APPENDIX I-4

SOCIOECONOMIC INDICES

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 Population Forecasts

										÷
	GION Comuna	1990	1991	1992	1993	1994	1995	2000	2005	2010
TOTAL		13.099 513	13.319.726	13.544.964	13.771.187	13.991.355	14 210 429	15,211,308	16 1.16 1.17	17.199.500
t Tarapaca	1	331.058	338.034	345:172	352,340	359.412	366 257	398 947	429.202	164 .190
II Antofaga	1513	402.499	409.237	416.235	123.203	130.037	436.744	468.411	497.895	531.46
III Atacama		224.122	229,280	234.564	219.865	245.097	250.163	273 576	295.321	319.910
IV Coquimb	×	492.825	501.425	510.226	519.061	527.778	536 216	577.881	617.571	663.180
V Valparal	50	1.364.556	1.385.289	1.406.496	1.427.793	1.448.806	1.469,148	1.561.406	1.616.086	1.742.310
VI Libertado Gral, Ber Of Higgi	mardo	682 376	693.213	704.299	715.430	726.414	737.047	788.914	837.800	892.650
VB Maule		824.528	833.942	843.566	\$53.238	862.775	872.011	915.246	952.107	994.13
na Bio-Bio		1.711.678	1.735.264	1.759.382	1.783.613	1.807.513	1.830.651	1.936.271	2 033.931	2 1 4 3 0 64
X Araucan	la	173.002	783.567	791.377	805.229	815.941	826 308	874 245	917.927	968.33
Malleco		202.737	204,461	206.215	207.991	209.738	211.421	218 078	2?3.184	229.51
Angol Renaico		46.060 9.108 22.578	46.823 9.188 22.978	47.605 - 9.269 - 23.381	48.389 9.356 23.792	49.163 9.442 24.190	49.912 9.518 24.583	54.003 9.799 26.589	57.619 9.958 28.418	61.87 10.20 10.53
Collipuir Longuim	ιy.	9.301	9.245	9.191	9.135	9.082	9.027	8.662	8.258	7 80
Ercilia	ມ <u></u>	<u>18 384</u> 8 846	18 322 8 8 26	18.256 8.810	<u>18 (90</u> 8 792	<u>18 127</u> 8 773	18.066	17.466	16 691 8 466	16.01 8.29
Victoria Traiguen		<u>32.711</u> 20.591	<u>32.993</u> 20.389	33.283	<u>33 568</u> 20 893	33.856 20.992	34.130 21.085	34.876	35 203	35,74
Lumaco	·	12.189	12.271	12 347	12.431	12.509	12 586	12,736	12.805	12.89
Puren Los Sauc	25	<u>13.817</u> 9.152	14.014 9.112	9.073	9.032	<u> 4612</u> 8.992	14.805 8.954	15 587 8 623	16 289 8 242	17 04
Cautin		570.265	579.106	588.162	\$97.238	606.203	614.887	656 167	691.743	738 82
Temuco		237.194	243.504	250.004	256 454	262.850	269.063	302 816	336.711	376.38
Lautaro Perquenc	0	28.504	28.645	28.788	28 938	29 084 5 869	29.219	29 361 5.645	29 650	29.76
Vilcen	×	20.769	20.881	20.995	21.109	21 224	21.335	21.616	21 683	21,76
Cunco		18 246	(8.337)	18.125	18 521	18 612	18.696	<u>18 950</u> 5,106	12 056	19.15
Melipeuc Curarreb		6 060	6 035	6.009	5 98 5	5.957	5.934	5 152	5 5 76	5.17
Pucòn		11.153	14.394	14 641	14.888	15.138	15.374	16.414	17.325	18.30
Villanca		35.704	36 093	<u> </u>	36 888	<u>37.282</u> 23.749	37.664	<u>39,103</u> 24,6071	40 133 25 059	4132
Petrufqui	30	20.007	20.096	20.191	20 283	20.380	20,165	20 567	20.410	20 30
Gorbea		14 555	14.651	14.746	13 849	14.944	15.040	15.191	15,209	15.20
Loncoch	e	23.495	23.646	23.793	23.948	24.098	21.242	24 513	24.600	24.67
Toiten		11.970	12.146	12 321	12.502	12.675	12.848	13.475	13.968	14.47
Teodoro		14.925 [4.332]	15.021	15.126	15 223	15.326	15.422	11 989	15.677	15.20
Saavedra Carahue		25 327	25.512	25.694	25 883	26.068	26 217	- 26 111	21 001	77 29
Nueva in	nordal	36.744	37.184	37.628	38.084	38.529	38.957	40 596	11.941	43.43
Gaivarin		13.926	14.042	14.163	14,281	14,400	11313	11.913	15.206	15.47
X Los Lago		939.457	952.421	965.711	979.042	992.195	1.004.929	1.061.496	1.115.447	1.176.45
XI Aisen de Carlos lb del Cam	ວລັກປະຊ	78.766	80.554	82.384	84.221	86.037	87,789	95.035	101.664	110.08
XII Magalian y de la A Chliena		142.540	144.287	146.074	147.872	148.640	151.355	157,769	(63.283	170.28
Región Metropo	litana	5.132.106	5.233.153	5.336.478	5.440.280	5.542.660	5.641.811	6.102.211	6 527,903	7.024.27

(I-4)-I

Millions of pesos of 1986

۰ ب											
i i i i	12.293.500	10.104.300	8.305.000	6.800.198	3.355.325	5.855.011	5.616.414	5.188.711	4.705.073	4.436.042	National GDP
	2.680.000	1.960.200	1.411.850	1.033.630	952.860	864.104	813.809	735.738	631.781	589.196	* others
ni na	9.613.500	8.144.100	6.893.150	5.766.568	5.402.465	4.990.907	4.802.605	4.452.973	4.073.292	3.846.846	Total GDP
	5.540.800	4.471.080	3.587.240	2.854.437	2.643.546	2.410.197	2.284.278	2.080.761	1.853.863	1.736.198	R.M.
	123.000	122.560	121.690	121.098	118.787	115.302	117.041	114.999	116.391	117.493	XII
	38.600	35.550	32.490	28.828	26.890	24.721	23.656	21.792	20.974	19.171	IX
	314.000	279.410	247.140	213.358	201.551	187.934	182.743	171 461	164.561	161.988	×
	195.800	168.570	144.250	126.859	120.304	112.659	110.070	103.825	99.083	94.790	XI
	662.700	630.100	\$95.600	542.053	517.426	488.015	4%0.555	457.223	429.243	409,815	IIIA
	566.300	454.680	362.840	288.323	267.243	243.886	231.403	211.066	185.353	161.150	λI
	322.600	309.750	295.620	271.098	258.646	243.806	239.931	228.128	207.054	204.748	IN IN
	696.200	640.020	585.500	518.986	491.764	460.084	449.054	423.096	397.111	380.935	>
	242.000	208.410	178.340	149.926	140.515	129.868	125.031	115.996	108.367	102.791	IV
	196.500	162.890	134.240	109.560	101.498	92.572	87.774	79.994	70.939	61.161	II
÷	523.700	474.870	428.010	347.822	354.527	331.033	322.390	303.012	289.155	271.778	11
	191.300	186.210	180.190	167.225	159.768	150.830	148.679	141.620	131.198	124.828	-
	2010	2005	2000	1996	1995	1994	1993	1992	1991	0661	REGION

(1-4)-2

* Products in Public Sector

Table (2) Projected GDP by Region

Vehicle Ownership by Region (1/2) Table (3)

Ordinary Cars (Automobil)

		t an in the pr	·	11.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	a da			1	1
REGION	1990	1991	1992	1993	1994	1995	2000	2005	2010
1	26337	30181	39550	43428	43355	56584	88311	108005	129301
- 11	26355	28415	33798	35374	33052	36643	47434	54133	61376
- 11	12216	14854	16148	15240	14412	16193	20365	22954	25754
١٧	24633	27757	26475	26578	28045	33390	42575	48277	54143
V	90104	93745	99530	104366	107033	116809	144821	162208	181010
٧I	37233	42336	45306	45874	48502	55901	75482	87637	100781
VII	43340	52173	51051	60173	62115	58992	75410	85601	96621
YUI	77058	71358	75441	80717	81728	86964	97355	103804	110779
IX	21637	27301	29742	30447	32497	34727	48457	56980	66197
X	38143	39309	42665	46707	47913	48871	60124	67109	74662
XI	3073	3526	3914	3772	4443	4763	6536	7636	8826
XII	15957	17299	17650	18996	19611	29851	25984	29171	32617
R.M.	380304	410166	440955	483345	485404	555266	738788	852707	975891
TODAS	796390	858420	922225	995017	1008110	1125954	1471642	1686222	1618258

 $y = 4.0 \times 10^{6} (GDP/Poulation)^{1.2633}$ R² = 0.9897

Freight Vehicles (Camioneta)

<u> </u>									
REGION	1990	1991	1992	1993 -	1994	1995	2000	2005	2010
· •	9793	11238	14037	14856	13036	: 14857	20913	25846	31970
11	11420	12563	14791	16465	17897	19419	28985	36777	46452
111	7107	8866	10144	11513	9777	10744	15094	18636	23036
5 IV	13299	15872	15466	16328	17464	19795	27564	33892	41749
. V .	28146	31480	35625	38584	39511	44430	63904	79767	99463
· VI	20300	23368	25093	26788	27665	30921	43623	53969	66816
VII	25274	28818	31260	36624	42729	40470	58643	73446	91826
VIII	39287	40335	44545	50450	52601	56704	77533	34500	115566
IX	16223	18581	21118	23468	24648	26133	37985	47638	59625
X	20579	23908	26301	29689	30954	33057	47980	60135	75227
XI	2053	2531	3068	3070	3651	4063	6467	8425	10856
XII	6600	7766	7897	8078	8298	8509	10792	12652	14961
8.M.	89628	97907	112359	125360	130161	149585	221289	279694	352215
TODAS	289709	323233	361704	401273	418392	458687	660772	825377	1029763

y =0.0005 (GDP) ^{1.3338} R² = 0.9939

(1-4)-3

 Table (3)
 Vehicle Ownership by Region (2/2)

Buses

i i tiste.	· · · · · ·	· • •						•	
REGION	1990	1991	1992	1993	1994	1995	2000	2005	2010
<u> </u>	578	459	669	1327	901	1124	1664	2516	3869
11	870	668	842	962	903	758	647	472	195
<u> </u>	283	483	552	518	545	486	687	1004	1507
<u>IV</u>	609	700	766	770	887	1037	1460	2128	3189
V	3056	2993	3360	3805	4424	4754	6433	9083	13291
VI	1285	1316	1409	1433	1653	1900	2508	3468	4992
VIL	1041	1070	1284	1634	1827	1870	2690	3984	6038
VIII	2044	2143	2497	2641	2693	3476	4892	7127	10676
<u>IX</u>	865	896	883	993	1156	1253	1637	2242	3204
X	1036	1038	1154	1455	1441	1761	2478	3610	5406
XI	65	80	116	122	174	210	353	580	939
ХІІ	223	340	461	539	561	616	1005	1618	2592
R.M.	10695	11822	12153	13348	15455	18347	25917	37858	56818
TODAS	22650	24008	26146	29547	32620	37592	52371	75690	112716

 $y = 8.0 \times 10^{-41}$ (Poulation)^{6.2399} $R^2 = 0.9803$

Other Veicles (Otros)

					11 A.		the second second		1 A.
REGION	1990	1991	1992	1993	1994	1995	2000	2005	2010
1	1319	2240	3175	3092	2796	3268	5217	7166	9115
11	934	1053	1216	1405	1722	1970	3006	4042	5078
111	567	1224	826	724	771	1180	1793	2406	3019
<u>IV</u>	1106	1272	1354	- 1311	1178	1471	1836	2201	2566
V	4478	4985	5538	- 5053	5264	6140	7802	9464	11126
VI	2639	3528	3179	3487	3251	3166	3693	4220	4747
VII	3237	3763	4031	5455	3972	3524	3811	4098	4385
	3044	3182	3314	3589	3766	3975	4906	5837	6768
<u> </u>	1492	2094	2320	2267	2673	2692	3892	5092	6292
X	1804	2254	2266	2455	2576	2276	2748	3220	3692
<u>XI</u>	63	130	147	149	-213	187	311	435	559
XII	505	494	590	652	720	805	1105	1405	1705
R.M.	13694	18535	18472	20672	20933	25788	37882	49976	62070
TODAS	34882	44754	46428	50311	49835	56442	78002	99562	121122

Table (4) Vehicle Ownership by Commune in IX Region (1/4)

	1996	2000	2005	2010
Region : IX Araucania		48457	56980	66197
Province : Malleco		9788	11510	13372
Comuna : Angol	· · · .	3866	4548	5283
Reralco		323	380	441
Collipulit		675	794	923
Lonquimay		78	92	107
Curacautin		724	852	990
Encilla		176	207	241
Victoria		2251	2647	3076
Traiguèn		910	1070	1244
Lumaco	-	137	161	187
Purèn		355	414	480
Los Sauces		293	345	400
Province : Cautin		38669	45470	52825
Comuna : Temuco		26071	30657	35615
Lautano		1199	1410	1638
Perquenco		271	318	370
Vilcún		657	773	898
Cunco		464	546	634
Meligseuco		193	227	264
Curarrehue		232	273	317
Pucón		1005	1182	1373
Villarica		2629	3092	3592
Fueire		773	909	1057
Petrufquén		967	1137	1321
Gorbea		503	591	687
Loncoche	· . ·	812	955	1109
Tolten	1	155	182	211
Teodapo Schmidt		116	136	158
Soavedra	· · · · ·	31	36	42
Carahue		503	591	687
Nueva Emperial		1895	2228	2588
Galvarino	· . · ·	193	227	264

Automobil

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Table (4)

4) Vehicle Ownership by Commune in IX Region (2/4)

	1996	2000	2005	2010
Region : IX Araucania		37985	47638	59625
Province : Malleco		10484	13148	16456
Comuna : Angol		3145	3945	4937
Reraico		440	552	691
Collipult		860	1078	1349
Lonquimay		189	237	290
Curacautin		933	1170	146:
Encilla		199	250	31
Victoria		2265	2840	3554
Traiguèn		1059	1328	166:
Lumaco		660	828	103
Purèn	· · · · · · · · · · · · · · · · · · ·	315	394	49-
Los Sauces		419	526	65
Province : Cautin		27501	34490	4316
Comuna : Temuco	:	14756	18528	2317
Lautano		1155	1448	181
Perquenco		413	517	64
Vilcún		605	752	95
Cunco	· · · · · · · · · · · · · · · · · · ·	440	552	69
Meligseuco		248	310	38
Curarrehue		228	281	35
Pucón		688	862	107
Villarica	<u>. </u>	1623	2035	254
Fueire		825	1035	129
Petrufquén		1183	1483	185
Gorbea	······································	605	759	95
Loncoche		935	1173	146
Tolten		220	276	34
Teodapo Schmidt		413	513	6-
Soavedra		83	103	1
Carahue	· · · · · · · · · · · · · · · · · · ·	880	1104	13
Nueva Lmperial	· · · · ·	1898	2380	29 [.]
Galvarino	· · ·	303	379	4

Camioneta

(1-4)-6

Table (4)Vehicle Ownership by Commune in IX Region (3/4)

Buses

	1996	2000	2005	2010
Region : IX Araucania	: .	1637	2242	3204
Province : Malleco		290	397	567
Comuna : Angol		187	256	362
Reratco	· · · · · ·	2	3	5
Collipullt		31	42	60
Lonquimay		2	3	. 5
Curacautin		0	0	0
Encilla		14	19	28
Victoria		25	34	49
Traiguèn		14	19	28
Lumaco		0	0	0
Purèn		15	21	30
Los Sauces		0	0	0
Province : Cautin	•	1347	1845	2637
Coniuna : Temuco		826	1142	1632
Lautano		38	52	74
Perquenco		28	39	55
Vilcún		39	54	76
Cunco		31	42	61
Metigseuco		3	4 -	5
Curarrehue		0	0	0
Pucón		14	20	29
Villarica		81	111	158
Fueire		34	46	66
Petrufquén		27	37	53
Gorbea	:	• 5	7	11
Loncoche	. · .	22	30	42
Tolten		5	7	11
Teodapo Schmidt		8		16
Soavedra		15	20	29
Carahue		34	46	66
Nueva Emperial	: .	112	157	224
Galvarino		15	20	29

Table (4)

Vehicle Ownership by Commune in IX Region (4/4)

<u> </u>	1996	2000	2005	2010
Region : IX Araucania		3892	5002	629
Province : Malleco		1335	1716	215
Comuna : Angol	:	803	1034	129
Reralco		. 7	9	l.
Collipulit		95	122	- 15
Lonquimay		4	5	
Curacautin		. 29	38	4
Encilta		13	17	2
Victoria		198	254	319
Traiguèn		69	89	11:
Lumaco		31	39	51
Purèn		55	70	81
Los Sauces		31	39	SI
Province : Cautin		2557	3286	413-
Comuna : Temuco		1675	2150	270
Lautano		61	79	99
Perquenco		18	23	29
Vilcún		46	59	74
Cunco		: 15	20	25
Meligseuco		1	2	2
Curarrehue		3	3	4
Pucón		107	138	174
Villarica		164	210	265
Fueire		66	85	107
Petrufquén		, 72	92	116
Gorbea		23	30	37
Loncoche		46	59	74
Tolten		10	ана ула 13	
Teodapo Schmidt		28	36	-45
Soavedra		0	0	C
Carahue	· · ·	28	37	46
Nueva Emperial		184	. 237	298
Galvarino		10	13	17

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APPENDIX I-5

BREAKDOWN OF REHABILITATION UNIT COST

Contents

A.	Unit Cost for Reconstruction	(I-5)-1
В.	Unit Cost for Repair	(I-5)-9

APPENDIX I-5-A

UNIT COST FOR RECONSTRUCTION

Contents

A-1	Bridge Construction Unit Cost		
A-2	Approach Road Construction Unit Cost	-	
A-3	River Protection Unit Cost	÷.,	

· ·	V-1 Average Cost of Reconstruction for Bridge Rehabilitation Plan	
	A-1 Averae	

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																							¥	X.	++	ts o			
	Remarks						Planed in project				338,400 New Construction				474,000 New Construction				503,800 New Construction	512,000 [(Peso per m2)			Tax = 18% of Construction Cost	Contingency = 5% of Construction Cost	Overhead $= 5\%$ of Construction Cost	Miscellaneous = 4.6% of Construction Cost	Total = 32.6%		
	Amount						731,200 F		-		338,400 N				474,000 N				503,800 N	512,000 [(I			J.		0	N	L.		
	Fax, etc.(32.6%)						179,769				83,201				116,525				123,851										
litation Plan	Total/Area(m2)	-					551,438				255,218				357,437				379,912										
n for Bridge Rehabi	Area of superstructure [Total/Area(m2)]Tax, etc.(32.6%)						198,517,535 40m x 9m =360m2		25m x 9m=225m2				25m x 9m x2=450m2				25m x 9m =225m2												
constructio	Total				53,770,940	144,746,595	198,517,535		20,876,562	36,547,392	57,423,954		87,732,037	73,114,667	160,846,704		47,573,050	37,907,232	85,480,282		:								
of Rec	Unit				า	Lis			S.I.	LS	:		LS	LS			LLS	LS											
A-1 Average Cost of Reconstruction for Bridge Rehabilitation Plan	Description			Poculon	Substructure	Superstructure	Total	Los Aromos	Substructure	Superstructure	Total	Quilacoya	Substructure	Superstructure	Total	Gomero	Substructure	Superstructure	Total	Average of Amount									
	No.		·.	Al - 1	- 1.1	- 1.2		AI - 2				AI - 3				A1 - 4													
· ·	L	L	.	1 <u>~</u>	L	1	1 .	<u> </u>	Ļ	L	· :	1 ×	ř	(I	L	L		ť	<u>₽</u>	L	I	1	t	i	L	í	k	L	L J
								:			. :																		

Appendix 1-5-A-1 Construction unit cost.xls

(I-5)-1

i Cost
Ξ.
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Construction
0
0
<u> </u>
Ξ.
ф
A-1

	=9m										Ī			-	-				-															
VCIIIai V	Span Length = $40m$, width= $9m$																																	
(S)					-		4,230,000		ł		CU1.140	-	-	2,671,261		3 446 820		ţ		1,624,000	•			412,100	10 A.	2,792,000	1.641.600		\$ 14,448,000		-	20	\$ 780,640	\$ 144,746,595
U.Price (\$)					59,400 \$	500 \$	3.000 \$	5 800			641.105 3		761,700 \$	2,671,261 \$		\$ 005 85	0000	ß		5,800		5,800	58,500 \$	500		34,900 \$	91,200 S		51,600		4,600	51,600	6,800	
Quantity					36.9 \$	4,698.5 \$		330.1 5		-	1.0 5		24.0 \$			2 0 22	- -	_		280.0 \$		8.5 \$	16.0 \$	824.2 \$		80.0 \$	18.0 \$	1.0 \$	280.0 \$:		574.0 \$		 · · · · · · · · · · · · · · · · · · ·
unit	Ì				m3	Ϋ́α	κø		1		L.S.		each	Ľ.S.		1		Кg	kg	щ2		22	щ.	Kg Kg		٤	E	L.S.	뎚		[m3]	m2	ц Ш	
Construction				sturing	Concrete	Reinforcing bar	Prestressing steel	To and the set of the	FOITIWOIX				Bearing shoes	Erection			Concrete	Reinforcing bar		Formwork		Fromwork	Concrete	Reinforcing bar		[Hand rai]	Expansion joint	Drainage	Pavement		Earth work	Pavement	base coause	
Itam	- E	tridge		P.C. Beam manufact							Transportation	Main Girder erection				Deck slab construct						Approach slab			S					tion				
Structure		Planed Reconstruction Bridge	Superstructure																						Pavement and accessories					Approach road construction				
Bridge name		POCULON							-																									
	Ż	AI · 1	A1 - 1.1	Ľ																														

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Appendix I-5-A-1 Construction unit cont.xls

e Constru	A-1 Bridge Construction Unit Cost							
Bridge name	Structure	ture	Construction	unit Qu	Quantity	U.Price	Price	Remarks
		ltem	Item			(<u>S</u>)	(2)	
POCULON								
	Substructure			_				
		Pier and Abutment c	construction					
			c	m3	-		∻	
			excavation		1,077.0	S 1,700	1,830,900	
			Base concrete.	m3	16.4	\$ 41,400	5 678,960	
			Pier concrete	m3	134.5		ŝ	
			Abutment concret m3	m3		S 58,500	17,619,030	
			Reinforcing bar	Ŀ	28,334.3		S 1	
			1.			S 5,800	0 \$ 1,429,700	
			Scaffolding	m3	507.9	\$ 2,000	0 \$ 1,015,760	
		Revetment work			-			
			Bank protection	m2	200.0	S 23,200	\$	
			Scoring protection m2	m2	200.0	S 22,600	\$ 4.520,000	
			المراجعة المراجع المراجع			1943 T. 1943	\$ 53,770,940	
 							\$ 198.517,535	
	Miscellaneous			L.S.			64,716,716.33	
Total amount							\$ 263,234,251	
							and the first strategies.	
	Train 1						STATE STATE	

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Appendix H5-A-I Construction unit custada

A-1 Bridge Construction Unit Cost Planed Construction Bridge

2 Los Aromos Bridge Substructure Structure Dry Dry Bridge Structure Dry Dry Dry Dry Bridge Structure Dry Dry Dry Dry Dry Dry Dry Dry Dry Dry Bub Total Sub Total Sub Dtal Bea Sub Sub Total Dry Dry	c Z	Liducu Cuina	rianco Construction Diruge	Unit	Quantity	Unit Cost	Amount	Remarks	• •
cture Fillingm3255.05,2381,335,690hine Excavationm3270.01,826493,020Man Excavationm3130.0 $4,939$ $642,070$ Warton in waterm3120.0 $1,826$ $493,020$ Man Excavationm3120.0 $1,826$ $642,070$ Warton in waterm3130.0 $4,939$ $642,070$ Novorkm3135.0 $642,070$ Novorkm3 120.0 $1,79,600$ Novorkm3 315.0 $642,070$ Stete H-25m3 3.88 $50,090$ Torete H-25m3 175.0 $62,698$ $10,972,150$ Crete H-25m3 175.0 $62,698$ $10,972,150$ Crete H-25m3 $3.734,446$ $3.734,446$ Storet H-30m3 58.0 $64,387$ $3.734,446$ Novorkm3 $802,60$ $3,736,426$ Storet H-30m3 58.0 $64,387$ $3.734,446$ Torete H-25m3 88 $92,591$ $814,801$ Storet H-30m3 88 $92,591$ $3.734,446$ Storet H-30m3 $7340,576$ $2.103,614$ Storet H-30 $3.734,446$ $74,544$ $674,544$ Storet H-30 $3.734,547$ $3.734,544$ Storet H-30 $3.734,5476$ $2.103,51728$ Storet H-30 $3.734,5476$ $2.103,51728$ Storet H-30 $3.734,5476$ $2.103,51728$ Storet H-30 $3.734,5476$ $2.133,5446$ <td></td> <td>Los Aromos</td> <td>Bridge</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>		Los Aromos	Bridge						
Structure Filling m3 255.0 5,238 Machine Excavation m3 270.0 1,826 Dry Man Excavation m3 270.0 1,826 Dry Man Excavation m3 120.0 1,939 Excavation in water m3 120.0 1,930 Formwork m2 315.0 5,118 Reinforcing bar kg 8024.0 5,118 Concrete H-5 m3 175.0 62,698 Concrete H-5 m3 175.0 62,698 Concrete H-5 m3 175.0 62,698 Structure m3 175.0 62,698 Concrete H-5 m3 175.0 62,698 Structure m3 175.0 62,698 Structure m3 175.0 64,387 Structure m3 7002.0 480 Structure m3 7002.0 64,387 Concrete Pavement m3 7005.0 64,387 Post m3 10.5 114,822 Post reach 3.0 7340,5		Substructure						Span Length L=25m Width=9m	
Machine Excavation m3 270.0 1,826 Dry Man Excavation m3 130.0 4,939 Excavation in water m3 130.0 4,930 Excavation in water m3 120.0 14,830 Formwork m2 315.0 5,118 Formwork m2 315.0 5,118 Reinforcing bar kg 8024.0 480 Concrete H-25 m3 175.0 62,698 Concrete H-25 m3 175.0 62,698 Formwork m3 175.0 62,698 Structure m3 175.0 62,698 Structure m3 175.0 64,387 Structure m3 7002.0 64,387 Concrete H-30 m3 58.0 64,387 Reinforcing bar kg 7002.0 64,387 Concrete Pavement m3 10.5 114,822 Post Concrete Pavement m3 92,591 Approach Slab m3<			1.	m3	255.0	5,238	1,335,690		•
Dry Man Excavation m3 130.0 4,939 Excavation in water m3 130.0 14,830 Formwork m3 120.0 14,830 Formwork m3 315.0 5,118 Reinforcing bar kg 8024.0 480 Concrete H-5 m3 3.5.0 62,698 Concrete H-25 m3 175.0 62,698 Concrete H-25 m3 23.6 64,387 Structure m2 246.0 5,118 Structure m3 8.8 92,591 Reinforcing bar m3 8.8 92,591 Approach Slab m3 8.8 92,591 Post Tensioned Beam L=25m m3 8.8 92,591 Post Tensioned Stam L=25m m3 10.5 114,822 Post Tensioned Beam L=25m each 3.0 7,340,576 Post Tensioned Stam L=25m each 3.0 7,340,576 Post Tension Joint Supply and Setting m1 10.5 14,827 </td <td>1</td> <td></td> <td>Machine Excavation</td> <td>B</td> <td>270.0</td> <td>1,826</td> <td>493,020</td> <td></td> <td><u> </u></td>	1		Machine Excavation	B	270.0	1,826	493,020		<u> </u>
Excavation in water m3 120.0 14,830 Formwork m2 315.0 5,118 Reinforcing bar kg 8024.0 480 Concrete H-5 m3 3.5 50.090 Concrete H-5 m3 175.0 62.698 Concrete H-25 m3 775.0 62.698 Formwork m3 775.0 62.698 Concrete H-25 m3 7002.0 480 Structure m2 246.0 5,118 Concrete H-30 m3 88 92.591 Structure m3 58.0 64.387 Concrete H-30 m3 8.8 92.591 Structure m3 8.8 92.591 Concrete Pavement m3 8.8 92.591 Approach Slab m3 10.5 114,822 Post Tensioned Beam L=25m m3 7.340.576 93,4897 Post Tensioned Beam L=25m each 3.0 93,560 Post Tensioned Beam L=25m m3 10.5 93,4897 Bearings, Anchorage and Drain Pip			Dry Man Excavation	m3	130.0	4,939	642,070		
Formwork m2 315.0 5,118 Reinforcing bar kg 8024.0 480 Concrete H-25 m3 3.8 50.090 Concrete H-25 m3 175.0 62.698 Concrete H-25 m3 175.0 62.698 Formwork m3 175.0 64.698 Structure m3 7002.0 480 Structure m3 58.0 64.387 Concrete H-25 m3 58.0 64.387 Reinforcing bar kg 7002.0 480 Concrete H-30 m3 58.0 64.387 Concrete H-30 m3 58.0 64.387 Approach Slab m3 7002.0 7.340.576 Post Tensioned Beam L=25m each 3.0 7.340.576 Post Tensional Joint Supply and Setting m1 14.0 93.760 Bearings, Anchorage and Drain Pip L 1.0 674.544 Lotal Hand Reiting and Setting 1 1.0 674.544 <td>1</td> <td></td> <td>Excavation in water</td> <td>g</td> <td>120.0</td> <td>14,830</td> <td>1,779,600</td> <td></td> <td>:</td>	1		Excavation in water	g	120.0	14,830	1,779,600		:
Reinforcing bar kg 8024.0 480 Concrete H-5 m3 3.8 50.090 Concrete H-5 m3 175.0 62.698 Concrete H-25 m3 7002.0 62.698 Formwork m2 246.0 5,118 Structure m2 246.0 5,118 Concrete H-30 m3 58.0 64.387 Concrete Pavement m3 58.0 64.387 Concrete Pavement m3 58.0 54.367 Post Tensioned Beam L=25m m3 10.5 114.822 Hand Rail Supply and Setting m1 14.0 93.760 Bearings, Anchorage and Drain Pip Ls 1.0 674.544 Lotal m1 62.0 34.897			Formwork	2 <u></u> 2	315.0	5,118	1,612,170		
Concrete H-5 m3 3:8 50,090 Concrete H-25 m3 175.0 62,698 Concrete H-25 m3 175.0 62,698 Concrete H-25 m3 175.0 62,698 Structure m2 246.0 5,118 Structure m2 246.0 5,118 Reinforcing bar kg 7002.0 480 Concrete H-30 m3 8.8 92.591 Reinforcing bar m3 8.8 92.591 Approach Slab m3 8.8 92.591 Post Tensioned Beam L=25m m3 8.8 92.591 Post Tensioned Beam L=25m m3 10.5 114,822 Post Tensioned Beam L=25m each 3.0 7,340.576 Bearings, Anchorage and Drain Pip L 1.0 674,544 Bearings, Anchorage and Drain Pip L 1.0 674,544			Reinforcing bar	К К	8024.0	480	3,851,520		
Fotal m3 175.0 62,698 Fotal m3 175.0 62,698 sstructure m1 246.0 5,118 sstructure m2 246.0 5,118 Reinforcing bar m3 7002.0 480 Concrete H-30. m3 58.0 64.387 Concrete H-30. m3 58.0 64.387 Post Tensioned Beam L=25m m3 10.5 114.822 Post Tensioned Beam L=25m each 3.0 7,340.576 Hand Rail Supply and Setting m1 62.0 34,897 Bearings, Anchorage and Drain Pip Ls 1.0 674,544			Concrete H-5 and the second second	B	3.8	50,090	190,342		
Fotal Fotal 246.0 5,118 structure m2 246.0 5,118 Reinforcing bar m3 246.0 5,118 Reinforcing bar m3 58.0 64.387 Concrete H-30. m3 58.0 64.387 Concrete Pavement m3 58.0 64.387 Approach Slab m3 10.5 114.822 Approach Slab m3 10.5 114.822 Post Tensioned Beam L=25m each 3.0 7.340,576 Hand Rail Supply and Setting m1 14.0 93,760 Bearings, Anchorage and Drain Pip L.s 1.0 674,544 Iotal Bearings, Anchorage and Drain Pip L 0 93,4897			Concrete H-25	m3	175.0	62,698	10,972,150		· .
structure m2 246.0 5,118 Formwork m2 246.0 5,118 Reinforcing bar kg 7002.0 480 Reinforcing bar kg 7002.0 480 Concrete H-30 m3 58.0 64.387 Concrete Pavement m3 58.0 64.387 Concrete Pavement m3 8.8 92.591 Approach Slab m3 10.5 114,822 Post Tensioned Beam L=25m each 3.0 7.340.576 Hand Rail Supply and Setting m1 62.0 34.897 Bearings, Anchorage and Drain Pip Ls 1.0 674,544 Iotal Lotal 1.0 674,544		Sub Total		:			20,876,562		
structure m2 246.0 5,118 Formwork m2 246.0 5,118 Reinforcing bar kg 7002.0 480 Concrete H-30 m3 58.0 64,387 Concrete Pavement m3 58.0 64,387 Concrete Pavement m3 58.0 64,387 Post Tensioned Beam L=25m each 3.0 7,340,576 Hand Rail Supply and Setting m1 62.0 34,897 Bearings, Anchorage and Drain Pip Ls 1.0 674,544 Fotal Lotal Lo 10.5 34,597									
Formwork m2 246.0 5,118 Reinforcing bar kg 7002.0 480 Reinforcing bar kg 7002.0 480 Concrete H-30 m3 58.0 64.387 Concrete Pavement m3 58.0 64.387 Approach Slab m3 8.8 92.591 Approach Slab m3 10.5 114.822 Post Tensioned Beam L=25m each 3.0 7.340,576 Hand Rail Supply and Setting m1 14.0 93,760 Hand Rail Supply and Setting m1 62.0 34,897 Bearings, Anchorage and Drain Pip L.s 1.0 674,544 fotal Lot 1.0 674,544		Superstructur							•.
Reinforcing bar kg 7002.0 480 Concrete H-30. m3 58.0 64.387 Concrete Pavement m3 58.0 64.387 Concrete Pavement m3 8.8 92.591 Approach Slab m3 10.5 114.822 Post Tensioned Beam L=25m each 3.0 7.340.576 Hand Rail Supply and Setting m1 14.0 93.760 Bearings, Anchorage and Drain Pip L.s 1.0 674.544 Iotal Lotal L.s 1.0 674.544			- C.	n2 L	246.0	5,118	1,259,028		
Concrete H-30 m3 58.0 64.387 Concrete Pavement m3 8.8 92.591 Concrete Pavement m3 10.5 114.822 Approach Slab m3 10.5 114.822 Post Tensioned Beam L=25m each 3.0 7.340.576 Hand Rail Supply and Setting m1 62.0 34.897 Bearings, Anchorage and Drain Pip Ls 1.0 674.544 fotal Los 1.0 674.544			Reinforcing bar	х Х	7002.0	480	3,360,960		۰.
Concrete Pavementm38.892,591Approach Slabm310.5114,822Post Tensioned Beam L=25meach3.07,340,576Expansion Joint Supply and Settingml14.093,760Hand Rail Supply and Settingml62.034,897Bearings, Anchorage and Drain PipL.s1.0674,544 fotal fotalfotalfotalfotal			Concrete H-30	E E	58.0	64,387	3,734,446		
Approach Slabm310.5114,822Post Tensioned Beam L=25meach3.07,340,576Expansion Joint Supply and Settingml14.093,760Hand Rail Supply and Settingml62.034,897Bearings, Anchorage and Drain PipL.s1.0674,544IotalEvanue1.0674,5441.0			Concrete Pavement	ы Е	8.8	92,591	814,801		
Post Tensioned Beam L=25meach3.07,340,576Expansion Joint Supply and Settingml14.093,760Hand Rail Supply and Settingml62.034,897Bearings, Anchorage and Drain PipL.s1.0674,544Iotalfor the set of the set o			Approach Slab	m3.	10.5	114,822	1,205,631		
Expansion Joint Supply and Setting ml 14.0 93,760 Hand Rail Supply and Setting ml 62.0 34,897 Bearings, Anchorage and Drain Pip L.s 1.0 674,544 Cotal 1.0 674,544			a	each	3.0	7,340,576	22,021,728		
Hand Rait Supply and Setting of a mlv free 62.0 34,897 34,897 Bearings, Anchorage and Drain Pip L.s free 1.0 674,544 3 Notal Under the production of the production o			Expansion Joint Supply and Setting	E	14.0	93,760	1,312,640		
Bearings, Anchorage and Drain Pip L.s. For 1.0 674,544 Cotal Systematic and Drain Pip L.s. Systematic and Sy			Hand Rail Supply and Setting	E	62.0	34,897	2,163,614		
Cotal No.201 No.201 </td <td></td> <td></td> <td>Bearings, Anchorage and Drain Pip</td> <td>L.S</td> <td>0.1</td> <td>674,544</td> <td>674,544</td> <td></td> <td>`</td>			Bearings, Anchorage and Drain Pip	L.S	0.1	674,544	674,544		`
	1	Sub Total					36,547,392		
		Total					57,423,954		
						are all and a second			

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Appendix 1-5-A-1 Construction unit cost.xls

A-1 Bridge Construction Unit Cost Planed Construction Bridge

ON.	Flance Construction Druge	Description	Unit	Ouantity	Unit Cost	Amount	Remarks
	Onilacous Dridge			. · ·			
C TW	Cultacoya Di luko		T				Shan I enoth I = $25m \times 2$ Width= $9m$
	Substructure					011 000 1	
	Structure Filling	Filing	ŝ	380.0	5,238	1,990,440	
	Machine E	Machine Excavation	m3	659.0	1,826	1,203,334	
	Concrete	Concrete pile cast in place	щ	141.3	414,045	58,504,559	
	Formwork		뎕	660.0	5,118	3,377,880	
	Reinforcing bar	ag bar and a second second	kg	10,063.0	480	4,830,240	
	Concrete H-5	H-5	Е Ю	10.4	50,090	520,936	
	Concrete I	Concrete H-25	m3	276.0	62,698	17,304,648	
	Sub Total					87,732,037	
		and the second secon	1. S. S.				
	Superstructure						
	Formwork	Gruppense of the second second second	Ц Д	552.0	5,118	2,825,136	
	Reinforcing bar	ag bar	kg	16,850.0	480	8,088,000	
	Concrete H-30	H-30	E E	117.0	64,387	7,533,279	
	Concrete I	Concrete Pavement	B 3	17.5	92,591	1,620,343	
	Approach Slab	Slaborencesses	ш3	10.5	114,822	1,205,631	
	Post Tensi	Post Tensioned Beam L=25m	each	9 0 9	7,340,576	44,043,456	
	Expansion	Expansion Joint Supply and Setting	B	21.0	93,760	1,968,960	
	Hand Rail	Hand Rail Supply and Setting	B	128.4	34,897	4,480,775	
	Beannes	Bearings, Anchorage and Drain Pipe	L.S.	2.0	674,544	1,349,088	
	Sub Total					73,114,667	
	Total					160,846,704	
			:		-		

Appendix 1-5-A-1 Construction unit cost.xls

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A-1 Bridge Construction Unit Cost

Damalar	Reutat No	Span Length L=25m Width=9m																						
	Amount			3,299,940	977,922	6,080,300	3,249,930	4,549,920	260,468	29,154,570	47,573,050		1,586,580	4,025,760	3,734,446	833,319	1,205,631	22,021,728	1,312,640	2,512,584	674,544	37,907,232	85,480,282	
	Unit Cost			2,238	4,939	14,830	5,118	480	50,090	62,698			5,118.0	480.0	64,387.0	92,591.0	114,822.0	7,340,576	93,760	34,897	674,544			
:	Quantity			630.0	198.0	410.0	635.0	9,479.0	5.2	465.0			310.0	8,387.0	58.0	9.0	10.5	3.0	14.0	72.0	1.0			
	Unit			m3	m3	m3	2 <u>5</u>	kg	m3	m3.			m2:	kg.	m3	Em3	m3	each	E	E	LS			
Planed Construction Bridge	Description	Gomero Bridge	Substructure	Structure Filling	Dry Man Excavation	Excavation in water	Formwork and south a second seco	Reinforcing bar	Concrete H-5	Concrete H-25	Sub Total	Superstructure statements and a second second	Formwork	Reinforcing bar	Concrete H-30	Concrete Pavement	Approach Slab	Post Tensioned Beam L=25m	Expansion Joint Supply and Setting	Hand Rail Supply and Setting	Bearings, Anchorage and Drain Pipe	Sub Total		
	No.	A1 - 4																						

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Appendix 1-5-A-1Construction unit coststa

	Remarks		2 lanes = 9.00 m	Approach Length = 100m											Remarks	1 lane = 7.00 m	Approach Length = 100m									
	Total (Peso)		2	۲	18,975,000	\$ 1,428,000			\$ 22,931,400	\$ 22,900,000					Total (Peso)	1	A	16,675,000	s 1,020,000	\$ 1,806,000	and the second se	\$ 19,501,000	\$ 19,500,000	\$ 39,000,000	•	
· · · · · ·	Price				\$ 4,600	÷	\$								Price			\$ 4,600	\$ 6,800	\$ 51,600						
· · . ·	Quontity		•		4125	210	49								Quontity			3625	150	35	,					
Cost	Unit				B	E E	m3	- - - -							Unit			щ	m3	3						
nstruction Unit	Description		-		Earth Work	Base Course	Asphalt Pavement								Description		-	Earth Work	Base Course	Asphalt Pavement						
2 Approach Road Construction Unit Cost 21 anes Approach Road	Construction Item		2 Lanes Approach Road						Sub Total	One Side of Bridge	Both Side of Bridge			1 Lane Approach Road	Construction Item	1 Lancs Approach Road						Sub Total	One Side of Bridge	Both Side of Bridge		
A-2	Item No.	2													Item No.											

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Protection
· River
Cost for
Unit (
A-3

Gabion method Material m3 10 5 1300 5 Cobble storte m3 10 5 230 5 Cobble storte m3 10 5 230 5 Eabor Eabor person 02 5 20000 5 Emaine person 1 5 11,000 5 5500 5 Forman berson 2 5 8,500 5 <	
Material m3 10 5 1500 5 Cobble stone kg 10 5 1500 5 Cobble stone kg 10 5 2300 5 Labor Engineer person 0.2 5 20000 5 Engineer person 1 5 11,000 5 5000 5 Engineer person 1 5 5000 5 5000 5 Engineer person 2 5 8.500 5 5000 5 Common Labor person 2 5 5.500 5 5 Truck L.s 1 5 5.500 5 5 5 Truck Labor Labor Labor 1 5 5.500 5 Truck L.s L.s 1 5 5.500 5 Truck L.s L.s 1 5 5.500 5	
Cooble stone m3 10 \$ 1.500 \$ Cobble stone Cabions nets kg 10 \$ 230 \$ Engineer Engineer person 0.2 \$ \$ 2300 \$ Sitteral person 0.2 \$ <td></td>	
Cabions nets kg 10 s 230 5 Labor Labor person 0.2 5 20.000 5 Engineer person 0.2 5 3.0000 5 Forman Forman person 1 5 11.000 5 Skilled Labor person 2 5 5.000 5 Common Labor person 2 5 5.000 5 Hydrauric crane cach 0.5 5 5.000 5 Truck Lab 1 5 15.000 5 Truck L.s 1 5 15.000 5 Noteulaneous L.s 1 5 15.000 5 Niscellaneous L.s 1 5 15.000 5 Niscellaneous L.s 1 5 15.000 5	15.000 10m2x1m =10m3
Iabor Engineer person 0.2 5 20.000 5 Engineer person 1 5 $11,000$ 5 Swilled Labor person 2 5 8.500 5 Equipment person 2 5 5.000 5 Equipment person 2 5 8.500 5 Truck person 2 5 5.000 5 Truck person 1 5 5.000 5 Truck cach 0.5 5 5.000 5 Truck 1 5 1.5000 5 1.5000 5 Sub total 1 5 1.5000 5 1.5000 5 Miscellancous 1.5 1.5 1.5000 5 1.5000 5 Miscellancous 1.5 1.5 1.5 1.5000 5 Miscellancous 1	2.300
Labor Labor person 0.2 5 20.000 5 Engineer person 1 5 20.000 5 Skilled Labor person 2 8 8.500 5 Suilled Labor person 2 8 8.500 5 Demmon Labor person 4 5 5.500 5 Truck casch 0.5 5 8.0000 5 Truck Ls 1 5 5.500 5 Nois Ls 1 5 5.000 5 Truck Ls 1 5 5.000 5 Nois Ls 1 5 5.000 5 Sub total Miscellaneous Ls 1 5 64.520 5 Miscellaneous Ls 1 5 64.520 5 5.500 5	
Labor Engineer 0.2 20000 5 Engineer person 1 2 20000 5 Skilendan person 2 5 5.500 5 Skilendan person 4 5 5.500 5 Common Labor person 4 5 5.500 5 Hydrauric crane each 1 5 5.500 5 Truck Ls 1 5 5.000 5 5.000 5 Truck Ls 1 5 5.000 5 5.000 5 5.000 5 Truck Ls 1 5 5.000 5 5.000 5 Truck Ls 1 5 5.000 5 5.000 5 Truck Ls 1 5 $6.4.520$ 5 Miscellaneous Ls Ls 1 5 <t< td=""><td></td></t<>	
Engineer Engineer Derson 0.2 5 20000 5 Forman Forman Erson 1 5 \$8,500 5 Stilled Labor person 2 5 \$8,500 5 Equipment person 4 5 \$5,500 5 Hydrauric cranc person 4 5 \$5,500 5 Tuck person 2 5 \$80,000 5 Truck cach 1 5 \$20,000 5 Truck cach 1 5 \$20,000 5 Truck L.s 1 5 \$20,000 5 Truck L.s 1 5 \$20,000 5 Subortation L.s 1 5 \$20,000 5 Nool Subortation L.s 1 5 \$20,000 5 Subortation L.s L.s 1 5 \$4,520 5 N	
Forman Forman person 1 5 11000 5 Skilled Labor Ereson 2 5 8500 5 5500 5 Normon Labor Enerson 4 5 5,500 5 5,500 5 Hudranic crane each 0.5 5 8,5000 5 5,500 5 Tuydranic crane each 0.5 5 8,0000 5 7,000 5 5,000 5 5,000 5 7,000 5 5 5,000 5 7,0000 5 7,000	4,000
Skilled Laborperson 2 5 8.500 5 Common Laborperson 4 5 5.500 5 Poulauric craneEquipmentcach 0.5 5 8.0000 5 Truckcach 0.5 5 20.000 5 7.100 5 Truckcach 1 5 2.0000 5 7.100 5 Truckcach 1 5 1.5000 5 7.500 5 TruckLashLash 1 5 1.5000 5 NotationLashLs 1 5 1.5000 5 NotationLsLs 1 5 64.520 5 NotationLsLs 1 5 64.520 5 NotationsLsLs 1 5 64.520 5 NotationsLs 1 1 1 1 1 NotationsLs 1 1 2 1 1 NotationsLs 1 2 1 1 1 NotationsLs 1 1 2 1 1 NotationsLs 1 2 1 1 1 NotationsLs 1 1 1 1 <	11,000
Common Labor person 4 S S500 S Equipment Equipment $acch$ $acch$ acs $acc000$ s Hydrauric crane craneh $acch$ acs $acch$ acs $acc000$ s Truck Truck crach acs	17.000
Equipment 0.5 8 80.000 8 Hydrauric crane each 0.5 8 80.000 8 Truck cach 1 8 20.000 8 Truck cach 1 8 13 8 20.000 8 Truck cach 1 8 13 8 20.000 8 Tools Tools 1 8 13 8 13.000 8 Sub total 1 1 8 13.000 8 8 Miscellaneous 1 1 1 1 8 64.520 8 Miscellaneous 1	22.000
Equipment Equipment $each$ 0.5 s $80,000$ s Truck $cach$ 1 s $20,000$ s Truck $cach$ 1 s $20,000$ s Truck $cach$ 1 s $10,01$ s $10,000$ s Truck L_s 1 s 1 s $15,000$ s Tools Tools L_s 1 s $15,000$ s Sub total L_s 1 s $15,000$ s $15,000$ s Miscellaneous L_s 1 s $15,000$ s $64,520$ s Miscellaneous L_s L_s 1 s $64,520$ s Miscellaneous L_s L_s 1 s $64,520$ s Miscellaneous L_s L_s 1 s 1 1	
Hydrauric crane each 0.5 S $80,000$ S Truck cach 1 S $20,000$ S Tools Tools L.s 1 S $15,000$ S Tools L.s 1 S $15,000$ S S Responsation L.s 1 S $15,000$ S S Nubber Sub total L.s 1 S $15,000$ S S Niscellaneous L.s L.s 1 S $64,520$ S S Niscellaneous L.s L.s 1 S $64,520$ S S Notal S S S S $56,520$ S S	
Truck cach 1 S 20.000 S Tools Tools L.s 1 S 15.000 S Truck Transportation L.s 1 S 15.000 S Sub total L.s 1 S S S S S Miscellaneous L.s 1 S S S S S Miscellaneous L.s 1 S S S S S Miscellaneous L.s S S S S S S S S	40.000
Tools L.s 1 \$ 15.000 \$ Transportation Transportation L.s 1 \$ 15.000 \$ Sub total Sub total L.s 1 \$ 5 5 Miscellaneous L.s 1 \$ \$ \$ Herris Miscellaneous L.s 1 \$ \$ Herris Herris 1 \$ \$ \$ Herris Herris 1 \$ \$ \$ Herris Herris Herris \$	20,000
Transportation L.s 1 \$ 15,000 \$ Sub total Sub total I S 15,000 \$ Miscellaneous L.s 1 \$ 5 64,520 \$ Image: Sub total Image: Sub total </td <td>15.000</td>	15.000
Transportation L.s 1 \$ 15.000 \$ Sub total Sub total Niscellancous 1 \$ \$ \$ Miscellancous L.s 1 \$	
Attanyortation S	15.000
Image: second	
Loous L.s 1 5 64.520 5 Roous L.s 1 S 64.520 S	161.300
Ls 1 5 64.520 5	
	64.520
	225 820 4

APPENDIX I-5-B

UNIT COST FOR REPAIR

Contents

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B-1	Summary of Repair Unit Cost by Damages	9
B-2	Superstructure	10
B-3	Substructure	21

B-1 Summary

B-1 Summary of Repair Unit Cost by Damages

Z	No L Codo	dol Domoge Nome	For Domogo	For Domoges of Superstructure/m	Km/ann	For damage	For damages of Substurcture/m2	cture/m2	Remarks	Γ
-	3		Concrete	Steel 7	Timber	Concrete	Steel	Timber		. 1
I	1 BR	R Breakage/Fallout	\$12,400	\$31,600	\$25,800	\$8,800	\$26,500	\$18,000		I
· ·	8 8	0 Corrosion/Decay/Deterioration	89,900	\$13,600	\$25,800	\$9,300	\$12,400	\$18,000		1
I	б г	R Crack	\$47,000	\$29,400	\$25,800	\$25,300	\$24,500	\$18,000		[
	4 DH	H Deformation of member		\$552,600			\$473,800			
L	5 ER						\$40,000	· · · ·		
<u> </u>	6 FI	l Fire			\$25,800			\$18,000		T
	IN IN	Inclination of Substructure				Depend o	Depend on the site condition	ndition		T
I	8 NF	F Not Functioning (Bearing and Expansion joint)	Depend (Depend on the site condition	ition					1
<u> </u>	⁹ SC		S12,400			\$8,800				r
	10 SE	E Settlement				Depend o	Depend on the site condition	adition		T
	11 SL	L Sliding				Depend o	Depend on the site condition	ndition		1
	12 SP		\$9,300			\$6,500				I
	3 W.	13 WE Surface Wearing	\$13,200			\$13,000				1

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B-1Summery of Repeir Unit Cost by Demoges.vis

B-2 Superstructure

Concrete



I-5-B. Unit Cost for Repair Breakage/Fallout

Dream	breakage/ranout				
No.	Code of Damage	Repair Method	Unit	Cost	Kemarks
	Superstructure		:		
	BR		:		
BR • cl		Shatcrete mortar method	. m2 ,	\$6,000	
BR · C		Over Lay method by asphalt	m2	\$5,200	
BR . CJ		Over Lay method by Concrete	m2	\$6,800	
BR · ct		Drv-pack method	m2	\$20,500	
BR · c5		Pre-pack method	25 12	\$20,200	
ļ			1.		
BR · c6		Patching by cement concrete	m2	\$15,500	
				\$74,200	
		Average		\$12,400 [\$12,400 Unit cost of Corrosion/Deterioration repair
	-		:		
			-		
			:		
,				-	
				-	
				•	
				:	
			• .		
Í					

I-5-B. Unit Cost for Repair Corresion/Decay/Deteriorat

Corre	Corrosion/Decay/Deterioration				
No.	Code of Damage	Repair Method	Uait	Cost	Remarks
	Superstructure				
	co			1 ·	
CO · c1		Shatcrete mortar method	m2	\$5.700	
со СО ·		Coating by Cement concrete	m2	\$8.500	
со СО СО		Bituminous coating, Tar coating	m2	\$6,500	
CO - 64		Coating by linseed oil	m2	\$5.900	
CO · 65		Over laving method by Asphalt	m2	\$5,200	
1.					
00 CO		Over laving method by Concrete	m2	\$6.800	
$CO \cdot c7$		Drv-pack method	m2	\$20,500	
CO • 68		Pre-pack method	д 1 2 1 2	\$20,200	
l					
				\$79.300	
		Average of a contraction of the second	-	\$9,900	
			•		
	:				
			· ·		

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Dumps Unit Cast SPACER-cubs

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I-S-B. Unit Cost for Repair Crack

Code of Damage Repair Method Unit
Duperstructure
Injection Crack
Shotcrete mortar method
Caulking by Elastomeric sealer
Caulking by mortar/concrete
Dry-pack method
Stistching by steel bar
Total Control of the second se
Average

Repair	
for	
Cost f	
Unit	
I-5-B.	:
Ц	¢

Damartic	(Veliat N)													\$12,400 Unit Cost of Scaling														
	Cost		\$6,000		\$5,200	\$6,800	\$20,200	500 500	202020	\$15,500		1. 	\$74,200	\$12,400 Unit														
	Unit		۳. ۲		m2	m2	 Ě	- - 		m2																		
	Repair Method		Chaeman waranter enachard		Over Lay method by asphalt	Over Lay method by concrete	Pre-pack method		Dry-pack method	Patching by coment concrete				Average														
		Superstructure	sc																									
Scaling	No.		-	20.02	SC - c2	SC · G	SC · c4		SC . C.		90 - <u>1</u> 0																	-
	4	.			•	 - -	 -				•			([]-	5)-	14	-		 			•	,				

Chernage Unit Creat SPSCBR-scala

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Cost 1	gu
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5	S'ar
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L'S	Sp

N.	Lo Code of Demage	Repair Method	Unit	Cost	Remarks
	Superstructure				
	CD CD				
5P - 61		Shatcrete mortar method	m2	\$6,000	
SP . C2		Coating by Cement concrete		\$8,500	
			:	:	
SP · G		Bituminous coating. Tar coating		\$6,500	
SP - c4		Coating by linseed oil		\$5,900	
SP - c5		Over laying method by Asphalt		\$5,200	
SP - c6		Over laving method by Concrete		\$6,800	
SP · c7		Pre-pack method		\$20,200	
SP - C8		Patching by cement concrete		\$15,500	
SP - C9		Patching by asphalt concrete		\$9,200	
		Total second second second second		\$83,800	
		Average		59,300	\$9,300 Unit cost of Spalling and scaling
	-				

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amage Unit Cost SPACERs.

WE - c1	COUC OI DAINARE	Repair method		Cost	Remarks
- 61	Superstructure				
•	WE				
		Dry-Pack method	m2	\$20.500	
WE · c2		Over Lay method by asphalt	m2	SS.200	
WE · ය		Over Lay method by concrete	n 1 1 2	S6.800	
10 - JAN		Pre-muck method	m2	\$20.200	
•		112-Jack 111-01-0			
		Total		\$52.700	
		Average		\$13.200	
↓					
+					

Damage Unit Cast NNCBR-calls

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I-5-B. Unit Cost for Repair

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B-2 Superstructure

Steel

I-S-B. Unit Cost for Repair Breakage/Fallout . .

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No.	Code of Damage	Kepair Method		1807	ACIDALIAS
	Superstructure				
	BR				
BR - ml		Stop hole method	m2	\$26.000	
BR - m2		Gusset plate Welding method	m2	S34,700	
BR · m3	~	Gusset plate high strength bolt method	_ m2	\$34,000	
		Total		\$94,700	
		Average		\$31,600	\$31,600 Unit cost of superstructure
				-	
	:				
	-				
				· · ·	
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R.t.M Damage Und Coulds

					 	.		·	_					:	: .				•			 	 	 · · · ·		
Remarks																										
Cost -	180,	-		\$35,400	\$6,200		\$6,300		\$6,500		-	\$54,400	\$13.600													
	CINE			m2	m2		m2		1 22	-																
2	Repair Method			Replace Method	Repainting		Repainting		Pepainting			Total	Average													
Corrosion/Decay/Deterioration	Code of Damage	Superstructure											-				- - -			-						
Corros	No.		<u>6</u>	CO - m1	CO m2		CO - m3		CO - m4																	

(1-5)-18

Kui-M Damage Unit Gretoda

I.S.R. Unit Cost for Repair

I-5-B. Unit Cost for Repair Crack

				1.2	Pamorke
No.	Code of Damage	Acpair of Mwinod		Cust	
	Superstructure				
	CR				
CR - ml		Re-welding	m2	\$19.600	
CR - m2		Gusset plate welding method	m2	\$34,700	
CR - m3		Gusset plate high strength bolt method	m2	\$34,000	
		Total		\$88,300	
		Average		\$29,400	
.			:		
			1		

Ker-M Dennege Unit Cretain

Superstructure	Description	Cnit	Quantity	Cost	Amount	Remarks
• m1 Reform method						
	Material					
	Paint	kg	1 S	5.800	\$ 5.800	5.800 per 1 m2
	Labor					
	Technical Engineer	person	1 \$	20.000		
	Forman	person	1 5	11.000		
	Skilled Labor	person	3 \$	8,500	.,	
	Common Labor	person		5.500	\$ 5.500	
	Equipment					
	Jack	cach	2 \$	50.000	\$ 100,000	
	Hvdraulic Crane	cach	1 \$	80.000	\$ 80,000	
	H Beam300 x 300 x 6000	cach	2 \$	300	\$ 600	
	H Beam200 x 200 x 1500	cach	2 \$	200	\$ 400	
	Wooden beam 150x150	each	4 \$	100	\$ 400	
	Hammer	cach	2 \$	1.500	\$ 3.000	
	Acetvlene Welder	each	1 \$	35.000	\$ 35.000	
	Tools	L.s	1 \$	15.000	\$ 15,000	
	Scaffolding	m3	250 \$	250	\$ 62.500	62.500 5m x 10m x 5m =250m3
	Transportation	L.S	2 S	15,000	\$ 30,000	
Sub Total					\$ 394,700	
	Miscellaneous	L.S	1 \$	157,880	\$ 157,880°	
		:				-
Total					\$ \$52,580	
2.0m					007 C27 C00	

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RUL-M Damage Unit Contrals

B-2 Superstructure

Timber

I-5-B. Unit Cost for Repair Breakage/Fallout

	Dirahary 1 avou	Description	1 Init	Onantity	1)nit Cost	Cost	Remarks
Item No.	INAME OF REPAINING	TCM11DINI					
	Superstructure			_			
BR - w1	w1 Replacement Cost (Timber Bridge)	dge)					
		Materials					
		Timber material	m3	1 5	355,000	 \$	355.000 an Oak 40m2x 0.0254m, 1m3
		Nail	kg	4 \$	230	S	
		Bond	kc	4 S	4,000	\$ 16,000	
		Paint	kg	S 8	4.500	\$ 36,000	
		Labor					
		Engineer	Person	0.5 \$		S	
		Forman	Person.		11,000	\$ 11,000	
		Skilled Labor	Person -	0 S	8,500	S	
		Common Labor	Person	2 S	5,500	\$	
		Carpenter	Person	2 \$	000'6	\$ 18,000	
5)-		Equipment					
		Tools	L.S.	1 \$	15,000	\$ 15,000	
				:			
		Scaffolding	m3	1,000 \$	250	\$	250.000 ((10m x 20m x 5m) =1000m3
		Transportation	L	1 \$	15.000	s	15,000 100km(one way)x2=200km
		Sub total				\$ 737,920	
			:				
		Miscellaneous	L.S	1 \$	295,168	\$ 295,168	
				-			
	Total Cost per 1m3						1,033,088 ((peso/ m3)
	Total/m2					\$ 25,800	25,800 (peso/m2)

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BRCOCRFI-w1.xb

Vo. Name of Rehabilitation	Superstructure	Replacement Cost (Timber Bridge)	Ma	Tim	Nail	Pre-		Paint	Labor	Eng	Fon	Skil	Con		5		The second secon		Scal	ETT.			Sub	Mis		Total Cost per 1m3
Description			Materials	Timber material		1		nt	bor	Engineer	Forman	Skilled Labor	Common Labor	Camenter			Tools		Scaffoldine	Transportation			Sub total	Miscellaneous		
Unit				m3	ц ц	ko	- 	с Н Н		- Person	Person	Person	Person	Person	1	:	L.S.		m3 -	 L.S.		-		L.s		
Ouantity				\$ 1	5 4 .	4				0.5 \$	1 3	0 \$	2	2 \$					1,000 \$	1 5				1 \$		
Unit Cost				355.000	230	4 000						8.500	5,500	000'6			15.000		250	15,000				295,168		
Cost				\$ 355,000	\$ 920	S 16,000	36.000			\$ 10.000	\$ 11,000	S .	\$ 11,000	\$ 18,000			\$ 15,000	-	\$ 250,000	\$ 15,000			s 737.920	\$ 295,168		\$ 1,033,088
Kemarks				355,000 an Oak 40m2x 0.0254m, 1m3															(10m x 20m x 5m) =1000m3	15,000 100km(one way)x2=200km						1,033,088 (peso/ mJ)

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I-5-B. Unit Cost for Repair

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Name of Rehabilitation	Description	UBIC CBIC	Quantity	Unit Cost	Tem	
Superstructure			-			
Replacement Cost (Timber Bridge)	ridge)					
	Materials	•	-	-		
	Timber material	m3	S I	355,000	\$ 355,000	an Oak 40m2x 0.0254m, 1m3
	Nail	к К К	5 7	230	\$ 920	
	Bond	첫	4 S	4,000	\$	
	Paint	kg	8 8	4.500	\$ 36,000	
	Labor					
	Engineer	Person	\$ 5.0 5	20,000	S	
	Forman	Person	. I \$	11,000	\$ 11.000	
	Skilled Labor	Person	0		S	
	Common Labor	Person	2 \$		5 11,000	
	Carpenter	Person	2.3		\$7	
	Equipment					
	Tools	L.S.	1 \$	15,000	\$ 15,000	
				-	-	
	Scaffolding	ξË	1,000 \$	250	5	250.000 (10m × 20m × 5m) =1000m3
	Transportation	Ls	1 \$	15,000	\$	15.000 100km(one way)x2=200km
				-		
	Sub total				\$ 737,920	
	Miscellaneous	· L.S	1	295,168	\$ 295,168	
Total Cost per 1m3			:		s 1.033.088	1.033.088 [(peso/ m3)

I-5-B. Unit Cost for Repair

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	ļ			<				Kemarks
Item No.	Name of Rehabilitation	Description	Cnit	Quantity	Unit Cost			
	Superstructure							
Iw .	r	dzc)					T	
		Materials						
		Timber material	m3	1 5	355	S		an Oak 40m2x 0.0254m, 1m3
		Neil	ķε	4 \$		S	920	
		Bond	кв К	4	4,000	S	16.000	
		Paint	ъ к к	8 8			36.000	
		Labor				_		
		Engincer	Person	0.5 \$			10.000	
		Forman	Person	1 5		s	11.000	
		Skilled Labor	Person	0 \$			•	
		Common Labor	Person	2 \$	5.500		11.000	
		Carpenter	Person	2 \$	000'6	S	18.000	
		Equipment						
		Tools	L.s.	1 \$	15,000	S	15.000	
							000 000	
		Scaffolding	m3	1.000 \$	250	\$	250.000	$\frac{1}{250,000} = (0.000 \times 0.000 \times 0.0000 \times 0.0000 \times 0.00000 \times 0.00000 \times 0.00000 \times 0.000000 \times 0.0000000 \times 0.00000000$
			-			_		
		Transportation	s.1	1 \$	15.000	\$	000.41	15,000 100km(one way)x2=200km
							000 000	
		Sub total				~	/5/,920	
	:	Miscellaneous	L.S	1 \$	295,168	S	295,168	
			-				1.4	
	Total Cost per 1m3					\$ 1.	033,088	1,033,088 (peso/ m3)
						A	75 800	(maca/m)

BRCOCREMM. A

B-3 Substructure

Concrete

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۰.		
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I-5-B. Unit Cost for Repair Breakage/Fallout

		ŀ			4
No.		Kepair Method	Cat	Cost	Kemarks
	Substructure				
	BR				
BR - cl	ł	Shatcrete mortar method	m2	\$4,600	
BR . C		Over Lay method by Concrete	т2	\$5,200	
BR · c3		Dry-pack method	m2	\$19,800	
BR · c4		Pre-pack method	m2	\$13,900	
BR - c5		Patching by cement concrete	m2 -	\$9,200	
		Total : "		\$52,700	
		9		\$8.800	\$8.800 Unit cost of Corrosion/Deterioration repair
	-				
				-	
		· · · · · · · · · · · · · · · · · · ·			

Dumage Unit Cred MPSCBR-coda

I-S-B. Unit Cost for Repair

No.	Corrosion/Decay/Deterioration o. Code of Damage	ation Repair Method	Unit	Cost	Remarks
	Substructure				
	co				
CO - c1		Shatcrete mortar method	щ2	S4,600	
со С		Coating by Cement concrete	m2	\$5,300	
CO - 3		Bituminous coating, Tar coating	엁	S3,400	
•					
CO • 64		Coating by linsced oil	m2	\$2,700	
CO - 65		Dry-pack method	m2	\$19,800	
<u>co - có</u>		Pre-pack method	m2 -	\$13,900	
		Total		\$49,700	
		Averace		\$8.300	58.300 Unit cost of Corrosion/Deterioration repair
			:		
				• •	

Dumage Unit Cost NPSChReptin

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Substructure c1 CR c1 CR c3 c4 c5 c6 C3 C4 C5 C4 C5 C4 C5 C6 C6 C7 Caulking C6 C1 C1 C1 C1 C1 C2 C3 C4 C5 C4 C5 C6 C6 C1 C1 C1 C3 C3 C4 C5 C4 C5 C6 C6 C7 C3 C3 C4 C4 C4 C5 C4 C5 C6 C6 C6 C7 C3 C4 C4 C5 C6 C6 C6 <t< th=""><th>No.</th><th>Code of manake</th><th>TATENTAT ITRACAN</th><th></th><th></th><th></th></t<>	No.	Code of manake	TATENTAT ITRACAN			
CR Injection Crack m2 • c1 Injection Crack m2 • c3 Shotcrete mortar method m2 • c4 Caulking by Elastometric scaltr m2 • c5 Drypack method m2 • c6 Drypack method • c6 <td< th=""><th></th><th>Substructure</th><th></th><th></th><th></th><th></th></td<>		Substructure				
• e1 Injection Crack m2 • 22 Shotscrete mortar method m2 • 63 Shotscrete mortar method m2 • 64 Caulking by Elastometic seater m2 • 65 Caulking by Ilastometic seater m2 • 66 Dry-pack method m2 • 66 Dry-pack method m2 • 76 Dry-pack method m2 • 76 Stistching by steel bar m2 • 70 Average m2 • 70 Average m2 • 1 N N						
• c2 Shotcrete mortar method m2 • c3 Caulking by Elastometric scaler m2 • c4 Drypack method m2 • c5 Drypack method m2 • c6 Sitistiching by steel bar m2 • c6 Average m2 • c6 Sitistiching by steel bar m2 • c7 Sitistiching bar Sitistiching bar <tr< td=""><td>•</td><td></td><td>Injection Crack</td><td>m2</td><td>\$46,000</td><td></td></tr<>	•		Injection Crack	m2	\$46,000	
• 62 Shotcrete mortar method m2 • 63 Caulking by Elastomeric scaler m2 • 64 Drypack method m2 • 65 Drypack method m2 • 66 Stistching by steel bar m2 • 7 Total m2 • 1 Total m2 • 1 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
• c3 Caulking by Elastomeric scaler m2 • c4 Dry-pack method m2 • c5 Dry-pack method m2 • c6 Average Average • c6 Dry Dry • c7 Dry Dry • c6 Dry Dry • c7 Dry Dry • c6 Dry Dry • c7 Dry Dry •	•		Shotcrete mortar method	ш2	\$4,300	
• c3 Caulking by Elastometric scaler m2 • c4 Caulking by mortar/concrete m2 • c5 Drypack method m2 • c6 Average m2 • c6 Drypack method m2 • c6 Average m2 • c6 Average m2 • c6 Average m2 • c6 Drypack method m2 • c6 Average m2 • c6 Average m2 • c7 Average m2 • c6 Drypack method m2 • c6 Average m2 • c7 Drypack method m2 • c8 Average m2 • c9 Average m2 • c9 Brypack method m2 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
• e4 • e4 • c5 • c5 • c5 DDy-pack method • c6 m2 • c6 m3 • c	1		Caulking by Elastomeric sealer	m2	\$28,700	
• e4 Caulting by mortar/concrete m2 • e5 Dry-pack method m2 • e6 Stistching by steel bar m2 • 1 Average m2				-		
· c5 ·	•		Caulking by mortar/concrete	m2	\$24,500	
- c6 Statistication of the second sec	•			[m2	S19,900	
- c6 Statiching by steel bar m2 1 10al 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
	۰ ا		Stistching by steel bar	m2	S28,300	
			1		\$151,700	
			lge -		\$25,300	Unit cost of crack repair
				•		
	:					
				:		
				×		

Stobstructure Substructure mode 54.600 SC - c1 Over Lay method mod 53.300 SC - c2 Der Lay method mod 51.300 SC - c4 Pre-pack method mod 51.300 SC - c4 Der-pack method mod 51.300 SC - c4 Preching by cement concrete mod 51.300 SC - c4 Der-pack method mod 51.300 SC - c4 Preching by cement concrete mod 55.200 Average Average 55.300 Unit Cost of Scating	27 C7 C7					
sc shotcrete Inortar method m2 - c2 Over Lay method by concrete m2 - c3 Dry-pack method m2 - c4 Dry-pack method m2 - c5 Patching by cement concrete m2 - c6 Average m2	5 3 5	Substructure				
Shotcrete mortar menod m2 Over Lav method by concrete m2 Pre-pack method m2 Dry-pack method m2 Average m2 Average m2 Iotal m2				- - - -	CA KOD	
Over Lay method by concrete m2 Pre-pack method m2 Dry-pack method m2 Patching by cement concrete m2 Total Average Average average			Shotcrete mortar method	Ž	000***	
Pre-pack method m2 Dry-pack method m2 Patching by cement concrete m2 Average m2			Over Lay method by concrete	а З	\$5.300	
Dry-pack method m2 Patching by cement concrete m2 Total Average Average	- 1		Pre-pack method	a 1	\$13,900	
Patching by cement concrete m2 Patching by cement concrete m2 Average Average			T	· .	\$19,800	
Patching by cement concrete m2 Total Total Average Average			DTY-pack mention			
	. S		Patching by cement concrete	m2	\$9.200	
			18 1919	-	\$52,800	
			Average	•		Unit Cost of Scaling
				-i		
						، مواند المالية المالية موانية المالية ا
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Demage Unit Cost SPSCBRecola

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Remarks																18								
								-								S6,500 Unit cost of Spalling and scaling								
Cost		\$4.600	\$5,300	\$3,400	·• ·	\$2,700	\$13,900		\$9,200						S39,100	S6,500 U								
Unit	Ī	m2	 	 - -						 			:					•			- - -			
Repair Method		Shatcrete mortar method	Coating by Cement concrete	Bituminous coating, Tar coating		Coating by linseed oil	Pre-pack method		Patching by cement concrete						Total	Average								
Code of Damage	Approximents							-			-													
No.		SP - c1	SP . 2	SP · G		SP . 24	SP - c5		SP - c6															

e Unit Con NPACHR-code

Cost Remarks			nnk'ste	\$13.900	S5:300			\$39.100	\$13,000											
Vnit		-	78	m2 \$	m2	ļ.		 								-				
Repair Method			Dry-Pack method	Over Lay method by concrete	Dramathod			Total	Average									:		
Code of Damage	Substructure	WE																		
No.			WE · cl	WE - c2		WE . C								1						

Demage Unit Cost NPSCBR 44Ab

B-3 Substructure

Steel

Remarks								superstructure																		
Cost		\$18.100	\$31,000	\$30 300			\$79,400	\$26,500 Unit cost of superstructure																		
Unit		m2	m2	í															-							
Repair Method		Ston hole method	Gusset plate Welding method	Course block created by bole mothod	Cussed prate inglicate angli and month		Total	Average																		
to. Code of Damage	Substructure	YQ		:						 :																
No.		RR - m1	BR - m2		CIII - VIO																					
, 			 - - -		- 	- 			• •••• •	(1	-5)-3	51	. :	;	-	• •	• .		*	**	•	4	<u>-</u>	_	.#.

Kor-M Damage Unit Coscolis

air	Comology Massin Materiation
Repair	ļ
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I-5-B. Unit Cost for	1
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	Kemary																						
	Cost		\$32.300	\$5.600	\$5.700	000 95	2007	\$49,600	\$12,400														
-	Unit		m2	m2	m2		1								ĺ								
	Repair Method		Replace Method	Repainting	Repainting	Daariasias		Total	Average														
Corrosion/Decay/Deterioration	Code of Damage															-							
Corro	No.	CO	CO - m1	CO - m2	CO • m3																	:	

Kor-M thermage Unix Concide

r Repair		
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Unit Cost		
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I-5-B.	Cracl	

					Demerals
N0.	Code of Damage	Kepair of MWIDOD		COST	VCIIIBLAS
	Substructure				
	CR				
	•				
CR - mI		Re-welding	m2	\$14.900	
ça d		Gueser alate welding method	Cm C	\$28,300	
· I ·					
CR - m3		Gusset plate high strength bolt method	m2	\$30.300	
		Total		\$73.500	
		Average		\$24.500	
				•	

(1-5)-33

Deformation of member to. Name of Repair	Description	Unit	Ouantity	Cost	Amount	Remarks
method						
	Material				-	
	Paint	kg	1	s 5,800	\$ 5.800	
	Labor					
	Technical Engineer	person	1	s 20,000	\$ 20.000	
İ	Forman	person	1	\$ 11,000	\$ 11,000	
	Skilled Labor	person	3	s 8.500	\$ 25,500	
	Common Labor	person	1	s 5,500		· · · · · · · · · · · · · · · · · · ·
	Equipment					
	Jack	cach	2	\$ 50,000	\$ 100,000	
	Hydraulic Crane	cach	1	\$ 80,000	\$ 80	
	H Beam300 x 300 x 6000	cach	2	\$ 300	\$	
	H Bcam200 x 200 x 1500	each			S	
	Wooden beam 150x150	cach	4	S 100	Ş	
	Hammer	cach	2	s 1.500	S S	
	Acetylene Welder	each	1	\$ 35,000	\$	
:	Tools in the second second	L.S	1	s 15,000	S 15,000	
	Scaffolding	- m3	25	\$ 250	S 6.250	6.250 10m x 1m x 2.5m =25m3
	Transportation	L.S	2	\$ 15,000	\$ 30,000	
		2				
					\$ 338,450	
		- <u>-</u>				
	Miscellaneous	LLS	1	\$ 135,380	\$ 135,380	
					\$ 473,830	
					\$ 473,800	

Nus-M Demage Unit Concuts

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I.S.B. Unit Cost for Repair

I-5-B Unit Cost for Repair Frosion of bank around abu

FLOSI	LTOSION OI DANK AFOUND ADUUMENT AND PIET	putment and pict			
No.	Code of Damage	Repair Method	Cait	Cost	Kemarks
	Substructure				
	ER				
ER - cmtl		Gabion Method	m2	\$ 22,600	
				-	
ER - cmt2		Block Method	m2	\$ 45,600	
ER - cmt3		Concrete Slab Method	m2	\$ 38,900	
			1	-	
ER - cmt4		Framed Gabion Method	m2	\$ 47.900	
}					
ER - cmt5		Frame Method	п2 12	\$ 45,100	
		Total of Cost		S 200,100	
		Average		S 40.000	
				1	

shelf-fame-Hit

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B-3 Substructure

Timber

Repair	
for	
Cost	
Unit	
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Item No. Name of Rehabilitation	Description	Unit	Ouantity	Unit Cost	Cost		Remarks
Subs							
w1 Replacement Cost (Timber Bridge)	idge)						
	Materials						
	Timber material	m3	1	\$ 355,000	\$	\$55.000 a	355.000 an Oak 40m2x 0.0254m, 1m3
	Nail	kg	4 S	5 230	\$	920	
	Bond	kg	4 \$	\$ 4,000	S	16,000	
	Paint	kg	80	\$ 4.500	S	36.000	
	Labor						
	Engineer	Person	0.5	\$ 20,000	S.	10,000	
	Forman	Person	1 5	11.000	S	11,000	
	Skilled Labor	Pcrson	\$ 0	\$ \$,500	S	ί.	
	Common Labor	Pcrson	- 2 ·S		\$	11,000	
	Carpenter	Person	. 2	S 9,000	S	18,000	
	Equipment						
	Tools	L.S.	1 5	\$ 15,000	. S.	15.000	
	Scaffolding	m3	100	\$ 250	S	25.000 (25.000 ((10m x 1m x 5m)x2 =100m3
	Transportation	L.S	1 5	\$ 15,000	S	15,000 1	15.000 100km(one way)x2=200km
	Sub total				\$ \$	512,920	
						-	
	Miscellaneous	LS	1 5	\$ 205.168	S	205,168	
						_	
			· · ·				
Total Cost per 1m3					S 7	718.088 (peso/ m3)	peso/ m3)

Vo. Name of Rehabilitation	Description	Unit	Quantity	Unit Cost	Cost	Remarks
Substurcture						
w1 Replacement Cost (Timber Bridge)	ridge)					
	Materials					
	Timber material	m3	\$ 1	355,000	\$ 355,000	355,000 an Oak 40m2x 0.0254m, 1m3
	Nail	ķ	4	230	\$ 920	
	Bond	, Я	4	\$ 000 \$		
	Paint	પ્રં	8	4,500 \$	36.000	
	Labor					
	Encineer	Person	\$ 50	20.000 \$	10,000	
	Forman	Person	1 5	11,000 \$	11,000	
	Skilled Labor	Person	\$ 0 .	8.500 \$		
	Common Labor	Person	2 \$	5.500 \$	11.000	
-	Camenter	Person -		8 000'6		
	Fauinment					
	Tools	L.S.	1 S	15,000 \$	15,000	
	Scaffolding	бщ	100 \$	250 \$	25,000	$(10m \times 1m \times 5m) \times 2 = 100m3$
	Transportation	Ľ.s.	15	15,000 \$		15,000 100km(one way)x2=200km
	Sub total				512,920	
	Miscellaneous	Ls	1 8	205,168 \$	205.168	
Total Cost per 1m3				\$		718.088 (pcso/ m3)
		The second se				

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t Cost for Repair	
I-5-B. Unit	Crack

					1 1- in O		Damaric	
Item No.	Name of Kenabilitation	nescription		Cuanuy		1001	CYTMINY	
	Substarcture							
CR • w1	Replacement Cost (Timber Bridge)	idge)						
		Materials						+
		Timber material	m3	S I	355,000	\$ 355,000	an Oak 40m2x 0.0254m. 1m3	
		Nail	kc	4 S	230	S 920		
		Bond	kg	4	4.000	\$ 16,000		
		Paint	kg	8 8		Ş		:
		Labor						
		Engineer	Person	\$ 5.0	20,000	\$ 10,000		
		Forman	Person	1 \$	11,000	\$ 11,000		
		Skilled Labor	Person	\$ 0	8,500	S		
		Common Labor	Person	2	5,500	s 11,000		
		Carpenter	Person	S 2 8	000'6	\$ 18,000		
1-4								-
		Equipment						
		Tools	L	1 5	15,000	\$ 15,000		
		Scaffolding	m3.	100 \$	250	S 25,000	(10m × 1m × 5m)x2 =100m3	
		Transportation	L.S	1 5	15,000	S.	15,000 100km(one way)x2=200km	
		Sub total		· · ·		\$ \$12.920		
		Miscellaneous	L.S	1 \$	205.168	\$ 205,168		
	Total Cost per 1m3					S 718.088	718.088 ((peso/ m3)	
	Total/m2	-				\$ 1S.000	18.000 (peso/m2)	

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Item No.	Name of Rehabilitation	Description	CBI	Ougnary	Unit Cost	COSI	CA IndiAVI
	Substurcture						
Lw -	Replacement Cost (Timber Bridge)	idge)		-			
		Materials					
		Timber material	. m3	5 1	355	S	355,000 an Oak 40m2x 0.0254m, 1m3
		Nail	kg	4 S		\$	
		Bond	kg	4 \$	4	S	
		Paint	3	8	4,500	\$ 36.000	
	*						
*		Labor					
		Engineer	Person	0.5 \$	20,000	\$ 10,000	
		Forman	Person	5 1	11.000	S 11,000	
		Skilled Labor	Person	S 0	8,500		
		Common Labor	Person	2 \$		\$ 11,000	
		Carpenter	Person	2 \$		\$ 18,000	
			· :				
		Equipment					
		Tools	L.S.	1 \$	15.000	\$ 15,000	
			~				
					-		
		Scaffolding	- m3	100 \$	250	\$ 25,000	25.000 ((10m x 1m x 5m)x2 =100m3
		Transportation	L.S	1 3	15.000	S 15.000	15.000 [100km(one way)x2=200km
				-			
		Sub total				\$ 512.920	
		Miscellaneous	Ls	. 1 \$	205,168	\$ 205,168	
				<u></u>			
	Total Cost per 1m3					\$ 718,088	718,088 [(peso/ m3)
Į							

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