	span (m.)
***						22	23	24	25
***					RB (kg)	887.80	894.19	980.87	987.85
***					DB12 & smaller (kg)	719.44	745.92	768.39	798.87
***					DB 20 & bigger (kg)	165.33	165.33	165.36	165.38
***					wire (kg)	48.58	48.09	48.81	48.14
***					formwork (m ²)	89.34	93.47	97.60	101.73
***					concrete (m ³)	11.17	11.69	12.20	12.72
***					strand (kg)	447.61	466.16	484.71	503.27
***					duct sheet (m.)	44.13	46.12	48.12	50.11
***					anchorage (off)	4	4	4	4
***					bearings				
***	ultimate compressive strength 40 N / mm ²								

Prestressed Concrete Girder for span 16.01 - 21.00 m.

Prestressed Concrete Girder for span 16.01 - 21.00 m (PC - 8802) ; DWG No. PS - 14 (Pedestrian Bridge)										
1. Girder										
formwork	$((1.85*0.3*2)+(0.35*0.3*2)+(3.95*1*2)+(4.13*(L-2.6)))$									
concrete	$((0.35*0.7*0.3)-(0.05*0.1*0.3*2))+(((0.35*1.50)+(0.2*0.15))*1*2)+((0.25*1.50)+(0.1*0.08*2)+(0.05*0.2*2))*(L-2.6)$									
	span (m)		formwork (m ²)		concrete (m ³)					
	17		68.69		8.60					
	18		72.82		9.11					
	19		76.95		9.63					
	20		81.08		10.14					
	21		85.21		10.66					
reinforcement										
bar mark	size	length, m	unit wt. (kg)	quantity	span (m.)	span (m.)	span (m.)	span (m.)	span (m.)	
①	DB 12	3.50	0.89	$((11*2)+(((L-2.6)/0.2)+1))$	227.40	242.97	258.55	274.12	289.70	
②	RB 9	1.10	0.5	$((L-2.6)/1.0)+1$	8.47	9.02	9.57	10.12	10.67	
②A	DB 12	3.73	0.89	14*2	92.95	92.95	92.95	92.95	92.95	
③	RB 9	1.70	0.5	$(11*2)+(((L-2.6)/1.0)+1)$	31.79	32.64	33.49	34.34	35.19	
④	RB 9	1.60	0.5	$(9*2)+((L-2.6)/1.0)+1$	26.72	27.52	28.32	29.12	29.92	
⑤	DB 12	1.88	0.89	4*2	13.39	13.39	13.39	13.39	13.39	
⑥	RB 9	L ; L - 0.3	0.5	10 ; 10	168.50	178.50	188.50	198.50	208.50	
⑦	DB 20	2.30	2.47	4	22.72	22.72	22.72	22.72	22.72	
dowel bar	DB 20	1.05; 0.75	2.47	4*7 ; 2*7	98.553	98.553	98.553	98.553	98.553	
spiral	DB 12	6.5	0.89	4	23.14	23.14	23.14	23.14	23.14	
cable										
	length, m	quantity	unit wt. (kg)	area mm ² (dia 12.70 mm)	span (m.)	span (m.)	span (m.)	span (m.)	span (m.)	
strand	$L*2 ; ((0.25L/2+1.44)*(1/2)*2+2)$	7 ; 7	0.775	98.71	17	18	19	20	21	
duct sheat	$L ; ((0.25L/2+1.44)*(1/2)*2)$	2		dia 50 mm	207.06	217.86	228.67	239.48	250.29	
anchorage	2*2				34.17	36.16	38.15	40.14	42.14	
2. Slab										
formwork	$(2.56 * L)$									
concrete	$((0.1*2)+(0.2*2)+(0.12*2.40))*L$									
reinforcement										
	size	length (m.)	unit wt (kg)	quantity	span (m.)	span (m.)	span (m.)	span (m.)	span (m.)	
	RB 9	0.95	0.5	L / 0.30+1	17	18	19	20	21	
	RB 9	2.2	0.5	L / 0.30	27.39	28.98	30.56	32.14	33.73	
	RB 9	2.35	0.5	L / 0.30	63.43	67.10	70.77	74.43	78.10	
	RB 9	L ; L+0.55	0.5	$(6+4) ; 5$	67.76	71.68	75.59	79.51	83.43	
	RB 6	0.97	0.22	L / 0.20	127.50	135.00	142.50	150.00	157.50	
	DB 12	L	0.89	10	18.35	19.42	20.49	21.55	22.62	
	RB 9	0.3 L	0.50	9*6	151.30	160.20	169.10	178.00	186.90	
	RB 9	0.3 L	0.50	9*6	114.75	121.50	128.25	135.00	141.75	
cross beam	DB 20	2.35	0.89	10	20.92	20.92	20.92	20.92	20.92	
	RB 6	0.97	0.22	13*7	19.42	19.42	19.42	19.42	19.42	

					span (m.)	span (m.)	span (m.)	span (m.)	span (m.)	
					17	18	19	20	21	
***					RB (kg)	609.84	659.87	719.90	779.94	839.97
***					DB 12 & smaller (kg)	508.17	532.66	557.12	581.60	606.07
***					DB 20 & bigger (kg)	142.19	142.19	142.19	142.19	142.19
***					wire (kg)	30.24	31.60	32.96	34.32	35.68
***					formwork (m ²)	68.69	72.82	76.96	81.08	85.21
***					concrete (m ³)	8.60	9.11	9.63	10.14	10.66
***					strand (kg)	207.06	217.86	228.67	239.48	250.29
***					duct sheat (m.)	34.17	36.16	38.16	40.14	42.14
***					anchorage (off)	4	4	4	4	4
***					bearings					
***					ultimate compressive strength 40 N / mm ²					

Prestressed Concrete Girder for span 14.00 m.

Prestressed Concrete Girder for span 14.00 m (PC - 8803) ; DWG No. PS - 15 (Pedestrian Bridge)							
1. Girder							
formwork	$(1.85 \times 0.3 \times 2) + (0.35 \times 0.3 \times 2) + (3.95 \times 1 \times 2) + (4.13 \times (L-2.6))$				=	56.50	m ²
concrete	$((0.35 \times 0.7 \times 0.3) - (0.05 \times 0.1 \times 0.3 \times 2)) + (((0.35 \times 1.50) + (0.2 \times 0.15)) \times 1 \times 2) + ((0.25 \times 1.50) \times (0.10 \times 0.60 \times 2) + (0.05 \times 0.20 \times 2)) \times (L-2.6)$				=	7.05	m ³
reinforcement							
bar mark	size	length, m	unit wt. (kg)	quantity	weight (kg)		
①	DB 12	3.50	0.89	$((1 \times 2) + (((L-2.6)/0.2) + 1))$	180.67		
②	RB 9	1.10	0.5	$((L-2.6)/1.0) + 1$	6.82		
2A	RB 9	1.10	0.5	13*2	14.30		
③	RB 9	1.70	0.5	$(1 \times 2) + (((L-2.6)/1.0) + 1)$	29.24		
④	RB 9	1.60	0.5	$(9 \times 2) + (((L-2.6)/1.0) + 1)$	24.52		
⑤	DB 12	1.88	0.89	3*2	10.04		
⑥	RB 9	L : L - 0.3	0.5	10 : 10	138.50		
⑦	DB 20	2.30	2.47	4	22.72		
dowel bar	DB 20	1.65 ; 0.75	2.47	4*7 ; 2*7	98.553		
spiral	DB 12	6.5	0.89	2	11.57		
cable							
	length, m	quantity	unit wt. (kg)	area mm ² (dia 12.70 mm)	weight (kg)		
strand	$((0.25L \times 2 + 1.44) \times (1/2) \times 2)$	7	0.775	98.71	87.91		
duct sheat	$((0.25L \times 2 + 1.44) \times (1/2) \times 2)$	1		dia 50 mm			
anchorage		2					
2. Slab							
formwork	(2.56 x L)				=	35.84	m ²
concrete	$((0.1 \times 2) + (0.2 \times 2)) \times (0.12 \times 2.40) \times L$				=	12.43	m ³
reinforcement							
	size	length (m.)	unit wt (kg)	quantity	weight (kg.)		
	RB 9	0.95	0.5	L / 0.30 + 1	22.64		
	RB 9	2.2	0.5	L / 0.30	52.43		
	RB 9	2.35	0.5	L / 0.30	56.01		
	RB 9	L : L + 0.55	0.5	(6+4) : 5	105.00		
	RB 6	0.97	0.22	L / 0.20	15.15		
	DB 12	L	0.89	10	124.60		
	RB 9	0.3 L	0.50	9*6	113.40		
cross beam	DB 20	2.35	0.89	10	20.92		
	RB 6	0.97	0.22	13*7	19.42		

		RB (kg)	489.63				
		DB 12 & smaller	326.88				
		DB 20 & bigger	142.19				
		wire (kg)	23.82				
		formwork (m ²)	62.14				
		concrete (m ³)	10.43				
		strand (kg)	87.91				
		duct sheat (no.)	14.20				
		anchorage (off)	2				
		bearings					

		ultimate compressive strength	40 N / mm ²				

Prestressed Concrete Girder for span 15.00 m (RC - 920/1) ; DWG No. PS - 16 (Pedestrian Bridge)						
1. Girder						
formwork	$(1.85 \times 0.3 \times 2) + (0.35 \times 0.3 \times 2) + (3.95 \times 1 \times 2) + (4.13 \times (L - 2.6))$					= 60.43 m ²
concrete	$((0.35 \times 0.7 \times 0.3) - (0.05 \times 0.1 \times 0.3 \times 2)) + (((0.35 \times 1.50) + (0.2 \times 0.15)) \times 1 \times 2) + ((0.25 \times 1.50) + (0.10 \times 0.60 \times 2)) + (0.05 \times 0.20 \times 2) \times (L - 2.6)$					= 7.57 m ³
reinforcement						
bar mark	size	length, m	unit wt. (kg)	quantity	weight (kg)	
①	DB 12	3.50	0.89	11*2	12.10	
②	RB 9	1.10	0.5	$((L - 2.6)/1.0) + 1$	7.37	
②A	RB 9	1.10	0.5	13*2	14.30	
③	RB 9	1.70	0.5	$(11*2) + (((L - 2.6)/1.0) + 1)$	28.32	
④	RB 9	1.60	0.5	$(9*2) + (((L - 2.6)/1.0) + 1)$	52.54	
⑤	DB 12	1.88	0.89	3*2	10.04	
⑥	RB 9	L : L - 0.3	0.5	10 : 10	148.50	
⑦	RB 9	3.50	0.5	$((L - 2.6)/0.25) + 1$	88.55	
⑧	DB 20	2.30	2.47	4	22.72	
⑨	DB 25	L : L - 0.3	3.85	2 : 5	436.98	
⑩	DB 12	4.00	0.89	4	14.24	
⑪	DB 25	2.50	3.85	2	19.25	
dowel bar	DB 20	1.05; 0.75	2.47	4*3 ; 2*3	42.24	
spiral	DB 12	6.5	0.89	2	11.57	
2. Slab						
formwork	$(2.56 \times L)$					= 38.4 m ²
concrete	$((0.1 \times 2) + (0.2 \times 2)) \times L$					= 13.32 m ³
reinforcement						
	size	length (m.)	unit wt (kg)	quantity	weight (kg.)	
	RB 9	0.95	0.5	L / 0.30 + 1	24.23	
	RB 9	2.2	0.5	L / 0.30	56.70	
	RB 9	2.35	0.5	L / 0.30	59.93	
	RB 9	L : L + 0.55	0.5	(6+4) : 5	112.50	
	RB 6	0.97	0.22	L / 0.20	16.22	
	DB 12	L	0.89	10	133.50	
	RB 9	0.3 L	0.50	9*2	40.50	
cross beam	DB 20	2.35	0.89	10	20.92	
	RB 6	0.97	0.22	13*3	8.32	
***				RB (kg)	667.37	
***				DB 18 & smaller (kg)	101.46	
***				DB 20 & bigger (kg)	642.10	
***				wire (kg)	34.52	
***				formwork (m ²)	98.83	
***				concrete (m ³)	20.89	
***				bearings		
***	ultimate compressive strength: 30 N / mm ²					

- 240 -

concrete barrier

Concrete Barrier for Pedestrian Bridge . (DWG PS - 12)											
	excavation		1.0 x 0.60 x 18.50				=	11.10	m ³		
	compacted sand		0.95 x 0.1 x 18.5				=	1.76	m ³		
	lean concrete		0.95 x 0.1 x 18.5				=	1.76	m ³		
	formwork		(0.2+0.4+0.15+0.7+0.8+0.2) x 8.0 + (0.2+0.4+0.15+0.35+0.4+0.2) x 10.0				=	36.6	m ²		
	concrete		(((0.2*0.75)+(0.2*0.43))*0.35+(0.3*0.3*0.1))*10.0+(((0.2*0.75)+(0.2*0.43)+(0.5*0.15*0.3)+(0.15*0.7))*8.0 =					3.92	m ³		
	reinforcement										
		size	length, m	unit wt. (kg)	quantity	weight (kg)					
		RB 9	2.19	0.5	37	40.52					
		RB 9	19	0.5	8	76.00					
		RB 9	1.8	0.5	20	18.00					
		RB 9	2.5	0.5	17	21.25					
					Total	156.77					
***	excavation		11.10		m ³						
***	compacted sand		1.76		m ³						
***	lean concrete		1.76		m ³						
***	formwork		36.6		m ²						
***	concrete		3.92		m ³						
***	RB 9				156.77	kg					
concrete strength 210 ksc ; cement content 350 kg / m ³											