

Number of Bolts

(STUD CASE)

Designation	Grade	Bolt		Main Structure	Inspection Way	Fender	Drain	Total	Remark
		Size	Length						
HTB	F10TW	M22	90	1,152				1,152	
			80	448				448	
			75	1,488				1,488	
			70	528				528	
		M16	50			320		320	
	Total				3,616		320		
TCB	S10TW	M24	80	4,288				4,288	
			M22	85	2,864				
		75		3,280				3,280	
		70		26,736				26,736	
		65		74,528				74,528	
		M16		55			800		
			50			3,260		3,260	
	Total				111,696		4,060		
U-Bolt	SS400	M16	1,050				64	64	Galvanized
			980				132	132	
		M10	156		642			642	
			123		1,284			1,284	
	Total				1,926		196		
B•N	SS400	M16	50				32	32	Galvanized
			45		2,996			2,996	
			40			80	144	224	
			35				144	144	
		M10	35		1,712			1,712	
	Total				4,708	80	320		
Nut	SS400	M22		2,650				2,650	Galvanized
		M16				432	432		
	Total				2,650		432		
Stud	SS400	22.	280	1,680				1,680	
			180	970				970	
			80	10,540				10,540	
	Total				13,190				
Total				131,152	6,634	4,460	948	143,194	

Painting Area

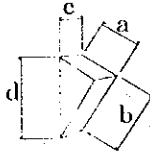
(STUD CASE)

Last modify: 2000.Aug/30

Item		Unit	Main Structure	Inspection Way	Fender	Drain	Total	Remark
Shop	Deck Surface	m ²	4,816.5				4,816.5	High Build Type Zinc Rich Paint
	Internal Surface	m ²	30,426.5	51.4	1,308.3	69.1	31,855.3	Improved Epoxy Resin Paint
	External Surface	m ²	4,727.4		798.1		5,525.5	Rust Stabilizing Surface Treatment
Fild	Deck Surface	m ²	412.5				412.5	High Build Type Zinc Rich Paint
	Internal Surface	m ²	2,943.7		12.8		2,956.5	Improved Epoxy Resin Paint
	External Surface	m ²	425.5				425.5	Rust Stabilizing Surface Treatment
Blast		m ²	51,824.7	51.4	2,119.6	79.4	54,075.1	SIS Sa 2.5

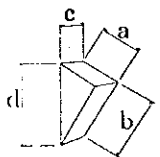
4. Pylon and Stay Cable

Item	Formula				Quantity
1. Concrete	1) Northern Pylon				
	Section	Sectional Area (m2)	Average Area (m2)	Distance (m)	Volume (m3)
	1	15.101			
	2	15.699	15.400	5.500	84.700
	3	17.387	16.543	6.000	99.258
	4	19.075	18.231	6.000	109.386
	5	20.762	19.919	6.000	119.514
	6	22.450	21.606	6.000	129.636
	7	24.138	23.294	6.000	139.764
	8	30.211	27.175	6.000	163.050
	9	36.547	33.379	5.242	174.973
	10	31.738	34.143	0.758	25.880
	11	32.046	31.892	6.000	191.352
	12	32.354	32.200	6.000	193.200
	13	32.662	32.508	6.000	195.048
	14	32.972	32.817	6.000	196.902
	15	33.234	33.103	5.100	168.825
	16	33.490	33.362	5.000	166.810
	17	33.746	33.618	5.000	168.090
	18	35.460	34.603	5.000	173.015
	19	35.716	35.588	5.000	177.940
	20	35.972	35.844	5.000	179.220
	21	36.230	36.101	5.000	180.505
	22	36.486	36.358	5.000	181.790
	23	36.744	36.615	5.000	183.075
	24	37.000	36.872	5.000	184.360
	25	37.256	37.128	5.000	185.640
	26	37.514	37.385	5.000	186.925
	27	37.720	37.617	4.000	150.468
	28U	58.142	47.931	3.000	143.793
	28L	74.608	-	-	-
	29	75.406	75.007	3.000	225.021
	Sub-Total				4478.140
	Ceiling Concrete				
	V =	3.000	*	3.000	* 1.000
				=	9.000 m3

Item	Formula					Quantity
Anchorage of stay cable at pylon						
Cable No.	a (m)	b (m)	c (m)	Nos of anchorage	Volume (m ³)	
SN-1	1.365	0.736	1.200	2	1.206	
SN-2	1.351	0.743	1.200	2	1.204	
SN-3	1.336	0.752	1.200	2	1.206	
SN-4	1.318	0.763	1.200	2	1.206	
SN-5	1.300	0.773	1.200	2	1.206	
SN-6	1.321	0.810	1.200	2	1.284	
SN-7	1.297	0.822	1.200	2	1.280	
SN-8	1.271	0.834	1.200	2	1.272	
SN-9	1.240	0.848	1.200	2	1.262	
SN-10	1.259	0.895	1.200	2	1.352	
SN-11	1.200	0.902	1.200	2	1.298	
SN-12	1.200	0.954	1.200	2	1.374	
SN-13	1.200	1.014	1.200	2	1.460	
SN-14	1.200	1.089	1.200	2	1.568	
SN-15	1.200	1.184	1.200	2	1.704	
SN-16	1.200	1.308	1.200	2	1.884	
SN-17	1.200	1.476	1.200	2	2.126	
SN-18	1.200	1.716	1.200	2	2.472	
SN-19	1.200	2.091	1.200	2	3.012	
SN-20	1.200	2.849	1.200	2	4.102	
SN-21	1.200	4.219	1.200	2	6.076	
SN-42	1.452	0.678	1.200	2	1.182	
SN-41	1.439	0.689	1.200	2	1.190	
SN-40	1.424	0.699	1.200	2	1.194	
SN-39	1.408	0.710	1.200	2	1.200	
SN-38	1.390	0.720	1.200	2	1.200	
SN-37	1.414	0.757	1.200	2	1.284	
SN-36	1.390	0.770	1.200	2	1.284	
SN-35	1.364	0.787	1.200	2	1.288	
SN-34	1.333	0.803	1.200	2	1.284	
SN-33	1.353	0.857	1.200	2	1.392	
SN-32	1.200	0.803	1.200	2	1.156	
SN-31	1.200	0.855	1.200	2	1.232	
SN-30	1.200	0.914	1.200	2	1.316	
SN-29	1.200	0.989	1.200	2	1.424	
SN-28	1.200	0.108	1.200	2	0.156	
SN-27	1.200	1.206	1.200	2	1.736	
SN-26	1.200	1.373	1.200	2	1.978	
SN-25	1.200	1.612	1.200	2	2.322	
SN-24	1.200	1.985	1.200	2	2.858	
SN-23	1.200	2.639	1.200	2	3.800	
SN-22	1.200	4.097	1.200	2	5.900	
Sub-Total					75.930	
						
Sub-Total (Deal with superstructure)						
4478.140	+	9.000	+	75.930	=	4639.000 m ³

Item	Formula				Quantity																																								
	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Section</th> <th>Sectional Area (m²)</th> <th>Average Area (m²)</th> <th>Distance (m)</th> <th>Volume (m³)</th> </tr> </thead> <tbody> <tr> <td>29</td> <td>75.406</td> <td></td> <td></td> <td></td> </tr> <tr> <td>30</td> <td>76.324</td> <td>75.865</td> <td>5.000</td> <td>379.325</td> </tr> <tr> <td>31</td> <td>77.002</td> <td>76.663</td> <td>3.700</td> <td>283.653</td> </tr> <tr> <td>32</td> <td>77.920</td> <td>77.461</td> <td>5.000</td> <td>387.305</td> </tr> <tr> <td>33</td> <td>78.838</td> <td>78.379</td> <td>5.000</td> <td>391.895</td> </tr> <tr> <td>34</td> <td>79.754</td> <td>79.296</td> <td>5.000</td> <td>396.480</td> </tr> <tr> <td colspan="4">Sub-Total (Deal with substructure)</td> <td>1838.658</td> </tr> </tbody> </table>				Section	Sectional Area (m ²)	Average Area (m ²)	Distance (m)	Volume (m ³)	29	75.406				30	76.324	75.865	5.000	379.325	31	77.002	76.663	3.700	283.653	32	77.920	77.461	5.000	387.305	33	78.838	78.379	5.000	391.895	34	79.754	79.296	5.000	396.480	Sub-Total (Deal with substructure)				1838.658	
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Sub-Total (Deal with substructure)				1838.658																																									
	<p>Finisher concrete at bottom of column</p> $V = \{ (10.000 * 7.000 + 9.000 * 6.000) * 1/2 * 2 - 79.754 * 0.500 = 22.123 \text{ m}^3$																																												
	<p>Sub-Total (Deal with substructure)</p> $1838.658 + 22.123 \times 2 = 1882.904 \text{ m}^3$																																												
	<p>Sub-Total = 6,521.904 m³</p>																																												

Item	Formula				Quantity
2) Southern Pylon					
Section	Sectional Area (m2)	Average Area (m2)	Distance (m)	Volume (m3)	
1	15.101				
2	15.699	15.400	5.500	84.700	
3	17.387	16.543	6.000	99.258	
4	19.075	18.231	6.000	109.386	
5	20.762	19.919	6.000	119.514	
6	22.450	21.606	6.000	129.636	
7	24.138	23.294	6.000	139.764	
8	30.211	27.175	6.000	163.050	
9	36.547	33.379	5.242	174.973	
10	31.738	34.143	0.758	25.880	
11	32.046	31.892	6.000	191.352	
12	32.354	32.200	6.000	193.200	
13	32.662	32.508	6.000	195.048	
14	32.972	32.817	6.000	196.902	
15	33.234	33.103	5.100	168.825	
16	33.490	33.362	5.000	166.810	
17	33.746	33.618	5.000	168.090	
18	35.460	34.603	5.000	173.015	
19	35.716	35.588	5.000	177.940	
20	35.972	35.844	5.000	179.220	
21	36.230	36.101	5.000	180.505	
22	36.486	36.358	5.000	181.790	
23	36.744	36.615	5.000	183.075	
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25	37.256	37.128	5.000	185.640	
26	37.514	37.385	5.000	186.925	
27	37.720	37.617	4.000	150.468	
28U	58.142	47.931	3.000	143.793	
28L	74.608	-	-	-	
29	75.406	75.007	3.000	225.021	
Sub-Total				4478.140	
Ceiling Concrete					
V =	3.000	*	3.000	*	1.000
				=	9.000 m3

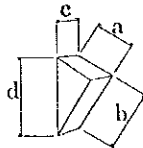
Item	Formula					Quantity
Anchorage of stay cable at pylon						
Cable No.	a (m)	b (m)	c (m)	Nos of anchorage	Volume (m ³)	
SN-1	1.452	0.678	1.200	2	1.182	
SN-2	1.439	0.689	1.200	2	1.190	
SN-3	1.424	0.699	1.200	2	1.194	
SN-4	1.408	0.710	1.200	2	1.200	
SN-5	1.390	0.720	1.200	2	1.200	
SN-6	1.414	0.757	1.200	2	1.284	
SN-7	1.390	0.770	1.200	2	1.284	
SN-8	1.364	0.787	1.200	2	1.288	
SN-9	1.333	0.803	1.200	2	1.284	
SN-10	1.353	0.857	1.200	2	1.392	
SN-11	1.200	0.803	1.200	2	1.156	
SN-12	1.200	0.855	1.200	2	1.232	
SN-13	1.200	0.914	1.200	2	1.316	
SN-14	1.200	0.989	1.200	2	1.424	
SN-15	1.200	0.108	1.200	2	0.156	
SN-16	1.200	1.206	1.200	2	1.736	
SN-17	1.200	1.373	1.200	2	1.978	
SN-18	1.200	1.612	1.200	2	2.322	
SN-19	1.200	1.985	1.200	2	2.858	
SN-20	1.200	2.639	1.200	2	3.800	
SN-21	1.200	4.097	1.200	2	5.900	
SN-42	1.365	0.736	1.200	2	1.206	
SN-41	1.351	0.743	1.200	2	1.204	
SN-40	1.336	0.752	1.200	2	1.206	
SN-39	1.318	0.763	1.200	2	1.206	
SN-38	1.300	0.773	1.200	2	1.206	
SN-37	1.321	0.810	1.200	2	1.284	
SN-36	1.297	0.822	1.200	2	1.280	
SN-35	1.271	0.834	1.200	2	1.272	
SN-34	1.240	0.848	1.200	2	1.262	
SN-33	1.259	0.895	1.200	2	1.352	
SN-32	1.200	0.902	1.200	2	1.298	
SN-31	1.200	0.954	1.200	2	1.374	
SN-30	1.200	1.014	1.200	2	1.460	
SN-29	1.200	1.089	1.200	2	1.568	
SN-28	1.200	1.184	1.200	2	1.704	
SN-27	1.200	1.308	1.200	2	1.884	
SN-26	1.200	1.476	1.200	2	2.126	
SN-25	1.200	1.716	1.200	2	2.472	
SN-24	1.200	2.091	1.200	2	3.012	
SN-23	1.200	2.849	1.200	2	4.102	
SN-22	1.200	4.219	1.200	2	6.076	
Sub-Total					75.930	
						
Sub-Total (Deal with superstructure)						
4478.140	+	9.000	+	75.930	=	4639.000 m ³

Item	Formula				Quantity																																							
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	Sub-Total = 6,521.904 m ³																																											
	Total = 13,043.808 m ³																																											

Item	Formula						Quantity	
2. Form	1) Northern Pylon							
	Section	Length of Surface(m)		Average of Length(m)		Distance (m)	Form Area(m2)	
		External	Internal	External	Internal		External	Internal
	1	19.423	9.000					
	2	20.722	13.688	20.073	11.344	5.500	110.402	62.392
	3	22.335	15.301	21.529	14.495	6.000	129.174	86.970
	4	23.948	16.914	23.142	16.108	6.000	138.852	96.648
	5	25.561	18.527	24.755	17.721	6.000	148.530	106.326
	6	27.175	20.141	26.368	19.334	6.000	158.208	116.004
	7	28.788	21.754	27.982	20.948	6.000	167.892	125.688
	8	30.751	27.466	29.770	24.610	6.000	178.620	147.660
	9	33.602	27.978	32.177	27.722	5.242	168.672	145.319
	10	41.354	28.034	37.478	28.006	0.758	28.408	21.229
	11	41.790	28.470	41.572	28.252	6.000	249.432	169.512
	12	42.224	28.904	42.007	28.687	6.000	252.042	172.122
	13	42.660	29.340	42.442	29.122	6.000	254.652	174.732
	14	43.096	29.776	42.878	29.558	6.000	257.268	177.348
	15	43.466	30.146	43.281	29.961	5.100	220.733	152.801
	16	43.830	30.510	43.648	30.328	5.000	218.240	151.640
	17	44.192	30.872	44.011	30.691	5.000	220.055	153.455
	18	44.554	30.436	44.373	30.654	5.000	221.865	153.270
	19	44.918	30.798	44.736	30.617	5.000	223.680	153.085
	20	45.280	31.162	45.099	30.980	5.000	225.495	154.900
	21	45.644	31.524	45.462	31.343	5.000	227.310	156.715
	22	46.006	31.886	45.825	31.705	5.000	229.125	158.525
	23	46.370	32.250	46.188	32.068	5.000	230.940	160.340
	24	46.732	32.612	46.551	32.431	5.000	232.755	162.155
	25	47.096	32.976	46.914	32.794	5.000	234.570	163.970
	26	47.458	33.338	47.277	33.157	5.000	236.385	165.785
	27	47.750	33.630	47.604	33.484	4.000	190.416	133.936
	28	47.868	26.950	47.809	30.290	3.000	143.427	90.870
	29	48.184	-	48.026	-	3.000	144.078	-
	Sub-Total (Deal with superstructure)						5441.226	3713.397
	Section	Length of Surface(m)		Average of Length(m)		Distance (m)	Form Area(m2)	
		External	Internal	External	Internal		External	Internal
	29	48.184	-					
	30	48.548	-	48.366	-	5.000	241.830	-
	31	48.816	-	48.682	-	3.700	180.123	-
	32	49.180	-	48.998	-	5.000	244.990	-
	33	49.542	-	49.361	-	5.000	246.805	-
	34	49.904	-	49.723	-	5.000	248.615	-
	Sub-Total (Deal with substructure)						1162.363	-
							External	6603.589
							Internal	3713.397

Anchorage of stay cable at pylon (Internal Form)

Cable No.	a (m)	b (m)	c (m)	d (m)	Nos of anchorage	form area (m ²)	Subtraction from pylon(m ²)
SN-1	1.365	0.736	1.200	1.550	2	3.776	-3.720
SN-2	1.351	0.743	1.200	1.542	2	3.790	-3.700
SN-3	1.336	0.752	1.200	1.533	2	3.814	-3.680
SN-4	1.318	0.763	1.200	1.523	2	3.842	-3.656
SN-5	1.300	0.773	1.200	1.512	2	3.866	-3.628
SN-6	1.321	0.810	1.200	1.550	2	4.084	-3.720
SN-7	1.297	0.822	1.200	1.536	2	4.106	-3.686
SN-8	1.271	0.834	1.200	1.520	2	4.122	-3.648
SN-9	1.240	0.848	1.200	1.502	2	4.138	-3.604
SN-10	1.259	0.895	1.200	1.547	2	4.402	-3.712
SN-11	1.200	0.902	1.200	1.501	2	4.330	-3.602
SN-12	1.200	0.954	1.200	1.533	2	4.580	-3.680
SN-13	1.200	1.014	1.200	1.571	2	4.868	-3.770
SN-14	1.200	1.089	1.200	1.621	2	5.228	-3.890
SN-15	1.200	1.184	1.200	1.686	2	5.684	-4.046
SN-16	1.200	1.308	1.200	1.775	2	6.278	-4.260
SN-17	1.200	1.476	1.200	1.902	2	7.084	-4.564
SN-18	1.200	1.716	1.200	2.094	2	8.236	-5.026
SN-19	1.200	2.091	1.200	2.411	2	10.036	-5.786
SN-20	1.200	2.849	1.200	3.091	2	13.676	-7.418
SN-21	1.200	4.219	1.200	4.386	2	20.252	-10.526
SN-22	1.200	4.097	1.200	4.269	2	19.666	-10.246
SN-23	1.200	2.639	1.200	2.899	2	12.668	-6.958
SN-24	1.200	1.985	1.200	2.319	2	9.528	-5.566
SN-25	1.200	1.612	1.200	2.010	2	7.738	-4.824
SN-26	1.200	1.373	1.200	1.824	2	6.590	-4.378
SN-27	1.200	1.206	1.200	1.702	2	5.788	-4.084
SN-28	1.200	0.108	1.200	1.617	2	0.520	-3.880
SN-29	1.200	0.989	1.200	1.555	2	4.748	-3.732
SN-30	1.200	0.914	1.200	1.509	2	4.388	-3.622
SN-31	1.200	0.855	1.200	1.473	2	4.104	-3.536
SN-32	1.200	0.803	1.200	1.444	2	3.854	-3.466
SN-33	1.353	0.857	1.200	1.601	2	4.376	-3.842
SN-34	1.333	0.803	1.200	1.556	2	4.068	-3.734
SN-35	1.364	0.787	1.200	1.574	2	4.036	-3.778
SN-36	1.390	0.770	1.200	1.589	2	3.988	-3.814
SN-37	1.414	0.757	1.200	1.604	2	3.958	-3.850
SN-38	1.390	0.720	1.200	1.565	2	3.730	-3.756
SN-39	1.408	0.710	1.200	1.577	2	3.704	-3.784
SN-40	1.424	0.699	1.200	1.587	2	3.668	-3.808
SN-41	1.439	0.689	1.200	1.595	2	3.636	-3.828
SN-42	1.452	0.678	1.200	1.602	2	3.596	-3.844
Sub-Total						248.544	-185.652

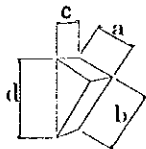


Item	Formula				Quantity	
Cross Beam						
Average Length					29.861 m	
Width of Beam					6.570 m	
Height of Beam					5.000 m	
Length of External Surface					16.570 m	
L =	6.570	+ 5.000	x 2	=	16.570 m	
Form area					494.797 m ²	
A =	16.570	*	29.861	=	494.797 m ²	
Subtraction area of connect cross beam and pylon					66.423 m ²	
A =	5.055	*	6.570 x 2	=	66.423 m ²	
Finisher Concrete						
A =	(9.000	+	10.000)	x 0.707 / 2	x 2	
	+ (7.000	+	6.000)	x 0.707 / 2	x 2 =	
					22.624 m ²	
Superstructure						
External Form					= 5441.226 m ²	
Internal Form					= 3776.289 m ²	
Substructure						
External Form	1162.363	+	494.797	-	66.423	
					+ 22.624 x 2	
					= 1635.985 m ²	
Total	External Form					7,077.211 m ²
	Internal Form	5,441.226	+	1635.985	=	
					3,776.289 m ²	

Item	Formula						Quantity	
2) Southern Pylon								
Section	Length of Surface(m)		Average of Length(m)		Distance (m)	Form Area(m ²)		
	External	Internal	External	Internal		External	Internal	
1	19.423	9.000						
2	20.722	13.688	20.073	11.344	5.500	110.402	62.392	
3	22.335	15.301	21.529	14.495	6.000	129.174	86.970	
4	23.948	16.914	23.142	16.108	6.000	138.852	96.648	
5	25.561	18.527	24.755	17.721	6.000	148.530	106.326	
6	27.175	20.141	26.368	19.334	6.000	158.208	116.004	
7	28.788	21.754	27.982	20.948	6.000	167.892	125.688	
8	30.751	27.466	29.770	24.610	6.000	178.620	147.660	
9	33.602	27.978	32.177	27.722	5.242	168.672	145.319	
10	41.354	28.034	37.478	28.006	0.758	28.408	21.229	
11	41.790	28.470	41.572	28.252	6.000	249.432	169.512	
12	42.224	28.904	42.007	28.687	6.000	252.042	172.122	
13	42.660	29.340	42.442	29.122	6.000	254.652	174.732	
14	43.096	29.776	42.878	29.558	6.000	257.268	177.348	
15	43.466	30.146	43.281	29.961	5.100	220.733	152.801	
16	43.830	30.510	43.648	30.328	5.000	218.240	151.640	
17	44.192	30.872	44.011	30.691	5.000	220.055	153.455	
18	44.554	30.436	44.373	30.654	5.000	221.865	153.270	
19	44.918	30.798	44.736	30.617	5.000	223.680	153.085	
20	45.280	31.162	45.099	30.980	5.000	225.495	154.900	
21	45.644	31.524	45.462	31.343	5.000	227.310	156.715	
22	46.006	31.886	45.825	31.705	5.000	229.125	158.525	
23	46.370	32.250	46.188	32.068	5.000	230.940	160.340	
24	46.732	32.612	46.551	32.431	5.000	232.755	162.155	
25	47.096	32.976	46.914	32.794	5.000	234.570	163.970	
26	47.458	33.338	47.277	33.157	5.000	236.385	165.785	
27	47.750	33.630	47.604	33.484	4.000	190.416	133.936	
28	47.868	26.950	47.809	30.290	3.000	143.427	90.870	
29	48.184	-	48.026	-	3.000	144.078	-	
Sub-Total (Deal with superstructure)						5441.226	3713.397	
Section	Length of Surface(m)		Average of Length(m)		Distance (m)	Form Area(m ²)		
	External	Internal	External	Internal		External	Internal	
29	48.184	-						
30	48.548	-	48.366	-	5.000	241.830	-	
31	48.816	-	48.682	-	3.700	180.123	-	
32	49.180	-	48.998	-	5.000	244.990	-	
33	49.542	-	49.361	-	5.000	246.805	-	
34	49.904	-	49.723	-	5.000	248.615	-	
Sub-Total (Deal with substructure)						1162.363	-	
Total						External	6603.589	
						Internal	3713.397	

Anchorage of stay cable at pylon (Internal Form)

Cable No.	a (m)	b (m)	c (m)	d (m)	Nos of anchorage	form area (m2)	Subnction from pylon(m2)
SN-1	1.365	0.736	1.200	1.550	2	3.776	-3.720
SN-2	1.351	0.743	1.200	1.542	2	3.790	-3.700
SN-3	1.336	0.752	1.200	1.533	2	3.814	-3.680
SN-4	1.318	0.763	1.200	1.523	2	3.842	-3.656
SN-5	1.300	0.773	1.200	1.512	2	3.866	-3.628
SN-6	1.321	0.810	1.200	1.550	2	4.084	-3.720
SN-7	1.297	0.822	1.200	1.536	2	4.106	-3.686
SN-8	1.271	0.834	1.200	1.520	2	4.122	-3.648
SN-9	1.240	0.848	1.200	1.502	2	4.138	-3.604
SN-10	1.259	0.895	1.200	1.547	2	4.402	-3.712
SN-11	1.200	0.902	1.200	1.501	2	4.330	-3.602
SN-12	1.200	0.954	1.200	1.533	2	4.580	-3.680
SN-13	1.200	1.014	1.200	1.571	2	4.868	-3.770
SN-14	1.200	1.089	1.200	1.621	2	5.228	-3.890
SN-15	1.200	1.184	1.200	1.686	2	5.684	-4.046
SN-16	1.200	1.308	1.200	1.775	2	6.278	-4.260
SN-17	1.200	1.476	1.200	1.902	2	7.084	-4.564
SN-18	1.200	1.716	1.200	2.094	2	8.236	-5.026
SN-19	1.200	2.091	1.200	2.411	2	10.036	-5.786
SN-20	1.200	2.849	1.200	3.091	2	13.676	-7.418
SN-21	1.200	4.219	1.200	4.386	2	20.252	-10.526
SN-22	1.200	4.097	1.200	4.269	2	19.666	-10.246
SN-23	1.200	2.639	1.200	2.899	2	12.668	-6.958
SN-24	1.200	1.985	1.200	2.319	2	9.528	-5.566
SN-25	1.200	1.612	1.200	2.010	2	7.738	-4.824
SN-26	1.200	1.373	1.200	1.824	2	6.590	-4.378
SN-27	1.200	1.206	1.200	1.702	2	5.788	-4.084
SN-28	1.200	0.108	1.200	1.617	2	0.520	-3.880
SN-29	1.200	0.989	1.200	1.555	2	4.748	-3.732
SN-30	1.200	0.914	1.200	1.509	2	4.388	-3.622
SN-31	1.200	0.855	1.200	1.473	2	4.104	-3.536
SN-32	1.200	0.803	1.200	1.444	2	3.854	-3.466
SN-33	1.353	0.857	1.200	1.601	2	4.376	-3.842
SN-34	1.333	0.803	1.200	1.556	2	4.068	-3.734
SN-35	1.364	0.787	1.200	1.574	2	4.036	-3.778
SN-36	1.390	0.770	1.200	1.589	2	3.988	-3.814
SN-37	1.414	0.757	1.200	1.604	2	3.958	-3.850
SN-38	1.390	0.720	1.200	1.565	2	3.730	-3.756
SN-39	1.408	0.710	1.200	1.577	2	3.704	-3.784
SN-40	1.424	0.699	1.200	1.587	2	3.668	-3.808
SN-41	1.439	0.689	1.200	1.595	2	3.636	-3.828
SN-42	1.452	0.678	1.200	1.602	2	3.596	-3.844
Sub-Total						248.544	-185.652



Item	Formula				Quantity
Cross Beam					
Average Length					29.861 m
Width of Beam					6.570 m
Height of Beam					5.000 m
Length of External Surface					
L =	6.570	+	5.000	x 2	= 16.570 m
Form area					
A =	16.570	*	29.861	=	494.797 m ²
Subtraction area of connect cross beam and pylon					
A =	5.055	*	6.570	x 2	= 66.423 m ²
Finisher Concrete					
A =	(9.000	+	10.000)	x 0.707 / 2	x 2
+	(7.000	+	6.000)	x 0.707 / 2	x 2 = 22.624 m ²
Superstructure					
External Form					= 5441.226 m ²
Internal Form					= 3776.289 m ²
Substructure					
External Form	1162.363	+	494.797	- 66.423	+ 22.624 x 2
					= 1635.985 m ²
Total	External Form	5,441.226	+	1,635.985	= 7,077.211 m ²
	Internal Form				= 3,776.289 m ²
3) Northern + Southern Pylon	External Form	7,077.211	+	7,077.211	= 14154.422 m ²
	Internal Form	3,776.289	+	3,776.289	= 7552.578 m ²

Item	Formula			Quantity		
3. Re-Bar	Column of Pylon					
	Dia.	Weight (kg)		Remarks		
		Northern	Southern	Total		
	- D14			0		
	D16 - D32	235,840	235,840	471,680		
D35 - D51	576,273	576,273	1,152,546			
Total	1,624,226	2,436,339	4,060,565			
Anchorage of Stay Cable						
Cable No.	Weight (kg)					
	Northern Pylon			Southern Pylon		
	-D14	D16-D32	D35-D51	-D14	D16-D32	D35-D51
1	-	262	-	-	262	-
2	-	261	-	-	261	-
3	-	262	-	-	262	-
4	-	262	-	-	262	-
5	-	262	-	-	262	-
6	-	279	-	-	279	-
7	-	278	-	-	278	-
8	-	276	-	-	276	-
9	-	274	-	-	274	-
10	-	293	-	-	293	-
11	-	282	-	-	282	-
12	-	298	-	-	298	-
13	-	317	-	-	317	-
14	-	340	-	-	340	-
15	-	370	-	-	370	-
16	-	409	-	-	409	-
17	-	461	-	-	461	-
18	-	536	-	-	536	-
19	-	654	-	-	654	-
20	-	890	-	-	890	-
21	-	1318	-	-	1318	-
22	-	256	-	-	256	-
23	-	258	-	-	258	-
24	-	259	-	-	259	-
25	-	260	-	-	260	-
26	-	260	-	-	260	-
27	-	279	-	-	279	-
28	-	279	-	-	279	-
29	-	279	-	-	279	-
30	-	279	-	-	279	-
31	-	302	-	-	302	-
32	-	251	-	-	251	-
33	-	267	-	-	267	-
34	-	286	-	-	286	-
35	-	309	-	-	309	-
36	-	34	-	-	34	-
37	-	377	-	-	377	-
38	-	429	-	-	429	-
39	-	504	-	-	504	-
40	-	620	-	-	620	-
41	-	825	-	-	825	-
42	-	1280	-	-	1280	-
Sub-Total	-	16477	-	-	16477	-

Item	Formula							Quantity
4 Structural Steel								
1) Tower								
Block / Type	Dimension				Weight /m	Weight / piece	Nos.	Weight
	mm				kg/m	kg/nos		kg
1	L	250 × 250 ×	20 ×	6,000	59.7	358.2	96	34,387
	L	250 × 250 ×	20 ×	4,000	59.7	238.8	112	26,746
	L	250 × 250 ×	20 ×	1,705	59.7	101.8	56	5,700
	L	250 × 250 ×	20 ×	2,300	59.7	137.3	208	28,561
	L	250 × 250 ×	20 ×	2,400	59.7	143.3	16	2,293
	L	250 × 250 ×	20 ×	1,900	59.7	113.4	8	907
	L	250 × 250 ×	20 ×	5,000	59.7	298.5	56	16,716
	L	250 × 250 ×	20 ×	2,700	59.7	161.2	112	18,053
	PL	900 × 16 ×		920	113.0	104.0	112	11,644
	PL	940 × 16 ×		550	118.1	65.0	120	7,795
	PL	1000 × 16 ×		625	125.6	78.5	120	9,420
	PL	1120 × 16 ×		600	140.7	84.4	56	4,728
	PL	500 × 16 ×		250	62.8	15.7	312	4,898
	Sub-Total							171,847
2	L	250 × 250 ×	20 ×	6,000	59.7	358.2	64	22,925
	L	250 × 250 ×	20 ×	4,000	59.7	238.8	48	11,462
	L	250 × 250 ×	20 ×	4,220	59.7	251.9	8	2,016
	L	250 × 250 ×	20 ×	1,450	59.7	86.6	48	4,155
	L	250 × 250 ×	20 ×	1,850	59.7	110.4	40	4,418
	L	250 × 250 ×	20 ×	1,945	59.7	116.1	144	16,721
	L	250 × 250 ×	20 ×	5,000	59.7	298.5	48	14,328
	L	250 × 250 ×	20 ×	2,700	59.7	161.2	96	15,474
	PL	1000 × 16 ×		970	125.6	121.8	96	11,696
	PL	1000 × 16 ×		550	125.6	69.1	88	6,079
	PL	900 × 16 ×		625	113.0	70.6	88	6,215
	PL	1180 × 16 ×		630	148.2	93.4	48	4,482
	PL	500 × 16 ×		250	62.8	15.7	168	2,638
	Sub-Total							122,608

H-Pylon(Super)

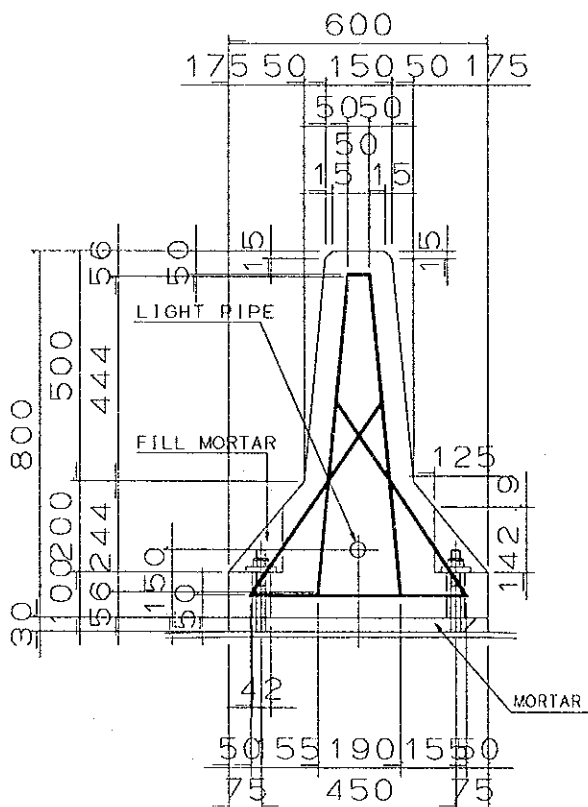
Item	Formula						Quantity						
Block / Type	Dimension				Weight /m	Weight / piece	Nos.	Weight					
	mm				kg/m	kg/nos		kg					
3	L	250	×	250	×	20	×	6,000	59.7	358.2	40	14,328	
	L	250	×	250	×	20	×	4,000	59.7	238.8	40	9,552	
	L	250	×	250	×	20	×	3,555	59.7	212.2	10	2,122	
	L	250	×	250	×	20	×	1,230	59.7	73.4	26	1,909	
	L	250	×	250	×	20	×	3,600	59.7	214.9	2	430	
	L	250	×	250	×	20	×	4,150	59.7	247.8	2	496	
	L	250	×	250	×	20	×	1,640	59.7	97.9	80	7,833	
	L	250	×	250	×	20	×	1,800	59.7	107.5	20	2,149	
	L	250	×	250	×	20	×	4,270	59.7	254.9	40	10,197	
	L	250	×	250	×	20	×	2,070	59.7	123.6	80	9,886	
	L	250	×	250	×	20	×	2,850	59.7	170.1	24	4,084	
	L	250	×	250	×	20	×	5,200	59.7	310.4	2	621	
	PL	1000	×	16	×			950	125.6	119.3	40	4,773	
	PL	1000	×	16	×			750	125.6	94.2	12	1,130	
	PL	960	×	16	×			485	120.6	58.5	52	3,042	
	PL	700	×	16	×			375	87.9	33.0	4	132	
	PL	500	×	16	×			375	62.8	23.6	4	94	
	PL	1150	×	16	×			1,250	144.4	180.5	20	3,610	
	PL	900	×	16	×			375	113.0	42.4	2	85	
	PL	720	×	16	×			600	90.4	54.2	6	325	
	PL	900	×	16	×			600	113.0	67.8	40	2,712	
	PL	1000	×	16	×			800	125.6	100.5	4	402	
	PL	760	×	16	×			500	95.5	47.8	8	382	
	PL	500	×	16	×			455	62.8	28.6	4	114	
	PL	700	×	16	×			375	87.9	33.0	2	66	
	PL	1180	×	16	×			630	148.2	93.4	40	3,735	
	PL	500	×	16	×			250	62.8	15.7	112	1,758	
	Sub-Total												85,966
	Total 171,847 + 122,608 + 85,966 = 380,421 kg												
	= 380.4 ton												

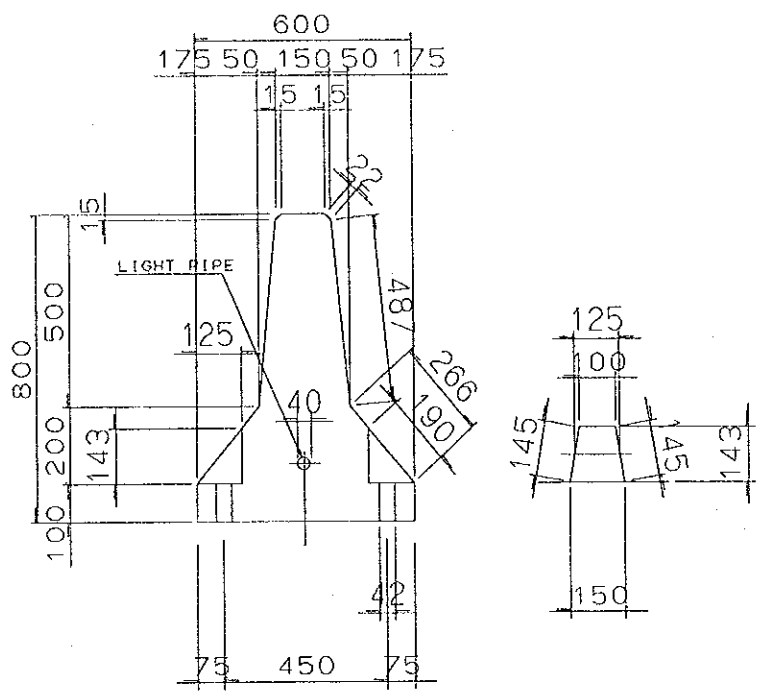
Item	Calculation			Quantity						
2. Damper	<table border="1"> <thead> <tr> <th data-bbox="399 280 550 347" rowspan="2">Name of Cable</th> <th colspan="2" data-bbox="550 280 885 324">Type of Damper</th> <th data-bbox="885 280 1029 324" rowspan="2">Remarks</th> </tr> <tr> <th data-bbox="550 324 726 347">80-10-40</th> <th data-bbox="726 324 885 347">80-40-40</th> </tr> </thead> </table>			Name of Cable	Type of Damper		Remarks	80-10-40	80-40-40	
	Name of Cable	Type of Damper			Remarks					
		80-10-40	80-40-40							
	SN(SS)-1	2								
	SN(SS)-2	2								
	SN(SS)-3	2								
	SN(SS)-4	2								
	SN(SS)-5	2								
	SN(SS)-6	2								
	SN(SS)-7	2								
	SN(SS)-8	2								
	SN(SS)-9	2								
	SN(SS)-10	2								
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	SN(SS)-15	4								
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	SN(SS)-32	4								
	SN(SS)-33	4								
	SN(SS)-34	4								
	SN(SS)-35	2								
	SN(SS)-36			2						
	SN(SS)-37			2						
	SN(SS)-38			2						
	SN(SS)-39			2						
	SN(SS)-40			2						
SN(SS)-41	2									
SN(SS)-42	2									
	118	10								
		Type 80-10-40	118 Nos.							
		80-40-40	10 Nos.							

5. Accessory

Item	Formula	Quantity
1. Bearing	Elastomeric Bearing P12, P17 Size of Bearing 1120*1120*424.5 Number of Bearing for Pier 3 nos/pier =	total 6 nos
	P14, P15 Size of Bearing 1120*1120*437 Number of Bearing for Pier 3 nos/pier =	total 6 nos
	P13,P16 Size of Bearing 1220*1220*459 Number of Bearing for Pier 3 nos/pier =	total 6 nos
	Pylon(northern,southern) Size of Bearing 1470*1470*424.5 Number of Bearing for Pier 3 nos/pier =	total 6 nos
2. Anchor Bar and Cap	P12,P17 Anchor Bar Dia.32mm n=8nos L= 1300 mm = 65.6 kg/pier Anchor Cap plate W= 24.530 kg/nos	Total 131.2 kg Total 392.5 kg
	P13,P16 Anchor Bar Dia.55mm n=8nos L= 2000 mm = 299.2 kg/pier Anchor Cap plate W= 33.838 kg/nos	Total 598.4 kg Total 541.4 kg
	P14,P17 Anchor Bar Dia.65mm n=8nos L= 2130 mm = 443.0 kg/pier Anchor Cap plate W= 39.712 kg/nos	Total 886.1 kg Total 635.4 kg
	Pylon Anchor Bar Dia.75mm n=8nos L= 2680 mm = 744.0 kg/pier Anchor Cap plate W= 45.728 kg/nos	Total 1487.9 kg Total 731.7 kg
3. Expansion Joint	Type of Ex-Joint: type-A (300mm) Length of Joint L= 22.100 m/pier L = 22.100	44.2 m

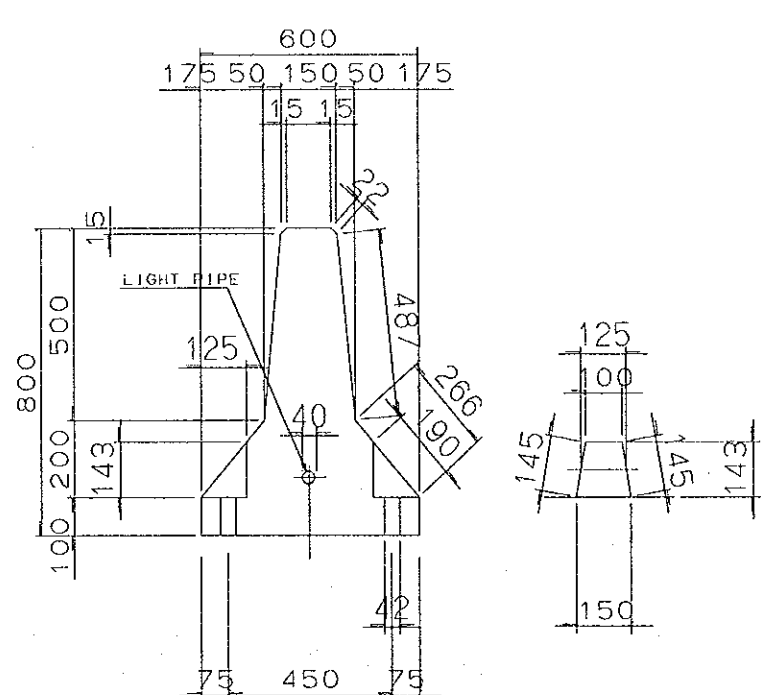
Item	Formula	Quantity
4. Railing	<p>Railing Length</p> $L = (1090 - 0.000 \times 2) \times 2 = 2,180.00$ <p>Weight of Steel Railing</p> <p>Unit Weight 913.0 kg / 20m</p> $W = 2,180.0 \times 913.0 / 20 = 99,517.0 \text{ kg}$ <p>99.5 ton</p>	2,180.0 m
5. Precast Barrier	<p>1) Concrete Girder</p> $N = (880.00 - 0.800 \times 22 - 0.170 \times 2) / 2 = 431$ <p>2) Steel Girder</p> $N = (210.00 - 0.800 \times 5) / 2 = 103$	<p>each</p> <p>431</p> <p>each</p> <p>103</p>

Item	Formula	Quantity
<p>1) Concrete</p>	<p>Unit Quantity of Precast Concrete Barrier for Concrete Girder</p> <p>Per 2.0m</p> 	
	$ \begin{aligned} V1 &= \{ 0.150 + 0.250 \} \times \frac{1}{2} \times 0.500 \times 1.990 = 0.199 \\ V2 &= \{ 0.250 + 0.600 \} \times \frac{1}{2} \times 0.200 \times 1.990 = 0.169 \\ V3 &= 0.100 \times 0.600 \times 1.990 = 0.119 \\ V4 &= - \{ 0.100 + 0.250 \} \times \frac{1}{2} \times 0.143 \times 0.125 \\ &\quad \times 0.143 \times \frac{1}{2} \times 10 = -0.002 \\ V5 &= - 0.015 \times 0.015 \times \frac{1}{2} \times 2 \times 1.990 = -0.001 \\ V6 &= - 0.020 \times 0.02 \times \pi \times 1.990 = -0.003 \\ V7 &= - 0.021 \times 0.021 \times \pi \times 0.100 \times 10 = -0.001 \\ \Sigma V &= 0.480 \text{ m}^3 \end{aligned} $	<p>0.480 m³</p>

Item	Formula	Quantity																																										
2).Form	 <p style="text-align: center;"> $A1 = \{ 0.100 + 0.266 + 0.487 + 0.022 \} \times 2 \times 1.990 = 3.483$ $A2 = \{ 0.150 + 0.250 \} \times 1/2 \times 0.500 \times 2 = 0.200$ $A3 = \{ 0.250 + 0.600 \} \times 1/2 \times 0.200 \times 2 = 0.170$ $A4 = 0.100 \times 0.600 \times 2 = 0.120$ $A5 = - 0.015 \times 0.015 \times 1/2 \times 2 \times 2 = -0.001$ $A6 = 0.125 \times 0.143 \times 10 = 0.179$ $A7 = 0.143 \times 0.145 \times 1/2 \times 2 \times 10 = 0.208$ $A8 = - 0.266 \times 0.125 \times 10 = -0.333$ $A9 = - 0.020 \times 0.02 \times \pi \times 1.990 = -0.003$ $A10 = - 0.021 \times 0.021 \times \pi \times 0.100 \times 10 = -0.001$ $A = 4.022 \text{ m}^2$ </p>	4.022 m ²																																										
3) Re-Bar	<p>Per 2.0m</p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Bar Mark</th> <th>Size (mm)</th> <th>LENGTH (mm)</th> <th>Weight/m (kg/m)</th> <th>Weight/each (kg)</th> <th>Number of Bars</th> <th>Weight (kg)</th> </tr> </thead> <tbody> <tr> <td>B1</td> <td>6</td> <td>1460</td> <td>0.222</td> <td>0.324</td> <td>20</td> <td>6</td> </tr> <tr> <td>B2</td> <td>6</td> <td>590</td> <td>0.222</td> <td>0.131</td> <td>20</td> <td>3</td> </tr> <tr> <td>B3</td> <td>6</td> <td>1540</td> <td>0.222</td> <td>0.342</td> <td>10</td> <td>3</td> </tr> <tr> <td>B4</td> <td>6</td> <td>1910</td> <td>0.222</td> <td>0.424</td> <td>14</td> <td>6</td> </tr> <tr> <td colspan="6"></td> <td>18</td> </tr> </tbody> </table>	Bar Mark	Size (mm)	LENGTH (mm)	Weight/m (kg/m)	Weight/each (kg)	Number of Bars	Weight (kg)	B1	6	1460	0.222	0.324	20	6	B2	6	590	0.222	0.131	20	3	B3	6	1540	0.222	0.342	10	3	B4	6	1910	0.222	0.424	14	6							18	18 kg
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Item	Formula	Quantity
4) STUD, PL (SS400)	10-Anchor Bolt $\Phi 22 \times 330$ 10-PL 70*12*70	10 kg 3 kg
5) Mortar	$V = 0.600 \times 0.030 \times 2.000 = 0.036 \text{ m}^3$	0.036 m ³
6) Fill Mortar	<p style="text-align: right;">Per 2.0m</p> $A2 = \{ 0.150 + 0.250 \} \times 1/2 \times 0.500 = 0.100$ $A3 = \{ 0.250 + 0.600 \} \times 1/2 \times 0.200 = 0.085$ $A4 = 0.100 \times 0.600 = 0.060$ $A5 = - 0.015 \times 0.015 \times 1/2 \times 2 = -0.001$ $\Sigma A = 0.244 \text{ m}^2$ $V1 = 0.244 \times 0.010 = 0.002 \text{ m}^3$ $V2 = 0.125 \times 0.143 \times 1/2 \times 0.125 \times 10 = 0.011 \text{ m}^3$ $\Sigma V = 0.013 \text{ m}^3$	0.013 m ³

Item	Formula	Quantity
1) Concrete	<p style="text-align: center;">Unit Quantity of Precast Concrete Barrier for Steel Girder Per 2.0m</p> <div style="text-align: center;"> </div> $ \begin{aligned} V1 &= \{ 0.150 + 0.250 \} \times \frac{1}{2} \times 0.500 \times 1.990 = 0.199 \\ V2 &= \{ 0.250 + 0.600 \} \times \frac{1}{2} \times 0.200 \times 1.990 = 0.169 \\ V3 &= 0.100 \times 0.600 \times 1.990 = 0.119 \\ V4 &= - \{ 0.100 + 0.250 \} \times \frac{1}{2} \times 0.143 \times 0.125 \\ &\quad \times 0.143 \times \frac{1}{2} \times 10 = -0.002 \\ V5 &= - 0.015 \times 0.015 \times \frac{1}{2} \times 2 \times 1.990 = -0.001 \\ V6 &= - 0.020 \times 0.02 \times \pi \times 1.990 = -0.003 \\ V7 &= - 0.021 \times 0.021 \times \pi \times 0.100 \times 10 = -0.001 \\ \Sigma V &= 0.480 \text{ m}^3 \end{aligned} $	<p style="text-align: right;">0.480 m³</p>

Item	Formula	Quantity																																										
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B4	6	1910	0.222	0.424	14	6																																						
						18																																						

Item	Formula	Quantity
4) STUD,PL (SS400)	10-STUD $\Phi 22 \times 180$ 10-PL 70*12*70	6 kg 3 kg
5) Mortar	$V = 0.600 \times 0.030 \times 2.000 = 0.036 \text{ m}^3$	0.036 m ³
6) Fill Mortar	Per 2.0m	
	$A2 = \{ 0.150 + 0.250 \} \times \frac{1}{2} \times 0.500 = 0.100$	
	$A3 = \{ 0.250 + 0.600 \} \times \frac{1}{2} \times 0.200 = 0.085$	
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	$V2 = 0.125 \times 0.143 \times \frac{1}{2} \times 0.125 \times 10 = 0.011 \text{ m}^3$	
	$\Sigma V = 0.013 \text{ m}^3$	0.013 m ³

Item	Formula	Quantity
6. Precast Curb		
1) Concrete Girder	$N = \frac{(880.00 - 0.800 \times \overset{\text{Light}}{22} - 0.170 \times \overset{\text{Exp}}{2})}{2}$ $= 431$	each 431
2) Steel Girder	$N = \frac{(210.00 - 0.800 \times \overset{\text{Light}}{5})}{2}$ $= 103$	each 103
3) Unit Quantity		
(1) Concrete	V =	= 0.29 m3
	A =	= 1.34 m2
(2) Mortar	V =	= 0.04 m3
(3) Filler Mortar	V =	= 0.01 m3
(4) Re-Bar	W = $\Phi 6$	= 7.5 kg
(5) Stud for Steel Girder	W = Stud . 22*280 (SS400)	= 7 kg
	W = PL 70*12*70 (SS400)	= 3 kg
(6) Anchor for Steel Girder	W = $\Phi 22$ *430 (SS400)	= 9 kg
	W = PL 70*12*70 (SS400)	= 3 kg

Item	Formula					Quantity
7. Drainage Facilities 1) Drain Pot	(1) 300x300		For Concrete Girder			
		N	= 37 × 2 × 2	=	148 Nos.	
	(2) 300x250		For Steel Girder			
		N	= 18 × 2	=	36 Nos.	
2) Drain Pipe	(1) Φ200 (VP)	N	= 148			
		L	= 148 × 1.643	=	243.2 m	
	(2) Φ300 (VP)	L	= (8 × 12.000 + 11.100 + 1.000 + 8.300 + 2.200 + 2.343 × 12 + 1.595 × 2 + 1.204 × 2 + 20.000 + 24.000) × 2	=	392.6 m	
	(3) Φ400 (VP)	L	= (41 × 4.000 + 3.100 + 2.343 + 3.368 + 7.780 + 20.700) × 2	=	402.6 m	
	(4) Φ300 (SGP)	L	= (7 × 12.000 + 2.000 + 7.000 + 7.980 + 3.500) × 2	=	209.0 m	
	(5) Φ200 (SGP)	L	= (0.434 + 0.582 + 1.579) × 36	=	93.4 m	
3) Hanger	(1) Φ200	N	= 148 + 36 × 2	=	220 Nos.	
	(2) Φ300	N	= 392.6 / 2.000	=	197 Nos.	
	(3) Φ400	N	= 402.6 / 2.000	=	202 Nos.	

6.Pavement

Item	Calculation	Quantity
1. AC Pavement		
1) Asphalt Concrete Surface Course t=75mm		
	$A = 10.750 \times 2 \times (1,090.00 - 210.000 - 0.700)$ $= 18,920.00$	18,920.0 m ²
2) Water Proofing t=5mm		
	$A = 10.750 \times 2 \times (1,090.00 - 210.000 - 0.700)$ $= 18,920.00$	18,920.0 m ²
2. Guse Asphalt Pavement		
1) Guse Asphalt Concrete t=70mm		
	$A = 10.750 \times 2 \times 210.00$ $= 4,515.00$	4,515.0 m ²
2) Bound Layer		
	$A = 10.750 \times 2 \times 210.00$ $= 4,515.00$	4,515.0 m ²
3. Road Marking		
	Bridge Length $L = 1,090.000 - 0.700 = 1089.30$ m	
	Side Line	
	$A1 = 1089.300 \times 0.200 \times 4$ $= 871.440$ m ²	
	Center Line	
	$A2 = 1089.300 \times 0.100 \times \frac{3}{10} \times 2$ $= 32.679$ m ²	
	Total $871.440 + 32.679$ $= 904.119$ m ²	904.1 m ²

7. Temporary Works

Item	Formula	Quantity
1. Support	Temporary Scaffolding Execute Pier P12,P13,P14,P15,P16,P17 $A = 105.000 \text{ m}^2 \quad w = 400.000 \text{ kg/m}^2$ $\text{Weight par each } 105.000 \times 400.000 / 1000.000 = 42.0 \text{ ton}$ $\text{Total } W = 42.000 \times 6 = 252.0 \text{ ton}$	
2. Temporary Fixiation of Girder on Pylon	(1) PC Cable 12S15.2 Unit weight of cab 13.212 kg/m $L = (7.150 + 7.200 + 7.350 + 7.400)$ $\quad \times 11 \times 4 \times 2 = 1,280.400 \text{ m}$ $W = ##### \times 13.212 / 1,000 = 16.917 \text{ ton}$ (2) Concrete $\rho_{ck}=240\text{kg/cm}^2$ 1. In the Girder Average Heigl 0.300 m $V = 4.000 \times 1.085 \times 0.300$ $\quad \times 2 \times 2 = 5.208 \text{ m}^3$ 2. Under the Girder Average Heigl 0.620 m $V = 4.000 \times 1.085 \times 0.620$ $\quad \times 2 \times 2 = 10.763 \text{ m}^3$ 3. Under the Beam Average Heigl 0.300 m $V = 4.000 \times 1.085 \times 0.300$ $\quad \times 2 \times 2 = 5.208 \text{ m}^3$ 4. Total $V = 5.208 + 10.763 + 5.208 = 21.2 \text{ m}^3$ (3) Temporary Scaffolding $A = 250.0 \text{ m}^2 \quad w = 500 \text{ kg/m}^2$ $W = 250.000 \times 500.000 \times 2 = 250.0 \text{ ton}$	

Item	Formula	Quantity
3. Temporary Prop 1 - 3		
(1) Pedestal of Bent		
Concrete	Pedestal deck	
V =	17.000 × 4.000 × 1.000 = 68.000 m ²	Total 204.000 m ³
Form	A = (17.000 + 4.000) × 2 × 1.000 = 42.000 m ²	Total 126.000 m ³
Re-Bar	30.000 concrete m ³ = 6120.000 kg	6.120 ton
Leveling concrete	V = 17.200 × 4.200 × 0.100 = 7.224 m ³	Total 21.672 m ³
Foundation	V = 17.200 × 4.200 × 0.200 = 14.448 m ³	Total 43.344 m ³
(2) Pile		
	H-400*400*13*21	
	L = 40.000 m	
	N = 12	
Total length	L = 40.000 × 12 = 480.000 m	Total 1,440.000 m
Unit weight of H shaped steel	172 kg/m	
W =	480.000 × 172 / 1000 = 82.560 tf	Total 247.7 tf
(3) Bent		
	H = 24.934 m	
	B = 12.000 m	
	n = 7	
weight of bent	W = 0.365 × 7.000 × 24.934 + 0.782 × 12.000 = 73.09 tf	Total 219.3 tf

Item	Formula	Quantity
4. Temporary Prop 4 - 6		
(1) Pedestal of Bent	Structural steel weight per unit area 150 t/m ²	
	Pedestal deck	
	A = 20.000 × 10.000 = 200.000 m ²	Total
	W = 200.000 × 150.000 / 1000 = 30.000 tf	90.0 tf
(2) Pile	H-400*400*13*21	
	L = 50.000 m	
	N = 44	
	Total length	Total
	L = 50.000 × 44 = 2200.000 m	6,600.000 m
	Unit weight of H shaped steel 172 kg/m	Total
	W = 2200.000 × 172 / 1000 = 378.400 tf	1,135.2 tf
(3) Bent	H = 25.934 m	
	B = 12.000 m	
	n = 7	
	weight of bent	Total
	W = 0.365 × 7.000 × 25.934 × 0.782	226.9 tf
	× 12.000 = 75.645 tf	

1.3. Approach Bridge (P18-P36)

1.Quantity of Superstructure

(Approach Bridge CANTHO SIDE -1)

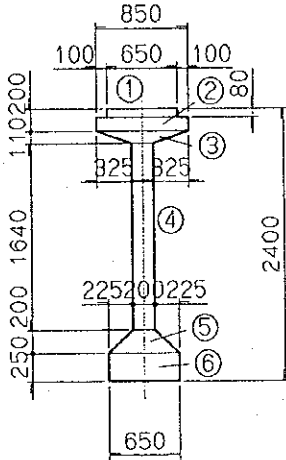
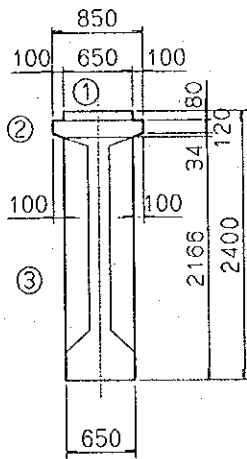
I-Gerder (P17-P36)

Item		Work Item		Unit	Quantity	Remarks
Concrete	CLASS B	Girder		cu.m	6,296.0	ock=40Mpa
	CLASS D-1	Deck Slab		cu.m	4,058.6	ock=30Mpa
		Diaphragm		cu.m	1,911.1	
		Total		cu.m	5,969.7	
CLASS E	Barrier		cu.m	390.0	ock=24Mpa	
Form		Deck Slab		sq.m	1,627.9	
		Girder		sq.m	36,893.8	
		Diaphragm		sq.m	7,879.9	
		Barrier		sq.m	2,684.1	
		Total		sq.m	49,085.8	
Re-bar		Deck Slab	- D14	ton	244.0	
			D16 - D22	ton	462.4	
			D25 -	ton	136.6	
			Total	ton	843.0	207.7
		Girder	- D14	ton	492.1	
			D16 - D22	ton	555.6	
			D25 -	ton	0.0	
			Total	ton	1,047.7	166.4
		Diaphragm	- D14	ton	72.2	
			D16 - D22	ton	5.9	
			D25 -	ton	0.0	
			Total	ton	78.2	40.9
		Barrier	- D14	ton	63.0	
			D16 - D22	ton	1.0	
			D25 -	ton	0.0	
			Total	ton	64.0	164.1
	Total	- D14	ton	871.3		
		D16 - D22	ton	1,024.9		
		D25 -	ton	136.6		
		Total	ton	2,032.9		
PC Cable	12S12.7B			ton	376.8	SWPR7B
	4S12.7B	Transverse Tendons		ton	29.5	
		Total		ton	406.3	
Slab Plate				sq.m	11,796.7	
				cu.m	943.7	
			D10, 14	ton	244.7	
Shear Key				Nos	4,104	
Expansion Joint		Type A		m	110.5	
		Concrete		cu.m	10.8	

(Approach Bridge CANTHO SIDE-1)
I-Girder (P17-P36)

Item	Work Item	Unit	Quantity	Remarks	
Bearing	Product layer rubber bearing	Nos	342		
	Anchor Bar	Φ30 L=620	Nos	192	
		Φ36 L=740	Nos	120	
		Φ42 L=860	Nos	48	
		Φ50 L=1020	Nos	48	
		Φ60 L=1220	Nos	128	
	Anchor Cap	Φ65/50 L=350	Nos	192	
		Φ50/56 L=410	Nos	120	
		Φ50 L=470	Nos	48	
		Φ50 L=550	Nos	48	
		Φ60 L=650	Nos	128	
Railing		m	1,520.0		
		ton	82.5		
Drainage	Pot	Nos	114		
	Pipe	Φ150	m	74.5	
		Φ200	m	1,451.5	
	Hunger	Φ150	Nos	76	
		Φ200	Nos	1,007	
Pavement	t=75mm	Asphalt concrete surface course	sq.m	2,440.3	
	t= 5mm	Water Proofing	sq.m	2,440.3	
		Road Marking	sq.m	653.0	
Concrete Central Reserve	precast L=2000	Nos	369.8		
Erection		ton	92.1	per one girder	
		Nos.	171.0		
		ton	15,743.5	Total	

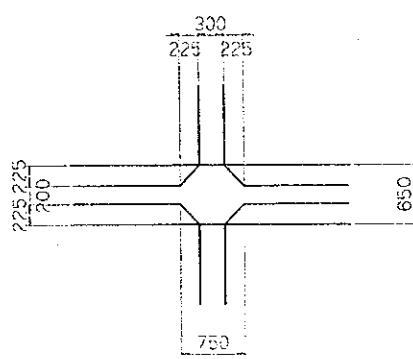
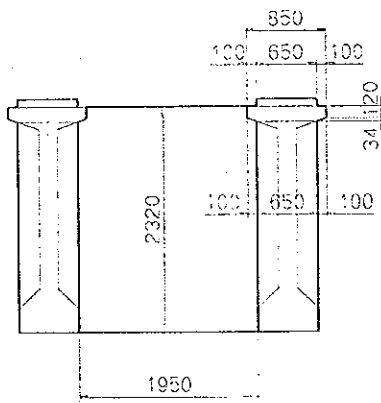
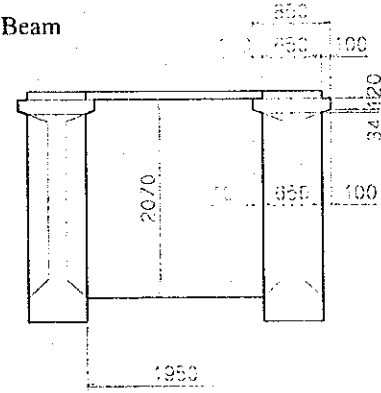
2. Concrete

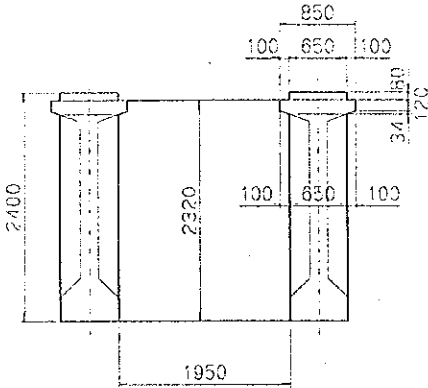
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<p>1. Girder Concrete CLASS "B"</p> <p>1) Girder</p>	<p>(1) Calculation of Sectional Area</p> <p>[1] Middle Section</p> <p>Summary of Sectional Area For ONE GIRDER</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>No</th> <th>Formula</th> <th>(m²)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.650×0.080</td> <td>= 0.052</td> </tr> <tr> <td>2</td> <td>0.850×0.120</td> <td>= 0.102</td> </tr> <tr> <td>3</td> <td>$\frac{1}{2} \times 0.325 \times 0.110 \times 2$</td> <td>= 0.036</td> </tr> <tr> <td></td> <td>0.200×0.110</td> <td>= 0.022</td> </tr> <tr> <td>4</td> <td>1.640×0.200</td> <td>= 0.328</td> </tr> <tr> <td>5</td> <td>$\frac{1}{2} \times 0.225 \times 0.200 \times 2$</td> <td>= 0.045</td> </tr> <tr> <td></td> <td>0.200×0.200</td> <td>= 0.040</td> </tr> <tr> <td>6</td> <td>0.650×0.250</td> <td>= 0.163</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total Area</td> <td>0.788 m²</td> </tr> </tbody> </table>  <p>[2] End Section</p> <p>Summary of Sectional Area For ONE GIRDER</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>No</th> <th>Formula</th> <th>(m²)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.650×0.080</td> <td>= 0.052</td> </tr> <tr> <td>2</td> <td>0.120×0.850</td> <td>= 0.102</td> </tr> <tr> <td></td> <td>$\frac{1}{2} \times 0.100 \times 0.034 \times 2$</td> <td>= 0.003</td> </tr> <tr> <td></td> <td>0.650×0.034</td> <td>= 0.022</td> </tr> <tr> <td>3</td> <td>0.650×2.166</td> <td>= 1.408</td> </tr> <tr> <td colspan="2" style="text-align: right;">Total Area</td> <td>1.587 m²</td> </tr> </tbody> </table> 	No	Formula	(m ²)	1	0.650×0.080	= 0.052	2	0.850×0.120	= 0.102	3	$\frac{1}{2} \times 0.325 \times 0.110 \times 2$	= 0.036		0.200×0.110	= 0.022	4	1.640×0.200	= 0.328	5	$\frac{1}{2} \times 0.225 \times 0.200 \times 2$	= 0.045		0.200×0.200	= 0.040	6	0.650×0.250	= 0.163	Total Area		0.788 m²	No	Formula	(m ²)	1	0.650×0.080	= 0.052	2	0.120×0.850	= 0.102		$\frac{1}{2} \times 0.100 \times 0.034 \times 2$	= 0.003		0.650×0.034	= 0.022	3	0.650×2.166	= 1.408	Total Area		1.587 m²	
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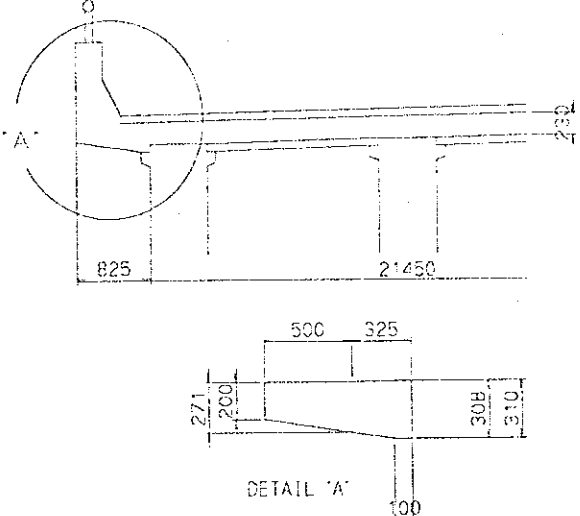
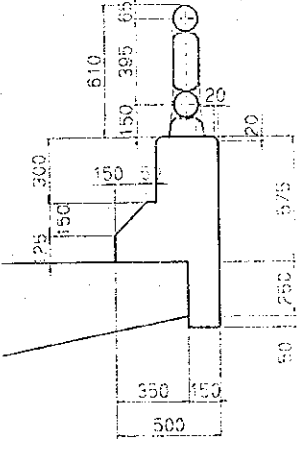
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border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m²)</th> <th>Average of Section (m²)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m³)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.033</td><td>21.302</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.833</td><td>36.828</td><td></td></tr> </tbody> </table> <p style="text-align:center;">No. of Girder 9 × 1 = 9</p> <p>[3-2] P25-P26 Girder Length 39.829 m</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m²)</th> <th>Average of Section (m²)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m³)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.029</td><td>21.299</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.829</td><td>36.825</td><td></td></tr> </tbody> </table> <p style="text-align:center;">No. of Girder 9 × 1 = 9</p>		Section No.	Section Area (m ²)	Average of Section (m ²)	Length of Block (m)	Concrete Volume (m ³)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.032	21.301		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.832	36.827		Section No.	Section Area (m ²)	Average of Section (m ²)	Length of Block (m)	Concrete Volume (m ³)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.032	21.301		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.832	36.827		Section No.	Section Area (m ²)	Average of Section (m ²)	Length of Block (m)	Concrete Volume (m ³)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.033	21.302		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.833	36.828		Section No.	Section Area (m ²)	Average of Section (m ²)	Length of Block (m)	Concrete Volume (m ³)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.029	21.299		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.829	36.825	
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	<p>[4-2] P28-P29 Girder Length 39.822 m</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m2)</th> <th>Average of Section (m2)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m3)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.022</td><td>21.293</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.822</td><td>36.819</td><td></td></tr> </tbody> </table> <p style="text-align: center;">No. of Girder 9 × 1 = 9</p>	Section No.	Section Area (m2)	Average of Section (m2)	Length of Block (m)	Concrete Volume (m3)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.022	21.293		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.822	36.819		
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Total			39.822	36.819																																														
	<p>[4-3] P29-P30 Girder Length 39.804 m</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m2)</th> <th>Average of Section (m2)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m3)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.004</td><td>21.279</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.804</td><td>36.805</td><td></td></tr> </tbody> </table> <p style="text-align: center;">No. of Girder 9 × 1 = 9</p> <p>V4= 36.817 × 9 + 36.819 × 9 + 36.805 × 9 = 993.969 m³</p>	Section No.	Section Area (m2)	Average of Section (m2)	Length of Block (m)	Concrete Volume (m3)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.004	21.279		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.804	36.805		
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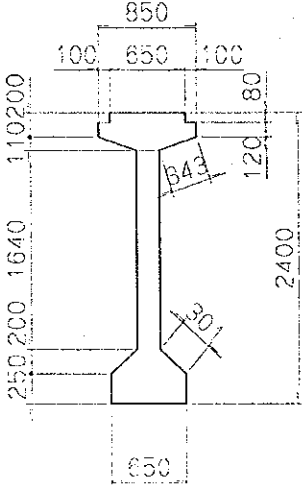
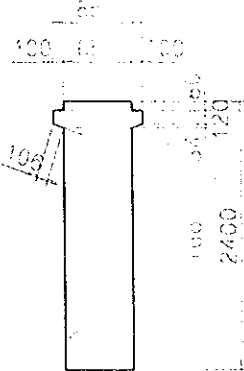
Item	Formula	Quantity																																																
	<p>[5] P30-P33 Girder Length 39.800 m</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m2)</th> <th>Average of Section (m2)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m3)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.000</td><td>21.276</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.800</td><td>36.802</td><td></td></tr> </tbody> </table> <p style="text-align: center;">No. of Girder 9 × 3 = 27</p> <p>V5= 36.802 × 27 = 993.654 m³</p>	Section No.	Section Area (m2)	Average of Section (m2)	Length of Block (m)	Concrete Volume (m3)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.000	21.276		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.800	36.802		
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	<p>[6-1] P33-P34 Girder Length 39.801 m</p> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Area (m2)</th> <th>Average of Section (m2)</th> <th>Length of Block (m)</th> <th>Concrete Volume (m3)</th> <th>Remark</th> </tr> </thead> <tbody> <tr><td>END</td><td>1.587</td><td></td><td></td><td></td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>MIDDLE</td><td>0.788</td><td>0.788</td><td>27.001</td><td>21.277</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.188</td><td>6.000</td><td>7.128</td><td></td></tr> <tr><td>END</td><td>1.587</td><td>1.587</td><td>0.400</td><td>0.635</td><td></td></tr> <tr><td>Total</td><td></td><td></td><td>39.801</td><td>36.803</td><td></td></tr> </tbody> </table> <p style="text-align: center;">No. of Girder 9 × 1 = 9</p>	Section No.	Section Area (m2)	Average of Section (m2)	Length of Block (m)	Concrete Volume (m3)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.001	21.277		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.801	36.803		
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Item	Formula	Quantity
<p>2. Diaphragm Concrete CLASS "D-1"</p> <p>1) Diaphragm</p>	$V1 = (0.300 + 0.750) \times 1/2 \times 0.225 \times (1.640 + 1.950) \times 1/2 \times 2 = 0.424$ $V = 0.424 \times 9 \times 3 \times (3 \times 5 + 4) = 217.512 \text{ m}^3$ 	
<p>2) Cross Beam</p>	<p>(1) End Cross Beam</p>  $V2-1 = \{ 2.320 \times 1.950 - (0.120 + 0.154) \times 1/2 \times 0.100 \times 2 \} \times 0.400 \times 8 \times 2 = 28.778 \text{ m}^3$ <p>(2) Intermediate Cross Beam</p>  $V2-2-1 = \{ 2.070 \times 1.950 - (0.120 + 0.154) \times 1/2 \times 0.100 \times 2 \} \times 0.300 \times 8 \times 3 \times 3 = 86.597 \text{ m}^3$ $V2-2-2 = \{ 2.070 \times 1.950 - (0.120 + 0.154) \times 1/2 \times 0.100 \times 2 \} \times 0.300 \times 8 \times 3 \times 4 = 115.462 \text{ m}^3$	

Item	Formula	Quantity
	<p>(3) Connection Cross Beam</p>  $ \begin{aligned} V2-3-1 &= \{ 2.320 \times 1.950 - (0.120 + 0.154) \times \frac{1}{2} \times 0.100 \\ &\times 2 \} \times 2.000 \times 8 \times 2 + 1.587 \times 9 \\ &\times 2 \times 0.200 \quad \text{Girder end section area} \\ &= 149.604 \text{ m}^3 \end{aligned} $ $ \begin{aligned} V2-3-2 &= \{ 2.320 \times 1.950 - (0.120 + 0.154) \times \frac{1}{2} \times 0.100 \\ &\times 2 \times 2.000 \times 8 \times 3 + 1.587 \times 9 \\ &\times 3 \times 0.200 \quad \text{Girder section area} \\ &= 224.407 \text{ m}^3 \end{aligned} $ $ \begin{aligned} V2 &= (28.778 + 86.597 + 149.604) \times 5 + 28.778 + 115.462 \\ &+ 224.407 \\ &= 1693.542 \text{ m}^3 \end{aligned} $ <p style="text-align: right;">Total 1911.054 m³</p>	<p style="text-align: right;">1911.054 m³</p>

Item	Formula	Quantity
<p>3. Deck Slab Concrete CLASS "D-1"</p>	 $ \begin{aligned} A1 &= \{ 0.200 + 0.271 \} \times \frac{1}{2} \times 0.500 \times 2 = 0.236 \\ A2 &= \{ 0.271 + 0.308 \} \times \frac{1}{2} \times 0.225 \times 2 = 0.13 \\ A3 &= \{ 0.308 + 0.310 \} \times \frac{1}{2} \times 0.100 \times 2 = 0.062 \\ A4 &= 21.450 \times 0.230 = 4.934 \\ \Sigma A &= 5.362 \text{ m}^2 \\ \\ V &= \frac{5.362 \times ((120.000 - 0.200) \times 5 + 160.000 - 0.200)}{2 \times 22.100} - \frac{0.336 \times 0.070 \times 22.100 \times 11 - 0.635 \times 0.310}{22.100} = 4058.618 \text{ m}^3 \end{aligned} $	<p>4058.618 m³</p>
<p>4. Barrier Concrete CLASS "E"</p>	$ \begin{aligned} A1 &= 0.300 \times 0.300 = 0.090 \text{ m}^2 \\ A2 &= (0.300 + 0.500) \times \frac{1}{2} \times 0.150 = 0.060 \text{ m}^2 \\ A3 &= 0.500 \times 0.125 = 0.063 \text{ m}^2 \\ A4 &= 0.150 \times 0.300 = 0.045 \text{ m}^2 \\ A5 &= 0.020 \times 0.020 \times \frac{1}{2} \times 2.0 = -0.001 \text{ m}^2 \\ \Sigma A &= 0.257 \text{ m}^2 \\ \\ L &= 119.800 \times 5 + 159.800 = 758.800 \text{ m} \\ V &= 0.257 \times 758.800 \times 2 = 390.023 \text{ m}^3 \end{aligned} $ 	<p>390.023 m³</p>

3. Form

Item	Formula	Quantity																																				
1. Girder																																						
1) Girder	<p>(1) Calculation of Sectional Area</p> <p>[1] Middle Section</p> <p>Summary of Sectional Length For ONE GIRDER</p> <table border="1" data-bbox="296 465 1027 734"> <thead> <tr> <th>No</th> <th>Formula</th> <th>(m)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.080×2</td> <td>= 0.160</td> </tr> <tr> <td>2</td> <td>0.120×2</td> <td>= 0.240</td> </tr> <tr> <td>3</td> <td>0.343×2</td> <td>= 0.686</td> </tr> <tr> <td>4</td> <td>1.640×2</td> <td>= 3.280</td> </tr> <tr> <td>5</td> <td>0.301×2</td> <td>= 0.602</td> </tr> <tr> <td>6</td> <td>0.250×2</td> <td>= 0.500</td> </tr> </tbody> </table> <p style="text-align: right;">Total Area 5.468 m</p>  <p>[2] End Section</p> <p>Summary of Sectional Length For ONE GIRDER</p> <table border="1" data-bbox="300 1377 1031 1581"> <thead> <tr> <th>No</th> <th>Formula</th> <th>(m)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.080×2</td> <td>= 0.160</td> </tr> <tr> <td>2</td> <td>0.120×2</td> <td>= 0.240</td> </tr> <tr> <td>2</td> <td>0.106×2</td> <td>= 0.212</td> </tr> <tr> <td>6</td> <td>2.166×2</td> <td>= 4.332</td> </tr> </tbody> </table> <p style="text-align: right;">Total Area 4.944 m</p> 	No	Formula	(m)	1	0.080×2	= 0.160	2	0.120×2	= 0.240	3	0.343×2	= 0.686	4	1.640×2	= 3.280	5	0.301×2	= 0.602	6	0.250×2	= 0.500	No	Formula	(m)	1	0.080×2	= 0.160	2	0.120×2	= 0.240	2	0.106×2	= 0.212	6	2.166×2	= 4.332	
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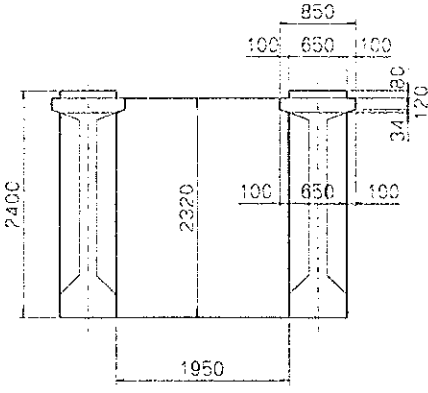
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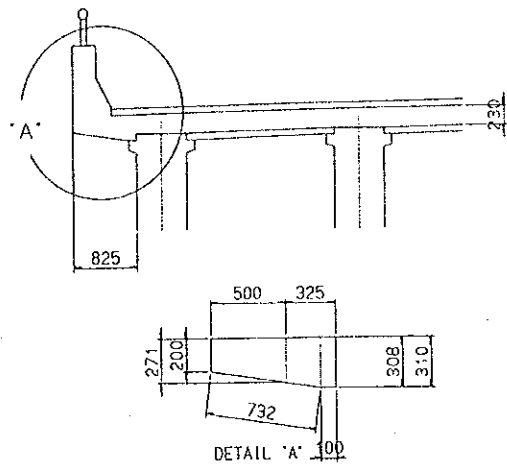
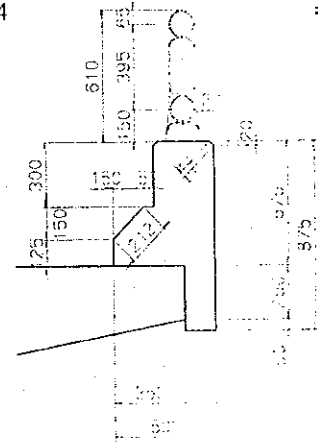
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	A4 = 216.466 × 9 + 214.184 × 9 + 214.09 × 9 = 5802.624 m ²																																																							
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	A5 = 216.362 × 27 = 5841.774 m ²																																																							
	Girder Length 39.801 m																																																							
[6-1] P33-P34																																																								
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Item	Formula	Quantity																																																						
	<p>[6-2] P34-P35 Girder Length 39.824 m</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Section No.</th> <th>Section Length (m)</th> <th>Average of Section (m)</th> <th>Length of Block (m)</th> <th>Form Area (m²)</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>END</td> <td>4.944</td> <td></td> <td></td> <td>1.149</td> <td>End-section</td> </tr> <tr> <td>END</td> <td>4.944</td> <td>4.944</td> <td>0.400</td> <td>1.978</td> <td></td> </tr> <tr> <td>MIDDLE</td> <td>5.468</td> <td>5.206</td> <td>6.000</td> <td>31.236</td> <td></td> </tr> <tr> <td>MIDDLE</td> <td>5.468</td> <td>5.468</td> <td>27.024</td> <td>147.767</td> <td></td> </tr> <tr> <td>END</td> <td>4.944</td> <td>5.206</td> <td>6.000</td> <td>31.236</td> <td></td> </tr> <tr> <td>END</td> <td>4.944</td> <td>4.944</td> <td>0.400</td> <td>1.978</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>1.149</td> <td>End-section</td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>39.824</td> <td>214.195</td> <td></td> </tr> </tbody> </table> <p style="text-align: center;">No. of Girder $9 \times 1 = 9$</p>	Section No.	Section Length (m)	Average of Section (m)	Length of Block (m)	Form Area (m ²)	Remark	END	4.944			1.149	End-section	END	4.944	4.944	0.400	1.978		MIDDLE	5.468	5.206	6.000	31.236		MIDDLE	5.468	5.468	27.024	147.767		END	4.944	5.206	6.000	31.236		END	4.944	4.944	0.400	1.978						1.149	End-section	Total			39.824	214.195		
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Total			39.831	214.234																																																				
	<p>A6 = 216.367 × 9 + 214.195 × 9 + 214.23 × 9</p> <p style="text-align: right;">= 5803.164 m²</p> <p style="text-align: right;">Σ A = 36893.790 m²</p>	<p>36893.790 m²</p>																																																						

Item	Formula	Quantity
2. Diaphragm		
1) Diaphragm	$a1 = 0.318 \times 2 \times (1.640 + 1.950) \times \frac{1}{2} + 0.300 \times 1.950 = 1.727 \text{ m}^2$	
	$a2 = 0.318 \times 2 \times (1.640 + 1.950) \times \frac{1}{2} = 1.142 \text{ m}^2$	
	$A1 = (1.727 \times 2 + 1.142 \times 16) \times 3 \times \left(\frac{3}{5} + \frac{4}{4} \right) = 1238.382 \text{ m}^2$	
2) Cross Beam	(1) End Cross Beam	
	$A2-1 = [\{ 2.320 \times 1.950 - (0.120 + 0.154) \times 0.100 \} \times 2 + 1.950 \times 0.400] \times 8 \times 2 = 156.371 \text{ m}^2$	
	(2) Intermediate Cross Beam	
	$A2-2 = [\{ 2.320 \times 1.950 - (0.120 + 0.154) \times 0.100 \} \times 2 + 1.950 \times 0.300] \times 8 \times 3 \times 3 = 689.630 \text{ m}^2$	
	$A2-2-2 = [\{ 2.320 \times 1.950 - (0.120 + 0.154) \times 0.100 \} \times 2 + 1.950 \times 0.300] \times 8 \times 3 \times 4 = 919.507 \text{ m}^2$	

Item	Formula	Quantity
	<p>(3) Connection Cross Beam</p>  $A2-3 = [\{ 2.320 \times 1.950 - (0.120 + 0.154) \times 0.100 \} \times 2 + 1.950 \times 2.000] \times 8 \times 2 = 206.291 \text{ m}^2$ $A2-3-2 = [\{ 2.320 \times 1.950 - (0.120 + 0.154) \times 1/2 \times 2 \} \times 2 + 1.950 \times 2.000] \times 8 \times 3 = 304.176 \text{ m}^2$ $A2 = (156.371 + 689.630 + 206.291) \times 5 + 156.371 + 919.507 + 304.176 = 6,641.514 \text{ m}^2$ $\text{Total } A1 + A2 = 1238.382 + 6,641.514 = 7,879.896 \text{ m}^2$	<p>7,879.896 m²</p>

Item	Formula	Quantity
3. Deck Slab	 <p> $A 1 = (0.200 + 0.732 + 0.100) \times 2 \times (120.000 - 0.200) = 247.267 \text{ m}^2$ $A 2 = (0.200 + 0.271) \times 1/2 \times 0.500 \times 2 = 0.236 \text{ m}^2$ $A 3 = (0.271 + 0.308) \times 1/2 \times 0.225 \times 2 = 0.13 \text{ m}^2$ $A 4 = (0.308 + 0.310) \times 1/2 \times 0.100 \times 2 = 0.062 \text{ m}^2$ $A 5 = 21.450 \times 0.230 \times 2 = 9.867 \text{ m}^2$ Sub-total = 257.562 m² </p> <p> $A 1 = (0.200 + 0.732 + 0.100) \times 2 \times (160.000 - 0.200) = 329.827 \text{ m}^2$ $A 2 = (0.200 + 0.271) \times 1/2 \times 0.500 \times 2 = 0.236 \text{ m}^2$ $A 3 = (0.271 + 0.308) \times 1/2 \times 0.225 \times 2 = 0.13 \text{ m}^2$ $A 4 = (0.308 + 0.310) \times 1/2 \times 0.100 \times 2 = 0.062 \text{ m}^2$ $A 5 = 21.450 \times 0.230 \times 2 = 9.867 \text{ m}^2$ Sub-total = 340.122 m² </p> <p> Total A = 257.562 × 5 + 340.122 = 1,627.932 m² </p>	1,627.932 m ²
4. Barrier	<p> $A1 = (0.125 + 0.212 + 0.300 + 0.028 + 0.028 + 0.875 + 0.150 + 0.050) \times 758.800 \times 2 = 2,683.117 \text{ m}^2$ </p> <p> $A2 = 0.300 \times 0.300 = 0.090 \text{ m}^2$ $A3 = (0.300 + 0.500) \times 1/2 \times 0.150 = 0.060 \text{ m}^2$ $A4 = 0.500 \times 0.125 = 0.063 \text{ m}^2$ $A5 = 0.150 \times 0.300 = 0.045 \text{ m}^2$ $A6 = 0.020 \times 0.020 \times 1/2 \times 2.0 = -0.001 \text{ m}^2$ $A2 \sim A6 = 0.257 \text{ m}^2$ </p> <p> A = 2683.117 + 0.257 × 4 = 2684.145 m² </p> 	2684.145 m ²

4. Reinforcement Bar

4-1. SLAB

1.P17-P21

SCHEDULE OF REINFORCEMENT													
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f	g					
1	25	6500							6500	3.853	555	13,900	
2	25	8250							8250	3.853	555	17,642	
3 - 1	18	10000							10000	1.998	700	13,986	
3 - 2	18	10000							10000	1.998	700	13,986	
4	18	3710							3710	1.998	1288	9,547	
5	16	4790							4790	1.578	179	1,353	
6	16	3040							3040	1.578	179	859	
7	16	10000							10000	1.578	358	5,649	
8	16	12000							12000	1.578	1432	27,116	
9	16	10210							10210	1.578	358	5,768	
10	14	12000							12000	1.208	558	8,089	
11	14	2610							2610	1.208	186	586	
12	14	10000							10000	1.208	558	6,741	
13	14	6260							6260	1.208	186	1,407	
14	14	3000							3000	1.208	68	246	
15 - 1	14	10000							10000	1.208	700	8,456	
15 - 2	14	10000							10000	1.208	700	8,456	
16	14	3850							3850	1.208	700	3,256	
17	14	1417	199	420					2040	1.208	1176	2,898	
18	14	420	199	650	199	420			1890	1.208	4116	9,397	
19	14	109	716	225					1050	1.208	1288	1,634	
									- D14			51,166	
									D16 - D22			78,264	
									D25 -			31,542	
Sub-Total												160,972	

2. P21-P36

BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f	g					
1	25	6500							6500	3.853	370	9266	
2	25	8250							8250	3.853	370	11761	
3 - 1	18	10000							10000	1.998	966	19301	
3 - 2	18	10000							10000	1.998	966	19301	
4	18	3700							3700	1.998	966	7141	
5	16	4790							4790	1.578	179	1353	
6	16	3040							3040	1.578	179	859	
7	16	10000							10000	1.578	358	5649	
8	16	12000							12000	1.578	1074	20337	
9	16	10210							10210	1.578	179	2884	
10	14	12000							12000	1.208	558	8089	
11	14	2610							2610	1.208	186	586	
12	14	10000							10000	1.208	279	3370	
13	14	6260							6260	1.208	93	703	
14	14	3000							3000	1.208	68	246	
15 - 1	14	10000							10000	1.208	525	6342	
15 - 2	14	10000							10000	1.208	525	6342	
16	14	3850							3850	1.208	525	2442	
17	14	1417	199	420					2040	1.208	882	2174	
18	14	420	199	650	199	420			1890	1.208	3087	7048	
19	14	109	716	225					1050	1.208	966	1225	
									- D14			38567	
									D16 - D22			76825	
									D25 -			21027	
Sub-Total												136419	

					(kgf)
- D14	38,567	×	5	=	192,835
D16 - D22	76,825	×	5	=	384,125
D25 -	21,027	×	5	=	105,135
Total					682,095

3. Total

		Total		Remark
		(kgf)	(ton)	
P17-P21	- D14	51,166	51.2	
	D16 - D22	78,264	78.3	
	D25 -	31,542	31.5	
	total	160,972	161.0	
P21-P30	- D14	192,835	192.8	
	D16 - D22	384,125	384.1	
	D25 -	105,135	105.1	
	total	682,095	682.0	
total	- D14	244,001	244.0	
	D16 - D22	462,389	462.4	
	D25 -	136,677	136.6	
	total	843,067	843.0	

4-2. GIRDER

1. P17-P24

G1,G9

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7868							7870	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	787							790	0.888	28	20		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1010							1010	0.888	66	59		
22	12	515	197	257	197	55			1230	0.888	14	15	side	
22	12	515	197	257	197	55			1230	0.888	10	11	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2693	
									D16 - D22				3250	
									D25 -					
								Total				5943		
	Center Span								- D14				2689	
									D16 - D22				3250	
							D25 -							
							Total				5939			

P17-P24

G2,G3,G4,G6,G7,G8

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7868							7870	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	7870							7870	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1470							1470	0.888	66	86		
22	12	515	197	257	197	515			1690	0.888	14	21	side	
22	12	515	197	257	197	515			1690	0.888	10	15	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2902	
									D16 - D22				3250	
									D25 -				6152	
	Center Span								Total				6152	
									- D14				2896	
									D16 - D22				3250	
							D25 -				6146			
							Total				6146			

P17-P24
G5

For ONE GIRDER

SCHEDULE OF REINFORCEMENT													
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f	g					
1	20	354	372	560	372	354			2020	2.466	6	30	
2	20	300	474	372	560	372	474	300	2860	2.466	96	677	
3	20	300	354	372	560	372	354	300	2620	2.466	74	478	
4	16	7868							7870	1.578	12	149	
5	16	7800							7800	1.578	12	148	
6	16	7900							7900	1.578	12	150	
7	16	240	2529	564	2529	240			6110	1.578	6	58	
8	16	240	2529	342	2529	240			5880	1.578	96	891	
9	16	240	2529	114	2529	240			5660	1.578	74	661	
10	12	7870							7870	0.888	28	196	
11	12	7800							7800	0.888	56	388	
12	12	7900							7900	0.888	28	196	
13	12	349	6005	1526					7880	0.888	28	196	
14	12	180	2533	568	2533	180			6000	0.888	6	32	
15	12	180	2533	118	2533	180			5550	0.888	158	779	
16	12	300	362	378	568	378	362	300	2650	0.888	92	216	
17	12	163	568	163					900	0.888	184	147	
18	12	343	50	768	50	343			1560	0.888	184	255	
19	12	180	145	191	568	191	145	180	1600	0.888	48	68	
20	12	180	301	191	568	191	301	180	1920	0.888	126	215	
21	12	1470							1470	0.888	66	86	
22	12	515	197	257	197	515			1690	0.888	14	21	side
22	12	515	197	257	197	515			1690	0.888	10	15	center
23	12	100	318	253	318	100			1090	0.888	42	41	
24	12	2100							2100	0.888	8	15	
25	12	400							400	0.888	42	15	
26	12	500							500	0.888	10	4	
27	12	400							400	0.888	12	4	
28	10	3840							3840	0.617	8	19	
29	10	1260							1260	0.617	8	6	
Total	Side Span								- D14			2899	
									D16 - D22			3242	
									D25 -				
								Total				6141	
	Center Span								- D14			2893	
									D16 - D22			3242	
								D25 -					
							Total				6135		

2. P24-P30, P33-P36

G1,G9

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7877							7880	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	7883							7890	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1010							1010	0.888	66	59		
22	12	515	197	257	197	55			1230	0.888	14	15	side	
22	12	515	197	257	197	55			1230	0.888	10	11	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2869	
									D16 - D22				3250	
									D25 -				6119	
								Total				6119		
	Center Span								- D14				2865	
									D16 - D22				3250	
							D25 -				6115			
							Total				6115			

P24-P30, P33-P36
G2,G3,G4,G6,G7,G8

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7877							7880	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	7883							7890	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1470							1470	0.888	66	86		
22	12	515	197	257	197	515			1690	0.888	14	21	side	
22	12	515	197	257	197	515			1690	0.888	10	15	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2902	
									D16 - D22				3250	
									D25 -					
								Total				6152		
	Center Span								- D14				2896	
									D16 - D22				3250	
							D25 -							
							Total				6146			

P24-P30, P33-P36

For ONE GIRDER

G5

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	372	560	372	354			2020	2.466	6	30		
2	20	300	474	372	560	372	474	300	2860	2.466	96	677		
3	20	300	354	372	560	372	354	300	2620	2.466	74	478		
4	16	7877							7880	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2529	564	2529	240			6110	1.578	6	58		
8	16	240	2529	342	2529	240			5880	1.578	96	891		
9	16	240	2529	114	2529	240			5660	1.578	74	661		
10	12	7883							7890	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2533	568	2533	180			6000	0.888	6	32		
15	12	180	2533	118	2533	180			5550	0.888	158	779		
16	12	300	362	378	568	378	362	300	2650	0.888	92	216		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1470							1470	0.888	66	86		
22	12	515	197	257	197	515			1690	0.888	14	21	side	
22	12	515	197	257	197	515			1690	0.888	10	15	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2899	
									D16 - D22				3242	
								D25 -				6141		
								Total						
Total	Center Span								- D14				2893	
									D16 - D22				3242	
								D25 -				6135		
								Total						

3. P30-P33

G1,G9

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7890							7890	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	7890							7890	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1010							1010	0.888	66	59		
22	12	515	197	257	197	55			1230	0.888	14	15	side	
22	12	515	197	257	197	55			1230	0.888	10	11	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2869	
									D16 - D22				3250	
									D25 -					
								Total				6119		
	Center Span								- D14				2865	
									D16 - D22				3250	
							D25 -							
							Total				6115			

P30-P33

G2,G3,G4,G6,G7,G8

For ONE GIRDER

SCHEDULE OF REINFORCEMENT														
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS	
		a	b	c	d	e	f	g						
1	20	354	373	560	384	354			2030	2.466	6	30		
2	20	300	474	373	560	384	474	300	2870	2.466	96	679		
3	20	300	354	373	560	384	354	300	2630	2.466	74	480		
4	16	7890							7890	1.578	12	149		
5	16	7800							7800	1.578	12	148		
6	16	7900							7900	1.578	12	150		
7	16	240	2530	564	2541	240			6120	1.578	6	58		
8	16	240	2532	342	2539	240			5900	1.578	96	894		
9	16	240	2534	114	2536	240			5670	1.578	74	662		
10	12	7890							7890	0.888	28	196		
11	12	7800							7800	0.888	56	388		
12	12	7900							7900	0.888	28	196		
13	12	349	6005	1526					7880	0.888	28	196		
14	12	180	2534	568	2545	180			6010	0.888	6	32		
15	12	180	2538	118	2540	180			5560	0.888	158	780		
16	12	300	362	379	568	390	362	300	2670	0.888	92	218		
17	12	163	568	163					900	0.888	184	147		
18	12	343	50	768	50	343			1560	0.888	184	255		
19	12	180	145	191	568	191	145	180	1600	0.888	48	68		
20	12	180	301	191	568	191	301	180	1920	0.888	126	215		
21	12	1470							1470	0.888	66	86		
22	12	515	197	257	197	515			1690	0.888	14	21	side	
22	12	515	197	257	197	515			1690	0.888	10	15	center	
23	12	100	318	253	318	100			1090	0.888	42	41		
24	12	2100							2100	0.888	8	15		
25	12	400							400	0.888	42	15		
26	12	500							500	0.888	10	4		
27	12	400							400	0.888	12	4		
28	10	3840							3840	0.617	8	19		
29	10	1260							1260	0.617	8	6		
Total	Side Span								- D14				2902	
									D16 - D22				3250	
									D25 -				6152	
	Center Span								- D14				2896	
									D16 - D22				3250	
									D25 -				6146	

SCHEDULE OF REINFORCEMENT													
BAR MARK	SIZE (mm)	DIMENSIONS (mm)							LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f	g					
1	20	354	372	560	372	354			2020	2.466	6	30	
2	20	300	474	372	560	372	474	300	2860	2.466	96	677	
3	20	300	354	372	560	372	354	300	2620	2.466	74	478	
4	16	7890							7890	1.578	12	149	
5	16	7800							7800	1.578	12	148	
6	16	7900							7900	1.578	12	150	
7	16	240	2529	564	2529	240			6110	1.578	6	58	
8	16	240	2529	342	2529	240			5880	1.578	96	891	
9	16	240	2529	114	2529	240			5660	1.578	74	661	
10	12	7890							7890	0.888	28	196	
11	12	7800							7800	0.888	56	388	
12	12	7900							7900	0.888	28	196	
13	12	349	6005	1526					7880	0.888	28	196	
14	12	180	2533	568	2533	180			6000	0.888	6	32	
15	12	180	2533	118	2533	180			5550	0.888	158	779	
16	12	300	362	378	568	378	362	300	2650	0.888	92	216	
17	12	163	568	163					900	0.888	184	147	
18	12	343	50	768	50	343			1560	0.888	184	255	
19	12	180	145	191	568	191	145	180	1600	0.888	48	68	
20	12	180	301	191	568	191	301	180	1920	0.888	126	215	
21	12	1470							1470	0.888	66	86	
22	12	515	197	257	197	515			1690	0.888	14	21	side
22	12	515	197	257	197	515			1690	0.888	10	15	center
23	12	100	318	253	318	100			1090	0.888	42	41	
24	12	2100							2100	0.888	8	15	
25	12	400							400	0.888	42	15	
26	12	500							500	0.888	10	4	
27	12	400							400	0.888	12	4	
28	10	3840							3840	0.617	8	19	
29	10	1260							1260	0.617	8	6	
Total	Side Span								- D14			2899	
									D16 - D22			3242	
									D25 -				
								Total			6141		
	Center Span								- D14			2893	
									D16 - D22			3242	
							D25 -						
							Total			6135			

Sub-Total Weight

1. P17-P24

Girder	Cent/Side	Nos.	Weight/G	Total	Remark
G1,G9	Side Span	- D14	2,693	21,544	
		D16 - D22	3,250	26,000	
		D25 -			
	Center Span	- D14	2,689	16,134	
		D14 - D25	3,250	19,500	
		D25 -			
G2,G3,G4 G6,G7,G8	Side Span	- D14	2,902	69,648	
		D16 - D22	3,250	78,000	
		D25 -			
	Center Span	- D14	2,896	52,128	
		D16 - D22	3,250	58,500	
		D25 -			
G5	Side Span	- D14	2,899	11,596	
		D16 - D22	3,242	12,968	
		D25 -			
	Center Span	- D14	2,893	8,679	
		D16 - D22	3,242	9,726	
		D25 -			
Total			(kgf)	(ton)	
		- D14	179,729	179.7	
		D16 - D22	204,694	204.7	
		D25 -			
		Total	384,423	384.4	

2. P24-P30, P33-P36

Girder	Cent/Side	Nos.	Weight/G	Total	Remark
G1,G9	Side Span	- D14	2,869	34,428	
		D16 - D22	3,250	39,000	
		D25 -			
	Center Span	- D14	2,865	17,190	
		D16 - D22	3,250	19,500	
		D25 -			
G2,G3,G4 G6,G7,G8	Side Span	- D14	2,902	104,472	
		D16 - D22	3,250	117,000	
		D25 -			
	Center Span	- D14	2,896	52,128	
		D16 - D22	3,250	58,500	
		D25 -			
G5	Side Span	- D14	2,899	17,394	
		D16 - D22	3,242	19,452	
		D25 -			
	Center Span	- D14	2,893	8,679	
		D16 - D22	3,242	9,726	
		D25 -			
Total			(kgf)	(ton)	
		- D14	234,291	234.3	
		D16 - D22	263,178	263.2	
		D25 -			
		Total	497,469	497.5	

3. P30-P33

Girder	Cent/Side	Nos.	Weight/G	Total	Remark	
G1,G9	Side Span	- D14	2,869	11,476		
		D16 - D22	3,250	13,000		
		D25 -				
	Center Span	- D14	2,865	5,730		
		D16 - D22	2	3,250	6,500	
		D25 -				
G2,G3,G4 G6,G7,G8	Side Span	- D14	2,902	34,824		
		D16 - D22	12	3,250	39,000	
		D25 -				
	Center Span	- D14	2,896	17,376		
		D16 - D22	6	3,250	19,500	
		D25 -				
G5	Side Span	- D14	2,899	5,798		
		D16 - D22	2	3,242	6,484	
		D25 -				
	Center Span	- D14	2,893	2,893		
		D16 - D22	1	3,242	3,242	
		D25 -				
Total			(kgf)	(ton)		
		- D14		78,097	78.1	
		D16 - D22		87,726	87.7	
		D25 -				
	Total		165,823	165.8		

Total

Girder	Cent/Side	Nos.	Weight/G	Total	Remark
G1,G9	Side Span	- D14		67,448	
		D16 - D22		78,000	
		D25 -			
	Center Span	- D14		39,054	
		D16 - D22		45,500	
		D25 -			
G2,G3,G4 G6,G7,G8	Side Span	- D14		208,944	
		D16 - D22		234,000	
		D25 -			
	Center Span	- D14		121,632	
		D16 - D22		136,500	
		D25 -			
G5	Side Span	- D14		34,788	
		D16 - D22		38,904	
		D25 -			
	Center Span	- D14		20,251	
		D16 - D22		22,694	
		D25 -			
Total			(kgf)	(ton)	
		- D14		492,117	492.1
		D16 - D22		555,598	555.6
		D25 -			
	Total		1,047,715	1047.7	

4-3. DIAPHRAGM

Par EACH

SCHEDULE OF REINFORCEMENT												
(1) END DIAPHRAGM												
BAR MARK	SIZE (mm)	DIMENSIONS (mm)						LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f					
C2	12	100	2530	424	2530	100		5690	0.888	56	283	
C3	12	1850						1850	0.888	144	237	
Sub-Total										520		
(2) INTERMEDIATE DIAPHRAGM												
BAR MARK	SIZE (mm)	DIMENSIONS (mm)						LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f					
C4	12	100	2280	224	2280	100		4990	0.888	56	248	
C5	12	1850						1850	0.888	128	210	
Sub-Total										458		
(3) CONNECTION DIAPHRAGM												
BAR MARK	SIZE (mm)	DIMENSIONS (mm)						LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f					
C1	16	240	1928	240				2410	1.578	120	456	
C6	12	100	2530	774	2530	100		6040	0.888	208	1116	
C7	12	100	2530	1424	2530	100		6690	0.888	104	618	
C8	12	1962	774	1962				4700	0.888	32	134	
C9	12	1962	1424	1962				5350	0.888	16	76	
C10	12	1850						1850	0.888	304	499	
C11	12	1900						1900	0.888	256	432	
C12	12	####						12000	0.888	10	107	
C13	12	9720						9720	0.888	10	86	
										- D14	3068	
										D14 - D25	456	
										D25 -		
Sub-Total											3524	

(4) Total Weight

SECTION	Nos.	Weight/EACH	Weight	
			(kgf)	(ton)
END DIAPHRAGM	- D14	520	6,240	6.2
	D16 - D22			
	D25 -			
INTERMEDIATE DIAPHRAGM	- D14	458	26,106	26.1
	D16 - D22	57		
	D25 -			
CONNECTION DIAPHRAGM	- D14	3068	39,884	39.9
	D16 - D22	13	5,928	5.9
	D25 -			
Total	- D14		72,230	72.2
	D16 - D22		5,928	5.9
	D25 -			
	Total		78,158	78.2

4-4. BARRIER

SCHEDULE OF REINFORCEMENT												
BAR MARK	SIZE (mm)	DIMENSIONS (mm)						LENGTH (mm)	UNIT WEIGHT (kgf/m)	NO. OF BARS	WEIGHT (kgf)	REMARKS
		a	b	c	d	e	f					
P1 P17-P21	14							2030	1.208	2144	5,258	
P21-P24	14							2030	1.208	1608	3,943	
P24-P27	14							2040	1.208	1608	3,963	
P27-P30	14							2020	1.208	1608	3,924	
P30-P33	14							2040	1.208	1608	3,963	
P33-P36	14							2070	1.208	1608	4,021	
P2 P17-P21	14							1260	1.208	2144	3,263	
P21-P24	14							1260	1.208	1608	2,448	
P24-P27	14							1260	1.208	1608	2,448	
P27-P30	14							1280	1.208	1608	2,486	
P30-P33	14							1260	1.208	1608	2,448	
P33-P36	14							1280	1.208	1608	2,486	
P3	14							9800	1.208	96	1,136	
P4	14							9900	1.208	304	3,636	
P5	14							9900	1.208	208	2,488	
P6	14							12000	1.208	972	14,090	
P7	14							10170	1.208	84	1,032	
P8	16							1380	1.578	456	993	
								- D14			63,033	
								D16 - D22			993	
								D25 -				
Total Weight											64,026	

5. P.C.CABLE

Item	Formula						Quantity	
1) 12S12.7(B)	1.P17-P21 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT
	1	39.590	C1	1	39.590	9.290		367.791
	2	39.558	C2	1	39.558	9.290		367.494
	3	39.530	C3	1	39.530	9.290		367.234
	4	39.504	C4	1	39.504	9.290		366.992
	5	39.474	C5	1	39.474	9.290		366.713
	6	39.450	C6	1	39.450	9.290		366.491
	TOTAL			6	237.106			2202.715
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)							
$W_p = 2202.715 \times 9 \times 4 =$							79297.74 kgf	
TENSION UNIT							EACH	
$N_s = 6 \times 2 \times 9 \times 4 =$							432	
	2.P21-P24 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT
	1	39.590	C1	1	39.590	9.290		367.791
	2	39.558	C2	1	39.558	9.290		367.494
	3	39.530	C3	1	39.530	9.290		367.234
	4	39.504	C4	1	39.504	9.290		366.992
	5	39.474	C5	1	39.474	9.290		366.713
	6	39.450	C6	1	39.450	9.290		366.491
	TOTAL			6	237.106			2202.715
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)							
$W_p = 2202.715 \times 9 \times 3 =$							59473.305 kgf	
TENSION UNIT							EACH	
$N_s = 6 \times 2 \times 9 \times 3 =$							324	
	3.P24-P25 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT
	1	39.589	C1	1	39.589	9.290		367.782
	2	39.557	C2	1	39.557	9.290		367.485
	3	39.529	C3	1	39.529	9.290		367.224
	4	39.503	C4	1	39.503	9.290		366.983
	5	39.473	C5	1	39.473	9.290		366.704
	6	39.449	C6	1	39.449	9.290		366.481
	TOTAL			6	237.100			2202.659
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)							
$W_p = 2202.659 \times 9 \times 1 =$							19823.931 kgf	
TENSION UNIT							EACH	
$N_s = 6 \times 2 \times 9 \times 1 =$							108	

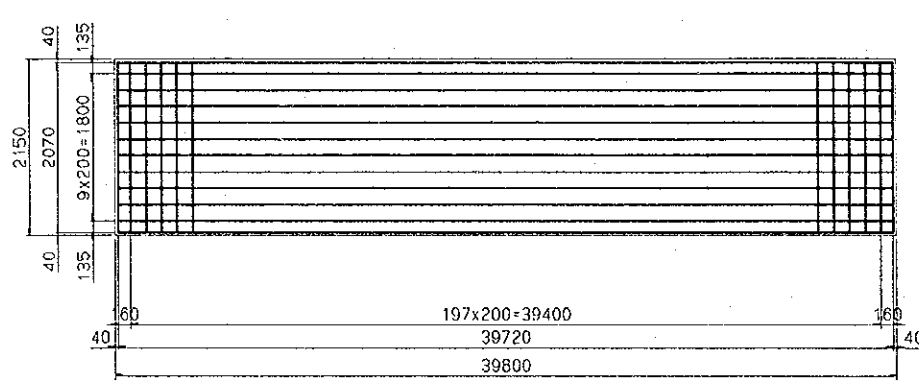
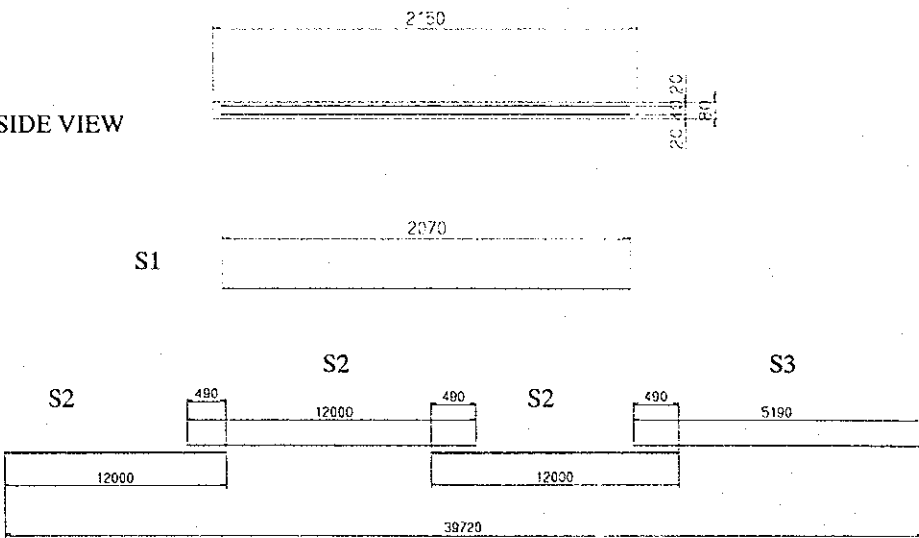
Item	Formula						Quantity		
	4.P25-P26 For ONE GIRDER								
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT	
	1	39.591	C1	1	39.591	9.290		367.8	
	2	39.559	C2	1	39.559	9.290		367.503	
	3	39.531	C3	1	39.531	9.290		367.243	
	4	39.505	C4	1	39.505	9.290		367.001	
	5	39.475	C5	1	39.475	9.290		366.723	
	6	39.451	C6	1	39.451	9.290		366.5	
	TOTAL			6	237.112			2202.77	
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)								
	$W_p = 2202.770 \times 9 \times 1 =$							19824.93 kgf	
	TENSION UNIT							EACH	
	$N_s = 6 \times 2 \times 9 \times 1 =$							108	
	5.P26-P27 For ONE GIRDER								
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT			WEIGHT
	1	39.599	C1	1	39.599	9.290			367.875
	2	39.567	C2	1	39.567	9.290			367.577
	3	39.539	C3	1	39.539	9.290			367.317
	4	39.513	C4	1	39.513	9.290			367.076
	5	39.483	C5	1	39.483	9.290			366.797
	6	39.459	C6	1	39.459	9.290			366.574
	TOTAL			6	237.160				2203.216
SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)									
$W_p = 2203.216 \times 9 \times 1 =$						19828.944 kgf			
TENSION UNIT						EACH			
$N_s = 6 \times 2 \times 9 \times 1 =$						108			
6.P27-P28 For ONE GIRDER									
CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT		
1	39.599	C1	1	39.599	9.290		367.875		
2	39.567	C2	1	39.567	9.290		367.577		
3	39.539	C3	1	39.539	9.290		367.317		
4	39.513	C4	1	39.513	9.290		367.076		
5	39.483	C5	1	39.483	9.290		366.797		
6	39.459	C6	1	39.459	9.290		366.574		
TOTAL			6	237.160			2203.216		
SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)									
$W_p = 2203.216 \times 9 \times 1 =$							19828.944 kgf		
TENSION UNIT							EACH		
$N_s = 6 \times 2 \times 9 \times 1 =$							108		

Item	Formula						Quantity		
7.P28-P29	For ONE GIRDER								
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT	
	1	39.596	C1	1	39.596	9.290		367.847	
	2	39.564	C2	1	39.564	9.290		367.55	
	3	39.536	C3	1	39.536	9.290		367.289	
	4	39.510	C4	1	39.510	9.290		367.048	
	5	39.480	C5	1	39.480	9.290		366.769	
	6	39.456	C6	1	39.456	9.290		366.546	
	TOTAL			6	237.142			2203.049	
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)								
	$W_p = 2203.049 \times 9 \times 1 =$								19827.441 kgf
	TENSION UNIT								EACH
	$N_s = 6 \times 2 \times 9 \times 1 =$								108
	8.P29-P30	For ONE GIRDER							
		CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH			UNIT WEIGHT
1		39.626	C1	1	39.626	9.290	368.126		
2		39.594	C2	1	39.594	9.290	367.828		
3		39.566	C3	1	39.566	9.290	367.568		
4		39.540	C4	1	39.540	9.290	367.327		
5		39.510	C5	1	39.510	9.290	367.048		
6		39.486	C6	1	39.486	9.290	366.825		
TOTAL				6	237.322		2204.722		
SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)									
$W_p = 2204.722 \times 9 \times 1 =$							19842.498 kgf		
TENSION UNIT							EACH		
$N_s = 6 \times 2 \times 9 \times 1 =$							108		
9.P30-P33		For ONE GIRDER							
		CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		
	1	39.654	C1	1	39.654	9.290	368.386		
	2	39.622	C2	1	39.622	9.290	368.088		
	3	39.594	C3	1	39.594	9.290	367.828		
	4	39.568	C4	1	39.568	9.290	367.587		
	5	39.538	C5	1	39.538	9.290	367.308		
	6	39.514	C6	1	39.514	9.290	367.085		
	TOTAL			6	237.490		2206.282		
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)								
	$W_p = 2206.282 \times 9 \times 3 =$							59569.614 kgf	
	TENSION UNIT							EACH	
	$N_s = 6 \times 2 \times 9 \times 3 =$							324	

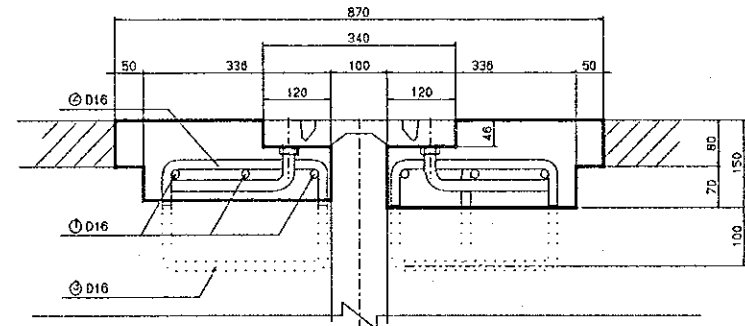
Item	Formula						Quantity	
	10.P33-P34 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT	WEIGHT	
	1	39.636	C1	1	39.636	9.290	368.218	
	2	39.604	C2	1	39.604	9.290	367.921	
	3	39.576	C3	1	39.576	9.290	367.661	
	4	39.550	C4	1	39.550	9.290	367.42	
	5	39.520	C5	1	39.520	9.290	367.141	
	6	39.496	C6	1	39.496	9.290	366.918	
	TOTAL			6	237.382		2205.279	
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)							
	$W_p = 2205.279 \times 9 \times 1 =$						19847.511 kgf	
	TENSION UNIT						EACH	
	$N_s = 6 \times 2 \times 9 \times 1 =$						108	
	11.P34-P35 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT	WEIGHT	
	1	39.595	C1	1	39.595	9.290	367.838	
	2	39.563	C2	1	39.563	9.290	367.54	
	3	39.535	C3	1	39.535	9.290	367.28	
	4	39.509	C4	1	39.509	9.290	367.039	
	5	39.479	C5	1	39.479	9.290	366.76	
	6	39.455	C6	1	39.455	9.290	366.537	
	TOTAL			6	237.136		2202.994	
	SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)							
	$W_p = 2202.994 \times 9 \times 1 =$						19826.946 kgf	
	TENSION UNIT						EACH	
	$N_s = 6 \times 2 \times 9 \times 1 =$						108	
	12.P35-P36 For ONE GIRDER							
	CABLE VAR.	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT	WEIGHT	
1	39.589	C1	1	39.589	9.290	367.782		
2	39.557	C2	1	39.557	9.290	367.485		
3	39.529	C3	1	39.529	9.290	367.224		
4	39.503	C4	1	39.503	9.290	366.983		
5	39.473	C5	1	39.473	9.290	366.704		
6	39.449	C6	1	39.449	9.290	366.481		
TOTAL			6	237.100		2202.659		
SUB-TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P4)								
$W_p = 2202.659 \times 9 \times 1 =$						19823.931 kgf		
TENSION UNIT						EACH		
$N_s = 6 \times 2 \times 9 \times 1 =$						108		
						$\Sigma =$	376815.735 kgf 376.8 ton	

Item	Formula						Quantity	
2) 4S12.7B	PC CABLE OF DIAPHRAGMS							
	LOCATION	EACH LENGTH	CABLE NO.	EACH	TOTAL LENGTH	UNIT WEIGHT		WEIGHT
	End Diaphragm	21.366		24	512.8	3.096		1587.579
	Intermediate One	21.366		114	2435.7	3.096		7541.002
	Connection One	21.141		312	6596.0	3.096		20421.19
	TOTAL			450	9544.500			29549.772
	TOTAL WEIGHT OF PC CABLES per BRIDGE(A1-P12)							
$W_p = 29549.772 = 29549.772 \text{ kgf} \\ 29.5 \text{ ton}$								
TENSION UNIT								
$N_s = 450 \times 2 = 900$								

6. Slab Plate

Item	Formula	Quantity																																			
	$A = 1.950 \times 8 \times 39.800 \times (3 \times 5 + 4) = 11796.720 \text{ m}^2$	11796.720 m ²																																			
	$V = 11796.72 \times 0.080 = 943.738 \text{ m}^3$	943.738 m ³																																			
<p>Re-bar Per 39.8m</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>BAR MARK</th> <th>SIZE (mm)</th> <th>LENGTH (mm)</th> <th>WEIGHT/M (kgf/m)</th> <th>WEIGHT /One (kgf)</th> <th>NO. of BARS</th> <th>WEIGHT (kgf)</th> </tr> </thead> <tbody> <tr> <td>S1</td> <td>D 14</td> <td>2070</td> <td>1.208</td> <td>2.501</td> <td>400</td> <td>1,000</td> </tr> <tr> <td>S2</td> <td>D 10</td> <td>12000</td> <td>0.617</td> <td>7.404</td> <td>72</td> <td>533</td> </tr> <tr> <td>S3</td> <td>D 10</td> <td>5190</td> <td>0.617</td> <td>3.202</td> <td>24</td> <td>77</td> </tr> <tr> <td colspan="6"></td> <td>1,610</td> </tr> </tbody> </table>			BAR MARK	SIZE (mm)	LENGTH (mm)	WEIGHT/M (kgf/m)	WEIGHT /One (kgf)	NO. of BARS	WEIGHT (kgf)	S1	D 14	2070	1.208	2.501	400	1,000	S2	D 10	12000	0.617	7.404	72	533	S3	D 10	5190	0.617	3.202	24	77							1,610
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	$W = 1610 \times 8 \times (3 \times 5 + 4) = 244720 \text{ kgf}$	244720 kgf 244.7 ton																																			
<p>BAR ARRANGEMENT</p> 																																					
<p>SIDE VIEW</p> 																																					

8. ACCESSORY

Item	Formula	Quantity
1. Expansion Joint (Type A)		
Nos. LENGTH	L = 22.100	
N =	5	
TOTAL LENGTH		
L =	22.100 × 5 =	110.500 m
		
	per one side	
A1 =	0.336 × 0.150 - 0.12 × 0.046 = 0.045	
A2 =	0.080 × 0.050 = 0.004	
	Total	0.049 m ²
V =	0.049 × 22.100 × 10 =	10.829 m ³
		10.829 m ³
2. BEARING PAELASTOMERIC 460*660*108		
Nos. for One SPAN		
N =	9	
TOTAL Nos.		
N =	9 × 38 =	342
		Nos.

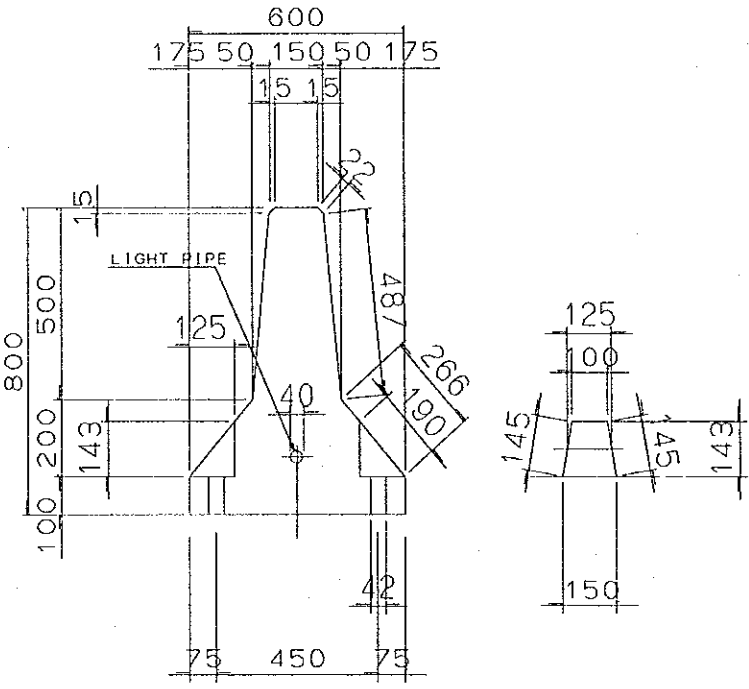
Item	Formula						Quantity
3. ANCHOR BAR							
. 30	L=620	(MOVE)					Nos.
	N = 8	×	2	×	12	=	192
. 36	L=740	(MOVE)					Nos.
	N = 8	×	3	×	5	=	120
. 42	L=860	(FIX)					Nos.
	N = 8	×	3	×	2	=	48
. 50	L=1020	(FIX)					Nos.
	N = 8	×	3	×	2	=	48
. 60	L=1220	(FIX)					Nos.
	N = 8	×	4	×	4	=	128
4. ANCHOR CAP (SGP)							
. 65/50	L=350	(MOVE)					Nos.
	N = 8	×	2	×	12	=	192
. 50/56	L=410	(MOVE)					Nos.
	N = 8	×	3	×	5	=	120
. 50	L=470	(FIX)					Nos.
	N = 8	×	3	×	2	=	48
. 50	L=550	(FIX)					Nos.
	N = 8	×	3	×	2	=	48
. 60	L=650	(FIX)					Nos.
	N = 8	×	4	×	4	=	128
5.Railing	L = (120.000 × 5 + 160.000) × 2					=	1,520 m
							per 10m
Item	Size	Material	Unit Weight	Quantity	Unit	WEIGHT (kgf)	
Post	610*180*130	FCD-450	18.1	5	each	90.5	
Upper Rail	114.3*3.5T	STK-400	19.5	10	m	195.0	
Bottom Rail	76.392.5T	STK-400	5.77	10	m	57.7	
	90*300	STK-400	2.13	1.67	each	3.6	
Connection	87.5*300	STK-400	1.4	1.67	each	2.3	
Anchor Bolt	M22-650	SS-400	2.9	20	each	58.0	
Vertical Member	FBB*32*300	SS-400	2.09	65	each	135.9	
Total						542.9	
W = 542.9 × 1520.000 × 0.1						=	82,520.8
						=	82.5 ton

Item	Formula	Quantity																																								
6. DRAINAGE FACILITIES																																										
Pot	300*250 (Drain Box, Screen and Deck Drain)	each																																								
N =	3 × 2 × (3 × 5 + 4) =	114																																								
Pipe	. 150																																									
L =	0.980 × 2 × 2 × (3 × 5 + 4) =	74.5 m																																								
Pipe	. 200																																									
L1 =	(3.60 × 2 + 26.000 × 2 + 5.10) × (3 × 5 + 4) =	1222 m																																								
L2 =	114.9 × 2 =	229.8 m																																								
	Total	1452 m																																								
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Item	Formula	Quantity																									
	<p>Hunger : 150</p> $N = 2 \times 2 \times (3 \times 5 + 4) = 76$ <p style="text-align: right;">per One</p> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>BAR MARK</th> <th>SIZE (mm)</th> <th>WEIGHT /One (kgf)</th> <th>NO. of BARS</th> <th>WEIGHT (kgf)</th> </tr> </thead> <tbody> <tr> <td>PL</td> <td>100*6*399</td> <td>0.188</td> <td>2</td> <td>0.376</td> </tr> <tr> <td>PL</td> <td>100*6*363</td> <td>0.171</td> <td>1</td> <td>0.171</td> </tr> <tr> <td>PL</td> <td>100*8*70</td> <td>0.044</td> <td>1</td> <td>0.044</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right;">0.591</td> </tr> </tbody> </table>	BAR MARK	SIZE (mm)	WEIGHT /One (kgf)	NO. of BARS	WEIGHT (kgf)	PL	100*6*399	0.188	2	0.376	PL	100*6*363	0.171	1	0.171	PL	100*8*70	0.044	1	0.044					0.591	<p>each</p> <p>76</p> <p>0.591 kgf</p>
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				0.591																							
	<p>Hunger : 200</p> $N1 = ((26.000 - 2.000) / 2.000 + 1) \times 2 = 26$ $N2 = (3 + 3) \times 2 = 12$ $N3 = (114.90 / 18 + 1) \times 2 = 15$ <p style="text-align: right;">Sub-Total 53</p> $N = 53 \times (3 \times 5 + 4) = 1007$ <p style="text-align: right;">per One</p> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>BAR MARK</th> <th>SIZE (mm)</th> <th>WEIGHT /One (kgf)</th> <th>NO. of BARS</th> <th>WEIGHT (kgf)</th> </tr> </thead> <tbody> <tr> <td>PL</td> <td>100*6*481</td> <td>0.227</td> <td>2</td> <td>0.454</td> </tr> <tr> <td>PL</td> <td>100*6*363</td> <td>0.171</td> <td>1</td> <td>0.171</td> </tr> <tr> <td>PL</td> <td>100*8*70</td> <td>0.044</td> <td>1</td> <td>0.044</td> </tr> <tr> <td colspan="4"></td> <td style="text-align: right;">0.669</td> </tr> </tbody> </table>	BAR MARK	SIZE (mm)	WEIGHT /One (kgf)	NO. of BARS	WEIGHT (kgf)	PL	100*6*481	0.227	2	0.454	PL	100*6*363	0.171	1	0.171	PL	100*8*70	0.044	1	0.044					0.669	<p>each</p> <p>1,007</p> <p>0.669 kgf</p>
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9. PAVEMENT

Item	Formula	Quantity
1)	Asphalt concrete t=75mm $A = 10.750 \times 2 \times (120.000 - 0.870) \times 5.5 - 1.715$ $\text{Exp} = 2,440.3 \text{ m}^2$	2440.3 m ²
2)	Water Proofing t=5mm $A = 10.750 \times 2 \times (120.000 - 0.870) \times 5.5 - 1.715$ $\text{Exp} = 2,440.3 \text{ m}^2$	2440.3 m ²
3)	Road marking Bridge Length $L = 760.000 - 0.700 = 759.300 \text{ m}$ Side Line $A1 = 759.300 \times 0.200 \times 4 = 607.440 \text{ m}^2$ Center Line $A2 = 759.300 \times 0.100 \times \frac{3}{10} \times 2 = 45.558 \text{ m}^2$ Total $607.440 + 45.558 = 652.998 \text{ m}^2$	653.0 m ²

Item	Formula	Quantity																																										
2). Form	<p style="text-align: right;">Per 2.0m</p>  <p> $A1 = \{ 0.100 + 0.266 + 0.487 + 0.022 \} \times 2$ $A1 = \{ 0.100 + 0.266 + 0.487 + 0.022 \} \times 2$ $\times 1.990 = 3.483$ $A2 = \{ 0.150 + 0.250 \} \times 1/2 \times 0.500 \times 2 = 0.200$ $A3 = \{ 0.250 + 0.600 \} \times 1/2 \times 0.200 \times 2 = 0.170$ $A4 = 0.100 \times 0.600 \times 2 = 0.120$ $A5 = - 0.015 \times 0.015 \times 1/2 \times 2 \times 2 = -0.001$ $A6 = 0.125 \times 0.143 \times 10 = 0.179$ $A7 = 0.143 \times 0.145 \times 1/2 \times 2 \times 10 = 0.208$ $A8 = - 0.266 \times 0.125 \times 10 = -0.333$ $\Sigma A = 4.026 \text{ m}^2$ </p>	4.026 m ²																																										
3) Re-Bar	<table border="1" data-bbox="304 1440 1198 1713"> <thead> <tr> <th>BAR MARK</th> <th>SIZE (mm)</th> <th>LENGTH (mm)</th> <th>WEIGHT/M (kgf/m)</th> <th>WEIGHT /One (kgf)</th> <th>NO. of BARS</th> <th>WEIGHT (kgf)</th> </tr> </thead> <tbody> <tr> <td>B1</td> <td>. 6</td> <td>1460</td> <td>0.222</td> <td>0.324</td> <td>20</td> <td>6</td> </tr> <tr> <td>B2</td> <td>. 6</td> <td>590</td> <td>0.222</td> <td>0.131</td> <td>20</td> <td>3</td> </tr> <tr> <td>B3</td> <td>. 6</td> <td>1540</td> <td>0.222</td> <td>0.342</td> <td>10</td> <td>3</td> </tr> <tr> <td>B4</td> <td>. 6</td> <td>1910</td> <td>0.222</td> <td>0.424</td> <td>14</td> <td>6</td> </tr> <tr> <td colspan="6"></td> <td>18</td> </tr> </tbody> </table>	BAR MARK	SIZE (mm)	LENGTH (mm)	WEIGHT/M (kgf/m)	WEIGHT /One (kgf)	NO. of BARS	WEIGHT (kgf)	B1	. 6	1460	0.222	0.324	20	6	B2	. 6	590	0.222	0.131	20	3	B3	. 6	1540	0.222	0.342	10	3	B4	. 6	1910	0.222	0.424	14	6							18	18 kgf
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4) STUD, PL (SS400)	<p>10-STUD . 22*180 10-PL 70*12*70</p>	<p>Per 2.0m 6 kgf 3 kgf</p>																																										
5) MORTAR	<p>V = 0.600 × 0.030 × 2.000</p>	<p>Per 2.0m = 0.036 m³ 0.036 m³</p>																																										

Item	Formula	Quantity
6) FILL MORTAR	Per 2.0m	
	$A2 = \{ 0.150 + 0.250 \} \times 1/2 \times 0.500 = 0.100$	
	$A3 = \{ 0.250 + 0.600 \} \times 1/2 \times 0.200 = 0.085$	
	$A4 = 0.100 \times 0.600 = 0.060$	
	$A5 = - 0.015 \times 0.015 \times 1/2 \times 2 = -0.001$	
	$\Sigma A = 0.244 \text{ m}^2$	
	$V1 = 0.244 \times 0.010 = 0.002 \text{ m}^3$	
	$V2 = 0.125 \times 0.143 \times 1/2 \times 0.125 \times 10 = 0.011 \text{ m}^3$	
	$\Sigma V = 0.013 \text{ m}^3$	0.013 m ³

11. Erection of girder

Item	Formula	Quantity																													
1) ERECTION LOAD																															
(1) Calculation of Sectional Area																															
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Summary of Sectional Area	For ONE GIRDER																														
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	<p>Concrete Volume</p> <p style="text-align: right;">Girder Length 39.832 m</p> <table border="1" data-bbox="434 315 1211 624"> <thead> <tr> <th>Section No.</th> <th>Section (m2)</th> <th>Average of (m2)</th> <th>Length of (m)</th> <th>Concrete (m3)</th> <th>Remark</th> </tr> </thead> <tbody> <tr> <td>END</td> <td>1.587</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>END</td> <td>1.587</td> <td>1.587</td> <td>0.400</td> <td>0.635</td> <td></td> </tr> <tr> <td>MIDDLE</td> <td>0.788</td> <td>1.188</td> <td>6.000</td> <td>7.128</td> <td></td> </tr> <tr> <td>MIDDLE</td> <td>0.788</td> <td>0.788</td> <td>27.032</td> <td>21.301</td> <td></td> </tr> <tr> <td>END</td> <td>1.587</td> <td>1.188</td> <td>6.000</td> <td>7.128</td> <td></td> </tr> <tr> <td>END</td> <td>1.587</td> <td>1.587</td> <td>0.400</td> <td>0.635</td> <td></td> </tr> <tr> <td>Total</td> <td></td> <td></td> <td>39.832</td> <td>36.827</td> <td></td> </tr> </tbody> </table>	Section No.	Section (m2)	Average of (m2)	Length of (m)	Concrete (m3)	Remark	END	1.587					END	1.587	1.587	0.400	0.635		MIDDLE	0.788	1.188	6.000	7.128		MIDDLE	0.788	0.788	27.032	21.301		END	1.587	1.188	6.000	7.128		END	1.587	1.587	0.400	0.635		Total			39.832	36.827		
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	<p>Erection Weight</p> <p>per one girder</p> <p>W = 36.827 × 2500</p>	<p>(kgf)</p> <p>92067.5</p> <p>(ton)</p> <p>92.1</p>																																																
	<p>Nos. = 9 × (3 × 5 + 4)</p>	<p>Nos.</p> <p>= 171</p>																																																
	<p>W = 92067.5 × 171</p>	<p>(kgf)</p> <p>= 15,743,543</p> <p>(ton)</p> <p>15,743.5</p>																																																