

APPENDIX

Appendix A-2 Engineering Data

ROAD LINK DATA

PROVINCE : Sulawesi Selatan

KABUPATEN: Mamuju

LINK NO.	BEGINNING POINT (DESA NAME)	END POINT (DESA NAME)	LENGTH (KM)	THROUGH THE KEC. NAME & LENGTH		REMARKS
				KEC. NAME	LENGTH (KM)	
01	Binanga	Tanjung Aoni	17	Mamuju	17	
01 a	Tanjung Aoni	Kalukku	17	Mamuju	9	I.L.N No. 10
				Kalukku	8	
02	Binanga	Sumare	14	Mamuju	14	
03	Lebani	B o n e	15	Tapalang	15	
03 a	B o n e	Okobatu	12	Tapalang	12	I.L.N No. 11
04	Kalukku	KM. 15	15	Kalukku	15	
04 a	KM. 15	KM. 30	15	Kalukku	6	I.L.N No. 12
				Kelumpang	9	
04 b	KM. 30	Bonehau	15	Kalumpang	15	I.L.N No. 13
05	Bonehau	Tamalea	13	Kalumpang	13	
05 a	Tamalea	Kalumpang	24	Kalumpang	24	I.L.N No. 14
06	Kalumpang	Dimkang	10	Kalumpang	10	
06 a	Dimkang	B u t u	12	Kalumpang	12	I.L.N No. 15
06 b	B u t u	B a u	11	Kalumpang	11	I.L.N No. 16
06 c	B a u	Karama	13	Kalumpang	13	I.L.N No. 17
07	Kalukku	Pangale	38	Kalukku	38	
08	Pangale	Babana	25	Kalukku	4	
				Budong-budong	21	
09	Babana	Karossa	49	Budong-budong	49	

Please note the priority No. in the Remarks of this list for each links No. according to the each Kabupaten's development plan.

I.L.N = Input Link Number.

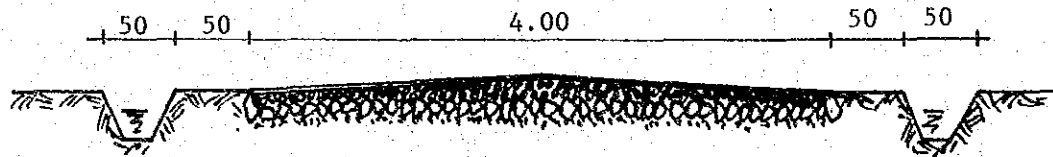
What Kind of Design Criteria has being applied for the new road construction and the improvement for the Kabupaten Road ?

Kriteria Perencanaan yang dipakai pada program penanganan jalan Kabupaten, baik untuk jalan lama maupun pembangunan baru.

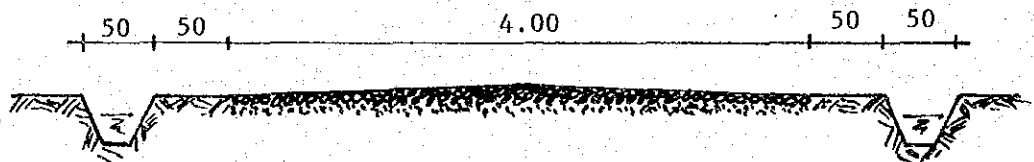
Please draw the Typical Cross Section of the Kabupaten Road.

Buat gambar dan penjelasan dari: Typical cross section yang dipakai pada program penanganan jalan selama ini (baik untuk jalan lama, maupun pembangunan baru)

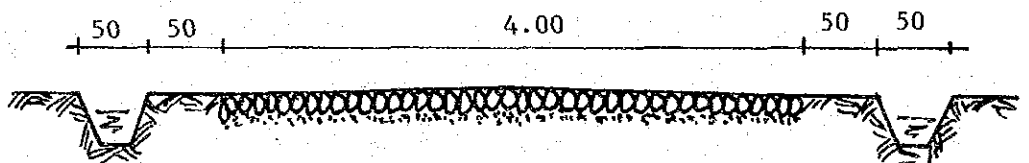
TYPICAL CROSS SECTION.



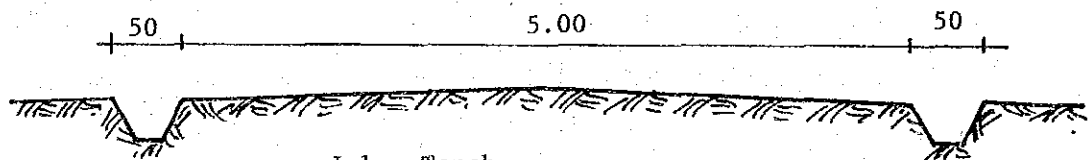
Jalan Asphalt



Jalan Kerikil/Awcaas



Jalan Macadam/Batu belah



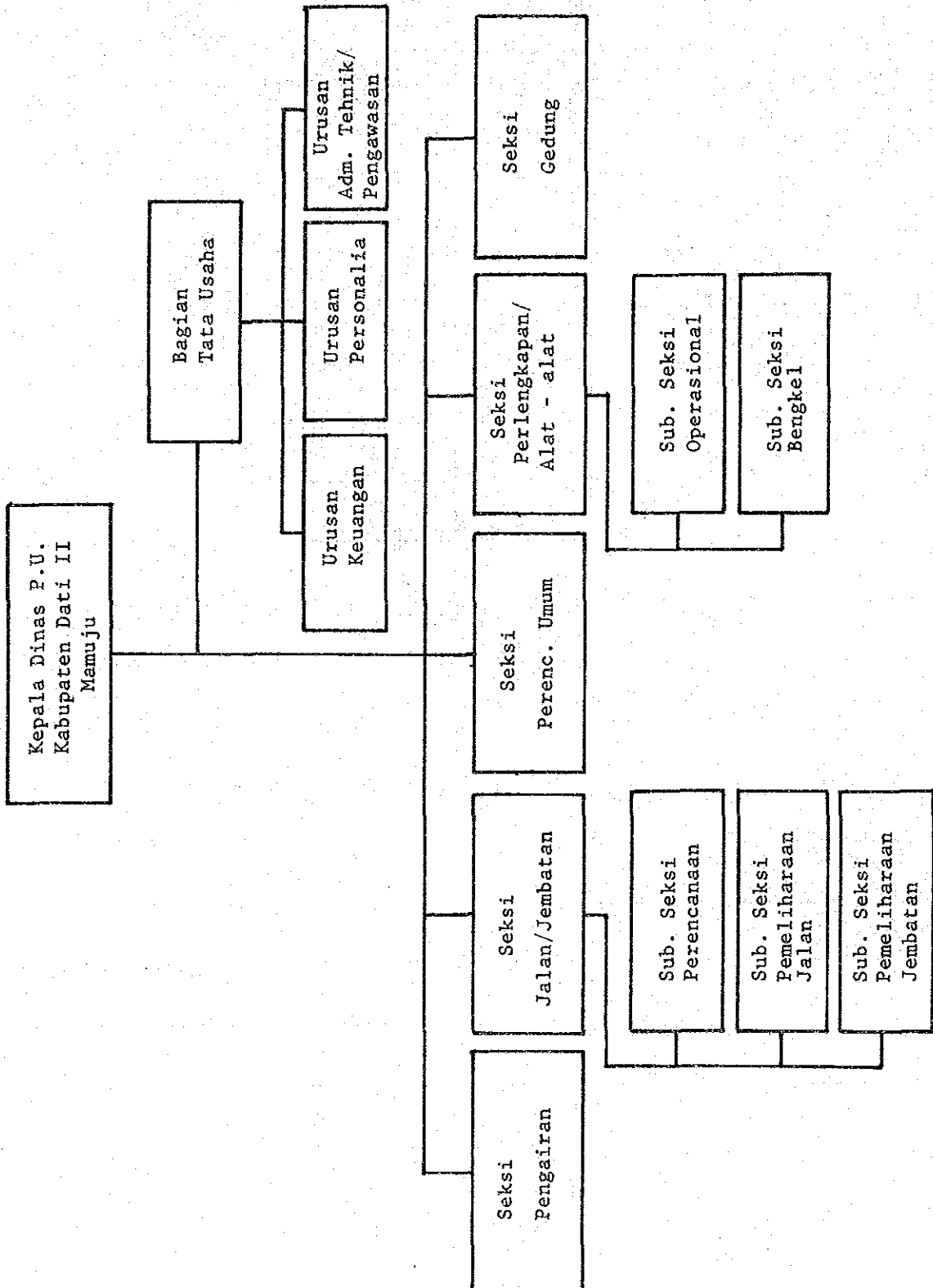
Jalan Tanah

EXISTING ORGANIZATION IN KABUPATEN

Struktur Organisasi yang ada dari P.U Kabupaten

Please draw the Cart of the Existing Organization in the Kabupaten.

Harap digambar bagan organisasi dari DPUK.



EXISTING STAFF RESOURCES OF BINA MARGA OF PU KABUPATEN

Tenaga Dinas PUK yang ada

PROPINSI: Sulawesi Selatan

KABUPATEN: Mamuju

DESCRIPTION /Uraian	NUMBER / Jumlah	REMARKS Keterangan
CONTROLLING STAFF Staff teknis. PUK	<u>(5)</u>	<u>(5)</u>
DPUK ENGINEER Sarjana Teknik	-	-
ASSISTANT ENGINEER Sarjana Muda Teknik	1	1
TECHNICIAN STAFF Staff Teknik (STM)	4	4
ADMINISTRATION Tenaga Administrasi	4	2
SUPERVISOR Tenaga Pengawas	5	2
WORKING FORCE Tenaga Pelaksana Lapangan	<u>(23)</u>	<u>(1)</u>
OPERATORS Operators	2	1
DRIVERS Supir	2	-
MECHANICS Mechanic	-	-
TRADESMAN Tukang	3	-
L A B O U R Buruh / Pekerja	15	-
OTHERS Lain-lain	1	-
TOTAL / JUMLAH	37	10

Gatatan ; Untuk kolom keterangan harap diisi berapa orang yang telah mendapat Training.

LOCATION AND AREA OF DPUK WORKSHOP

E-06

Lokasi Workshop DPUK

PROPINSI : Sulawesi Selatan

KABUPATEN: Mamuju

LOCATION Lokasi	AREA (m2) Luas	NUMBER Jumlah	REMARKS Keterangan
Desa Bimanga	20.000	1	

PROPINSI: Sulawesi Selatan

E-07

KABUPATEN: Mamuju

LAND ACQUISITION COST

Daftar harga pembebasan tanah

DESCRIPTION Uraian	UNIT Satuan	RATE (RP) Harga	REMARKS Keterangan
CITY/kota	M2	2,500	
VILLAGE / desa	M2	1,200	
RICE FIELD/sawah	M2	75	
DRY FIELD/ladang	M2	75	
MIX CROPS/panen	M2	75	
FOREST/hutan	M2	45	
SWAMP / rawa	M2	50	
OTHERS / lain-lain	M2	-	

LIST OF EXISTING EQUIPMENT OF LOCAL CONTRACTOR

Name of contractor

NAME OF EQUIPMENT Jenis peralatan	EXISTING CONDITION/ Kondisi Peralatan					REASON OF BAD CONDIT TION/Sebab Kerusakan	REQUIRE - MENT / Ke- butuhan peralatan baru
	TYPE/ Tipe	P. Y	NUMBER / Jumlah				
			GOOD Baik	BAD Rusak	TOTAL Jumlah		
Bulldozer	D 65 A	1984	2	-	2	-	4
Motor Grader	GD 600 R	1983	1	-	1		3
Tyre Roller							
Steel Whell Roller							
Vibration Roller							
Wheel Loader	W 70	1983	2	-	2		5
Front End Loader and Backhoe							
Mobile Crane							1
Concrete Mixer							1
Stone Crusher							1
Portable Compressor							
Hydraulic Excavator							1
Asphalt Paving Machine							2
Asphalt Sprayer							3
Asphalt Mixing Machine							2
Mobile Workshop							1
Mechanic Rammer							
Plate Tamper							
Pile Driver							
Leg Drill							
Hand Hammer							2
Farm Tractor							
Dump Truck	Toyota	1982	10	-	10		10
Water Tank Truck							2
Fuel Tank Truck							2
Pick Up		1982	5	1	6		2
Jeep		1979	10	-	10		2
Motorcycle							
Generator		1980	5	-	5		3
Water Pump		1982	7	-	7		3
Others							
-							

LIST OF EXISTING EQUIPMENT OF P.U KABUPATEN

NAME OF EQUIPMENT Jenis peralatan	EXISTING CONDITION/ Kondisi Peralatan					REASON OF BAD CONDT TION/Sebab Kerusakan	REQUIRE - MENT / Ke- butuhan peralatan baru
	TYPE/ Tipe	P.Y	NUMBER / Jumlah				
			GOOD Baik	BAD Rusak	TOTAL Jumlah		
Bulldozer							3
Motor Grader							2
Tyre Roller							2
Steel Wheel Roller							1
Vibration Roller							2
Wheel Loader							2
Front End Loader and Backhoe							1
Mobile Crane							1
Concrete Mixer							1
Stone Crusher							1
Portable Compressor							1
Hydraulic Excavator							1
Asphalt Paving Machine							1
Asphalt Sprayer	ES-GD-3K	1984	1	-	1		2
Asphalt Mixing Machine							1
Mobile Workshop							1
Mechanic Rammer							1
Plate Tamper							1
Pile Driver							1
Leg Drill							1
Hand Hammer							1
Farm Tractor							1
Dump Truck							10
Water Tank Truck							1
Fuel Tank Truck							3
Pick Up	Chevrolet	1984	1	-	1		2
Jeep							1
Motorcycle							3
Generator							3
Water Pump							3
Others							3
							1

Appendix A-3

CONSTRUCTION AND MAINTENANCE COST FOR PROPOSED ROAD LINKS

PROV : SULAWESI SELATAN KAB : MAMUJU
 LINK NO : 11 (IIIC) LENGTH : 12 Km
 UPGRADE : 7.0m road bed, 4.0m road with surface Subbase Course
 (Rp)

ITEM	UNIT	QUANTITY	UNIT COST		COST		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m ²	0.0	187	91	0	0	0	
Subgrade Preparation	m ²	84000.0	24	11	2,016,000	924,000	2,940,000	
Normal Fill	m ³	0.0	1,939	865	0	0	0	
Fill in Swamp	m ³	17850.0	2,828	1,055	50,479,800	18,831,750	69,311,550	
Normal Excavation to Spoil	m ³	1920.0	1,131	524	2,171,520	1,006,080	3,177,600	
Sub Base Course	m ³	7680.0	3,631	1,351	27,886,080	10,375,680	38,261,760	
Base Course	m ³	0.0	4,978	2,303	0	0	0	
Shoulder	m ²	36000.0	338	146	12,168,000	5,256,000	17,424,000	
Asphalt Patching	m ²	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m ²	0.0	617	544	0	0	0	
Surface Dressing (Double)	m ²	0.0	778	855	0	0	0	
Earth Drain	m	2400.0	833	119	1,999,200	285,600	2,284,800	
Earth Drain in Swamp (by machine)	m ³	30000.0	1,330	475	39,900,000	14,250,000	54,150,000	
Pipe Culvert (80cm)	m	0.0	41,405	43,777	0	0	0	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m ²	0.0	14,893	246	0	0	0	
Retaining Wall and Wing Wall (Masonry)	m ³	0.0	41,223	11,706	0	0	0	
Gabion Protection	m ³	0.0	8,525	121	0	0	0	
New Bridge (Timber)	SET	1.0	--	--	89,603,646	7,810,314	97,413,960	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					Sub Total	226,224,246	58,739,424	284,963,670
Overhead (15%)						33,933,636	8,810,913	42,744,549
					TOTAL COST	260,157,882	67,550,337	327,708,219

Manual routine maintenance of road	Km	12.0	131,948	7,260	1,583,376	87,120	1,670,496
Routine maintenance of gravel road	Km	12.0	216,507	88,186	2,598,084	1,058,232	3,656,316
			Sub Total		4,181,460	1,145,352	5,326,812
Maintenance of Timber Bridge (New)	m ²	780.0	9,584	1,177	7,475,520	918,060	8,393,580
Maintenance of Concrete Bridge (New)	m ²	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m ²	0.0	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m ²	0.0	4,914	2,390	0	0	0

Earthwork & Pavement Unit Cost (Rp/Km)	:	17,973,514
Timber Bridge Unit Cost (Rp/m ²)	:	143,623
Concrete Bridge Unit Cost (Rp/m ²)	:	
Survived Value (Rp)	:	15,304,704
Maintenance Rate without Bridge (X)	:	2.47
New Bridge Cost Rate (X)	:	34.18

PROV : SULAWESI SELATAN KAB : MANUJU

LINK NO : 12 (IIIC) LENGTH : 15 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course (Rp)

I T E M	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m2	0.0	187	91	0	0	0	
Subgrade Preparation	m2	0.0	24	11	0	0	0	
Normal Fill	m3	0.0	1,939	865	0	0	0	
Fill in Swamp	m3	0.0	2,828	1,055	0	0	0	
Normal Excavation to Spoil	m3	0.0	1,131	524	0	0	0	
Sub Base Course	m3	652.0	3,631	1,351	2,367,412	880,852	3,248,264	
Base Course	m3	3600.0	4,978	2,303	17,920,800	8,290,800	26,211,600	
Shoulder	m2	30000.0	338	146	10,140,000	4,380,000	14,520,000	
Asphalt Patching	m2	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m2	0.0	617	544	0	0	0	
Surface Dressing (Double)	m2	0.0	778	855	0	0	0	
Earth Drain	m	0.0	833	119	0	0	0	
Earth Drain in Swamp (by machine)	m3	0.0	1,330	475	0	0	0	
Pipe Culvert 80x80cm	m	98.0	41,405	43,777	3,726,450	3,939,930	7,666,380	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m2	0.0	14,093	246	0	0	0	
Retaining Wall and Wing Wall (Masonry)	m3	0.0	41,223	11,706	0	0	0	
Gabion Protection	m3	0.0	8,525	121	0	0	0	
New Bridge (Timber)	SET	1.0	--	--	124,275,592	11,631,844	135,907,436	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					Sub Total	158,430,254	29,123,426	187,553,680
Overhead (15%)						23,764,538	4,368,513	28,133,051
					TOTAL COST	182,194,792	33,491,939	215,686,731

Manual routine maintenance of road	Km	15.0	131,948	7,260	1,979,220	108,900	2,088,120
Routine maintenance of gravel road	Km	15.0	216,507	88,186	3,247,605	1,322,790	4,570,395
			Sub Total		5,226,825	1,431,690	6,658,515
Maintenance of Timber Bridge (New)	m2	952.0	9,584	1,177	9,123,968	1,120,504	10,244,472
Maintenance of Concrete Bridge (New)	m2	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.0	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	124.0	4,914	2,390	609,336	296,360	905,696

Earthwork & Pavement Unit Cost (Rp/Km)	:	3,959,545
Timber Bridge Unit Cost (Rp/m2)	:	164,174
Concrete Bridge Unit Cost (Rp/m2)	:	
Survived Value (Rp)	:	1,299,305
Maintenance Rate without Bridge (X)	:	11.21
New Bridge Cost Rate (X)	:	72.46

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 10 (IIIC) LENGTH : 17 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course (Rp)

ITEM	UNIT	QUANTITY	UNIT COST		COST		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m2	0.0	187	91	0	0	0	
Subgrade Preparation	m2	30000.0	24	11	720,000	330,000	1,050,000	
Normal Fill	m3	200.0	1,939	865	387,800	173,000	560,800	
Fill in Swamp	m3	0.0	2,028	1,055	0	0	0	
Normal Excavation to Spoil	m3	980.0	1,131	524	1,108,380	513,520	1,621,900	
Sub Base Course	m3	3766.0	3,631	1,351	13,674,346	5,087,866	18,762,212	
Base Course	m3	2880.0	4,978	2,303	14,336,640	6,632,640	20,969,280	
Shoulder	m2	34000.0	338	146	11,492,000	4,964,000	16,456,000	
Asphalt Patching	m2	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m2	0.0	617	544	0	0	0	
Surface Dressing (Double)	m2	0.0	778	855	0	0	0	
Earth Drain	m	0.0	833	119	0	0	0	
Earth Drain in Swamp (by machine)	m3	0.0	1,330	475	0	0	0	
Pipe Culvert 80cm	m	78.0	41,405	43,777	3,229,590	3,414,606	6,644,196	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m2	200.0	14,893	246	2,978,600	49,200	3,027,800	
Retaining Wall and Wing Wall (Masonry)	m3	22.4	41,223	11,706	923,395	262,214	1,185,609	
Gabion Protection	m3	200.0	8,525	121	1,705,000	24,200	1,729,200	
New Bridge (Timber)	SET	1.0	--	--	0	0	0	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					50,555,751	21,451,246	72,006,997	
Overhead (15%)					7,583,362	3,217,686	10,801,048	
					TOTAL COST	58,139,113	24,668,932	82,808,045

Manual routine maintenance of road	Km	17.0	131,948	7,260	2,243,116	123,420	2,366,536
Routine maintenance of gravel road	Km	17.0	216,507	88,186	3,680,619	1,499,162	5,179,781
					5,923,735	1,622,582	7,546,317
Maintenance of Timber Bridge (New)	m2	0.0	9,584	1,177	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	568.0	9,297	2,433	5,280,696	1,381,944	6,662,640
Maintenance of Concrete Bridge (Exist)	m2	116.0	4,914	2,390	570,024	277,240	847,264

Earthwork & Pavement Unit Cost	(Rp/Km)	:	4,871,062
Timber Bridge Unit Cost	(Rp/m2)	:	
Concrete Bridge Unit Cost	(Rp/m2)	:	
Survived Value	(Rp)	:	7,504,884
Maintenance Rate without Bridge	(%)	:	9.11
New Bridge Cost Rate	(%)	:	

PROV : SULAWESI SELATAN KAB : MANUJU

LINK NO : 5 (IIIC) LENGTH : 13 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Site Clearance in Light Bush	m ²	0.0	187	91	0	0	0
Subgrade Preparation	m ²	0.0	24	11	0	0	0
Normal Fill	m ³	0.0	1,939	865	0	0	0
Fill in Swamp	m ³	0.0	2,828	1,055	0	0	0
Normal Excavation to Spoil	m ³	0.0	1,131	524	0	0	0
Sub Base Course	m ³	1326.0	3,631	1,351	4,814,706	1,791,426	6,606,132
Base Course	m ³	3120.0	4,978	2,303	15,531,360	7,185,360	22,716,720
Shoulder	m ²	26000.0	338	146	8,788,000	3,796,000	12,584,000
Asphalt Patching	m ²	0.0	3,699	1,339	0	0	0
Surface Dressing (Single)	m ²	0.0	617	544	0	0	0
Surface Dressing (Double)	m ²	0.0	778	855	0	0	0
Earth Drain	m	10400.0	833	119	8,663,200	1,237,600	9,900,800
Earth Drain in Swamp (by machine)	m ³	0.0	1,330	475	0	0	0
Pipe Culvert 80cm	m	0.0	41,405	43,777	0	0	0
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0
Retaining Wall and Wing Wall (Timber)	m ²	0.0	14,893	246	0	0	0
Retaining Wall and Wing Wall (Masonry)	m ³	0.0	41,223	11,706	0	0	0
Gabion Protection	m ³	0.0	8,525	121	0	0	0
New Bridge (Timber)	SET	1.0	--	--	110,434,158	11,497,948	121,932,106
New Bridge (Concrete)	SET	1.0	--	--	0	0	0
			Sub Total		148,231,424	25,508,334	173,739,758
Overhead (15%)					22,234,713	3,826,250	26,060,963
			TOTAL COST		170,466,137	29,334,584	199,800,721

Manual routine maintenance of road	Km	13.0	131,948	7,260	1,715,324	94,380	1,809,704
Routine maintenance of gravel road	Km	13.0	216,507	88,186	2,814,591	1,146,418	3,961,009
			Sub Total		4,529,915	1,240,798	5,770,713
Maintenance of Timber Bridge (New)	m ²	692.0	9,584	1,177	6,632,128	814,484	7,446,612
Maintenance of Concrete Bridge (New)	m ²	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m ²	0.0	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m ²	0.0	4,914	2,390	0	0	0

Earthwork & Pavement Unit Cost (Rp/Km)	:	4,582,985
Timber Bridge Unit Cost (Rp/m ²)	:	202,633
Concrete Bridge Unit Cost (Rp/m ²)	:	
Survived Value (Rp)	:	2,642,452
Maintenance Rate without Bridge (X)	:	9.69
New Bridge Cost Rate (X)	:	70.18

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 4 (IIIC) LENGTH : 15 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m ²	0.0	187	91	0	0	0	
Subgrade Preparation	m ²	0.0	24	11	0	0	0	
Normal Fill	m ³	0.0	1,939	865	0	0	0	
Fill in Swamp	m ³	0.0	2,828	1,055	0	0	0	
Normal Excavation to Spoil	m ³	0.0	1,131	524	0	0	0	
Sub Base Course	m ³	596.0	3,631	1,351	2,164,076	805,196	2,969,272	
Base Course	m ³	3600.0	4,978	2,303	17,920,800	8,290,800	26,211,600	
Shoulder	m ²	30000.0	338	146	10,140,000	4,380,000	14,520,000	
Asphalt Patching	m ²	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m ²	0.0	617	544	0	0	0	
Surface Dressing (Double)	m ²	0.0	778	855	0	0	0	
Earth Drain	m	0.0	833	119	0	0	0	
Earth Drain in Swamp (by machine)	m ³	0.0	1,330	475	0	0	0	
Pipe Culvert Ø80cm	m	90.0	41,405	43,777	3,726,450	3,939,930	7,666,380	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m ²	0.0	14,893	246	0	0	0	
Retaining Wall and Wing Wall (Masonry)	m ³	0.0	41,223	11,706	0	0	0	
Gabion Protection	m ³	0.0	8,525	121	0	0	0	
New Bridge (Timber)	SET	1.0	--	--	47,884,066	4,348,648	52,232,714	
New Bridge (Concrete)	SET	1.0	--	--	19,463,311	11,216,259	30,679,570	
					Sub Total	101,298,703	32,980,833	134,279,536
Overhead (15%)						15,194,805	4,947,124	20,141,929
					TOTAL COST	116,493,508	37,927,957	154,421,465

Manual routine maintenance of road	Km	15.0	131,948	7,260	1,979,220	108,900	2,088,120
Routine maintenance of gravel road	Km	15.0	216,507	88,186	3,247,605	1,322,790	4,570,395
			Sub Total		5,226,825	1,431,690	6,658,515
Maintenance of Timber Bridge (New)	m ²	384.0	9,584	1,177	3,680,256	451,968	4,132,224
Maintenance of Concrete Bridge (New)	m ²	45.0	2,045	2,726	92,025	122,670	214,695
Maintenance of Timber Bridge (Exist)	m ²	220.0	9,297	2,433	2,045,340	535,260	2,580,600
Maintenance of Concrete Bridge (Exist)	m ²	100.0	4,914	2,390	491,400	239,000	730,400

Earthwork & Pavement Unit Cost (Rp/Km)	:	3,938,156
Timber Bridge Unit Cost (Rp/m ²)	:	156,426
Concrete Bridge Unit Cost (Rp/m ²)	:	784,033
Survived Value (Rp)	:	13,496,873
Maintenance Rate without Bridge (%)	:	11.27
New Bridge Cost Rate (%)	:	61.75

PROV : SULAWESI SELATAN KAB : MANUJU

LINK NO : 3 (IIC) LENGTH : 15 Km

UPGRADE : 7.0m road bed, 4.0m road with surface Subbase Course

(Rp)

I T E M	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		>>>>> TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m ²	0.0	187	91	0	0	0	
Subgrade Preparation	m ²	105000.0	24	11	2,520,000	1,155,000	3,675,000	
Normal Fill	m ³	0.0	1,939	865	0	0	0	
Fill in Swamp	m ³	17850.0	2,828	1,055	50,479,800	18,031,750	69,311,550	
Normal Excavation to Spoil	m ³	2400.0	1,431	524	2,714,400	1,257,600	3,972,000	
Sub Base Course	m ³	9600.0	3,631	1,351	34,857,600	12,969,600	47,827,200	
Base Course	m ³	0.0	4,978	2,303	0	0	0	
Shoulder	m ²	45000.0	338	146	15,210,000	6,570,000	21,780,000	
Asphalt Patching	m ²	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m ²	0.0	617	544	0	0	0	
Surface Dressing (Double)	m ²	0.0	778	855	0	0	0	
Earth Drain	m	3000.0	833	119	2,499,000	357,000	2,856,000	
Earth Drain in Swamp (by machine)	m ³	30000.0	1,330	475	39,900,000	14,250,000	54,150,000	
Pipe Culvert 80cm	m	0.0	41,405	43,777	0	0	0	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m ²	0.0	14,893	246	0	0	0	
Retaining Wall and Wing Wall (Masonry)	m ³	0.0	41,223	11,706	0	0	0	
Gabion Protection	m ³	0.0	8,525	121	0	0	0	
New Bridge (Timber)	SET	1.0	--	--	135,899,836	12,184,468	148,084,304	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					Sub Total	284,080,636	67,575,418	351,656,054
Overhead (15%)						42,612,095	10,136,312	52,748,407
					TOTAL COST	326,692,731	77,711,730	404,404,461

Manual routine maintenance of road	Km	15.0	131,948	7,260	1,979,220	108,900	2,088,120
Routine maintenance of gravel road	Km	15.0	216,507	88,186	3,247,605	1,322,790	4,570,395
			Sub total		5,226,825	1,431,690	6,658,515
Maintenance of Timber Bridge (New)	m ²	1124.0	9,584	1,177	10,772,416	1,322,948	12,095,364
Maintenance of Concrete Bridge (New)	m ²	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m ²	0.0	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m ²	0.0	4,914	2,390	0	0	0

Earthwork & Pavement Unit Cost (Rp/Km)	:	15,607,168
Timber Bridge Unit Cost (Rp/m ²)	:	151,510
Concrete Bridge Unit Cost (Rp/m ²)	:	
Survived Value (Rp)	:	19,130,880
Maintenance Rate without Bridge (%)	:	2.84
New Bridge Cost Rate (%)	:	42.11

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 2 (IIC) LENGTH : 14 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m ²	6000.0	187	91	1,122,000	546,000	1,668,000	
Subgrade Preparation	m ²	84000.0	24	11	2,016,000	924,000	2,940,000	
Normal Fill	m ³	0.0	1,939	865	0	0	0	
Fill in Swamp	m ³	29400.0	2,828	1,055	83,143,200	31,017,000	114,160,200	
Normal Excavation to Spoil	m ³	1232.0	1,131	524	1,393,392	645,568	2,038,960	
Sub Base Course	m ³	8960.0	3,631	1,351	32,533,760	12,104,960	44,638,720	
Base Course	m ³	0.0	4,978	2,303	0	0	0	
Shoulder	m ²	28000.0	338	146	9,464,000	4,088,000	13,552,000	
Asphalt Patching	m ²	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m ²	0.0	617	544	0	0	0	
Surface Dressing (Double)	m ²	0.0	778	855	0	0	0	
Earth Drain	m	14000.0	833	119	11,662,000	1,666,000	13,328,000	
Earth Drain in Swamp (by machine)	m ³	42000.0	1,330	475	55,860,000	19,950,000	75,810,000	
Pipe Culvert DB0c	m	0.0	41,405	43,777	0	0	0	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m ²	0.0	14,893	246	0	0	0	
Retaining Wall and Wing Wall (Masonry)	m ³	0.0	41,223	11,706	0	0	0	
Gabion Protection	m ³	0.0	8,525	121	0	0	0	
New Bridge (Timber)	SET	1.0	--	--	0	0	0	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					Sub Total	197,194,352	70,941,528	268,135,880
Overhead (15%)						29,579,152	10,641,229	40,220,381
					TOTAL COST	226,773,504	81,582,757	308,356,261

Manual routine maintenance of road	Km	14.0	131,948	7,260	1,847,272	101,640	1,948,912
Routine maintenance of gravel road	Km	14.0	216,507	88,186	3,031,098	1,234,604	4,265,702
			Sub Total		4,878,370	1,336,244	6,214,614
Maintenance of Timber Bridge (New)	m ²	0.0	9,584	1,177	0	0	0
Maintenance of Concrete Bridge (New)	m ²	0.0	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m ²	0.0	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m ²	238.5	4,914	2,390	1,171,989	570,015	1,742,004

Earthwork & Pavement Unit Cost (Rp/Km)	:	22,025,447
Timber Bridge Unit Cost (Rp/m ²)	:	
Concrete Bridge Unit Cost (Rp/m ²)	:	
Survived Value (Rp)	:	17,855,488
Maintenance Rate without Bridge (%)	:	2.02
New Bridge Cost Rate (%)	:	

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 1 (IIC) LENGTH : 17 Km

UPGRADE : 6.0m road bed, 4.0m road with surface Subbase Course
(Rp)

ITEM	UNIT	QUANTITY	UNIT COST		COST		TOTAL	
			LOCAL	FOREIGN	LOCAL	FOREIGN		
Site Clearance in Light Bush	m2	0.0	187	91	0	0	0	
Subgrade Preparation	m2	18000.0	24	11	432,000	198,000	630,000	
Normal Fill	m3	200.0	1,939	865	387,800	173,000	560,800	
Fill in Swamp	m3	0.0	2,828	1,055	0	0	0	
Normal Excavation to Spoil	m3	628.0	1,131	524	716,268	329,072	1,039,340	
Sub Base Course	m3	1948.6	3,631	1,351	7,075,366	2,632,558	9,707,924	
Base Course	m3	3360.0	4,978	2,303	16,726,080	7,738,080	24,464,160	
Shoulder	m2	34000.0	338	146	11,492,000	4,964,000	16,456,000	
Asphalt Patching	m2	0.0	3,699	1,339	0	0	0	
Surface Dressing (Single)	m2	0.0	617	544	0	0	0	
Surface Dressing (Double)	m2	0.0	778	855	0	0	0	
Earth Drain	m	0.0	833	119	0	0	0	
Earth Drain in Swamp (by machine)	m3	0.0	1,330	475	0	0	0	
Pipe Culvert 80x80cm	m	72.0	41,405	43,777	2,981,160	3,151,944	6,133,104	
Masonry Culvert (80x80cm)	m	0.0	58,736	37,380	0	0	0	
Retaining Wall and Wing Wall (Timber)	m2	200.0	14,893	246	2,978,600	49,200	3,027,800	
Retaining Wall and Wing Wall (Masonry)	m3	28.8	41,223	11,706	1,187,222	337,132	1,524,354	
Gabion Protection	m3	200.0	8,525	121	1,705,000	24,200	1,729,200	
New Bridge (Timber)	SET	1.0	--	--	0	0	0	
New Bridge (Concrete)	SET	1.0	--	--	0	0	0	
					Sub Total	45,675,496	19,597,186	65,272,682
Overhead (15%)						6,851,324	2,939,577	9,790,901
					TOTAL COST	52,526,820	22,536,763	75,063,583
Manual routine maintenance of road	Km	17.0	131,948	7,260	2,243,116	123,420	2,366,536	
Routine maintenance of gravel road	Km	17.0	216,507	88,186	3,680,619	1,499,162	5,179,781	
			Sub Total		5,923,735	1,622,582	7,546,317	
Maintenance of Timber Bridge (New)	m2	0.0	9,584	1,177	0	0	0	
Maintenance of Concrete Bridge (New)	m2	0.0	2,045	2,726	0	0	0	
Maintenance of Timber Bridge (Exist)	m2	472.0	9,297	2,433	4,388,184	1,148,376	5,536,560	
Maintenance of Concrete Bridge (Exist)	m2	336.0	4,914	2,390	1,651,104	803,040	2,454,144	
Earthwork & Pavement Unit Cost (Rp/Km)							4,415,505	
Timber Bridge Unit Cost (Rp/m2)								
Concrete Bridge Unit Cost (Rp/m2)								
Survived Value (Rp)							3,883,169	
Maintenance Rate without Bridge (%)							10.05	
New Bridge Cost Rate (%)								

Appendix A-4

CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(CONSTRUCTION)

PROV : SULAWESI SELATAN KAB : MAMUJU

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :							
Bulldozer/Ripper	hr	344.1	207.5	292.9	285.8	319.9	1450.2
Swamp Bulldozer	hr	0.0	847.0	728.0	386.7	208.2	2169.9
Motor Grader	hr	831.8	630.0	815.2	763.7	841.9	3882.6
Hand-guide Vib. Roller	hr	217.8	253.5	854.0	1395.7	1452.1	4173.1
Tire Roller	hr	0.0	0.0	0.0	0.0	0.0	0.0
Vibratory Roller (D&T)	hr	597.7	1236.4	1217.3	891.1	746.4	4688.9
Hydraulic Excavator; Wheel	hr	0.0	2925.0	2498.4	1462.5	787.5	7673.4
Wheel Loader	hr	1019.8	1611.3	1805.6	1363.8	1345.7	7146.2
Water Tank Truck	hr	358.1	846.7	819.6	572.0	470.6	3067.0
Dump Truck	hr	7459.3	15578.6	16505.2	11635.0	11187.3	62365.4
Flat Bed Truck with Crane	hr	188.0	441.6	1215.3	1795.8	1324.8	4965.5
Flat Bed Truck	hr	146.2	84.5	296.9	470.3	489.1	1487.0
Portable Crusher/Screening	hr	222.5	0.0	130.3	128.4	238.5	719.7
Concrete Mixer	hr	56.4	0.0	309.0	15.4	15.4	396.2
Water Pump	hr	46.1	0.0	1011.7	15.4	15.4	1088.6
Concrete Vibrator	hr	25.7	0.0	37.1	15.4	15.4	93.6
Asphalt Sprayer	hr	0.0	0.0	0.0	0.0	0.0	0.0
LABOUR :							
Handur	man day	584.8	1764.8	2393.1	3132.1	2562.3	10437.1
Skilled Labourer	man day	527.0	3908.8	6672.3	15344.1	11206.4	37658.6
Carpenter	man day	190.3	2112.6	3536.8	8247.5	5994.2	20081.4
Mason	man day	51.2	0.0	339.8	0.0	0.0	391.0
Labourer	man day	4375.5	12639.0	15928.2	14219.5	14219.6	61381.8
Driver	man day	1388.7	2991.1	3334.5	2696.1	2522.5	12932.9
Operator	man day	831.7	1472.7	1683.0	1362.4	1280.0	6629.8
MATERIAL :							
Bitumen	l	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Oil	l	0.0	0.0	0.0	0.0	0.0	0.0
Kerosene	l	0.0	0.0	0.0	0.0	0.0	0.0
Sand	m ³	142.2	0.0	220.1	76.1	76.1	514.5
Cement	bag	394.4	0.0	699.9	225.0	225.0	1544.3
River Stone	m ³	451.2	0.0	407.8	0.0	0.0	859.0
Steel Moulds	set	150.0	0.0	90.0	90.0	90.0	420.0
Timber	m ³	25.4	191.9	318.9	749.2	544.3	1829.7
Paint	l	0.0	1211.1	1909.1	4920.0	3814.2	11854.4
Reinforcing Steel	kg	4785.0	0.0	9069.8	2871.0	2871.0	19596.8
Tying Wire	kg	843.5	0.0	82.4	26.1	26.1	978.1
Equivalent Royalty	m ³	13568.7	36967.7	36699.9	25597.8	21603.3	134437.4

CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(MAINTENANCE)

PROV : SULAWESI SELATAN KAB : MAMUKU

ITEM	UNIT	< 1988 >	< 1989 >	< 1990 >	< 1991 >	< 1992 >	< TOTAL >
EQUIPMENT :							
Bulldozer/Ripper	hr	0.0	0.0	0.0	0.0	0.0	0.0
Swamp Bulldozer	hr	0.0	0.0	0.0	0.0	0.0	0.0
Motor Grader	hr	166.5	397.5	363.7	438.7	438.7	1805.1
Hand-guide Vib. Roller	hr	0.0	0.0	0.0	0.0	0.0	0.0
Tire Roller	hr	166.5	397.5	363.7	438.7	438.7	1805.1
Vibratory Roller (D&T)	hr	0.0	0.0	0.0	0.0	0.0	0.0
Hydraulic Excavator; Wheel	hr	0.0	0.0	0.0	0.0	0.0	0.0
Wheel Loader	hr	46.1	125.7	113.8	155.1	155.2	595.9
Water Tank Truck	hr	0.0	0.0	0.0	0.0	0.0	0.0
Dump Truck	hr	277.2	755.0	683.3	931.2	931.4	3578.1
Flat Bed Truck with Crane	hr	799.8	2369.7	2171.1	2326.3	2746.2	10413.1
Flat Bed Truck	hr	622.9	1472.5	1348.7	1609.7	1609.8	6663.6
Portable Crusher/Screening	hr	23.1	62.9	56.9	77.6	77.7	298.2
Concrete Mixer	hr	1.3	3.2	3.0	3.1	3.3	13.9
Water Pump	hr	1.3	3.2	3.0	3.1	3.3	13.9
Concrete Vibrator	hr	1.3	3.2	3.0	3.1	3.3	13.9
Asphalt Sprayer	hr	0.0	0.0	0.0	0.0	0.0	0.0
LABOUR :							
Mandur	man day	205.0	504.0	461.3	547.7	649.7	2367.7
Skilled Labourer	man day	126.5	423.2	386.5	422.3	1168.9	2527.4
Carpenter	man day	66.9	225.0	205.4	224.6	625.3	1347.2
Mason	man day	0.0	0.0	0.0	0.0	0.0	0.0
Labourer	man day	2293.9	5485.5	5022.8	5992.7	6295.8	25090.7
Driver	man day	317.2	868.7	794.4	912.0	1034.1	3926.4
Operator	man day	71.0	175.0	159.7	198.4	198.5	802.6
MATERIAL :							
Bitumen	l	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Oil	l	0.0	0.0	0.0	0.0	0.0	0.0
Kerosene	l	0.0	0.0	0.0	0.0	0.0	0.0
Sand	m ³	1.3	3.2	3.0	3.1	3.3	13.9
Cement	bag	19.5	48.0	44.2	45.7	49.0	206.4
River Stone	m ³	0.0	0.0	0.0	0.0	0.0	0.0
Steel Moulds	set	0.0	0.0	0.0	0.0	0.0	0.0
Timber	m ³	5.9	20.1	18.4	20.1	56.4	120.9
Paint	l	41.1	140.2	128.0	140.2	399.3	848.8
Reinforcing Steel	kg	100.3	246.6	227.3	234.9	252.0	1061.1
Tying Wire	kg	0.9	2.2	2.0	2.1	2.2	9.4
Equivalent Royalty	m ³	654.7	1782.9	1613.7	2198.9	2199.3	8447.5

CONSTRUCTION AND MAINTENANCE QUANTITIES
FOR ALL PROPOSED ROAD LINKS
(TOTAL)

PROV : SULAWESI SELATAN KAB : MAMUJU

ITEM	UNIT	< 1988 >	< 1989 >	< 1990 >	< 1991 >	< 1992 >	< TOTAL >
EQUIPMENT :							
Bulldozer/Ripper	hr	344.1	207.5	292.9	285.8	319.9	1450.2
Swamp Bulldozer	hr	0.0	847.0	728.0	386.7	208.2	2169.9
Motor Grader	hr	998.3	1027.5	1178.9	1202.4	1280.6	5687.7
Hand-guide Vib. Roller	hr	217.8	253.5	854.0	1395.7	1452.1	4173.1
Tire Roller	hr	166.5	397.5	363.7	438.7	438.7	1805.1
Vibratory Roller (D&I)	hr	597.7	1236.4	1217.3	891.1	746.4	4688.9
Hydraulic Excavator; Wheel	hr	0.0	2925.0	2498.4	1462.5	787.5	7673.4
Wheel Loader	hr	1065.9	1737.0	1919.4	1518.9	1500.9	7742.1
Water Tank Truck	hr	358.1	846.7	819.6	572.0	470.6	3067.0
Dump Truck	hr	7736.5	16333.6	17188.5	12566.2	12118.7	65943.5
Flat Bed Truck with Crane	hr	987.8	2811.3	3386.4	4122.1	4071.0	15378.6
Flat Bed Truck	hr	769.1	1537.0	1645.6	2080.0	2098.9	8150.6
Portable Crusher/Screening	hr	245.6	62.9	187.2	206.0	316.2	1017.9
Concrete Mixer	hr	57.7	3.2	312.0	18.5	18.7	410.1
Water Pump	hr	47.4	3.2	1014.7	18.5	18.7	1102.5
Concrete Vibrator	hr	27.0	3.2	40.1	18.5	18.7	107.5
Asphalt Sprayer	hr	0.0	0.0	0.0	0.0	0.0	0.0
LABOUR :							
Handur	man day	789.8	2268.8	2854.4	3679.8	3212.0	12804.8
Skilled Labourer	man day	653.5	4332.0	7058.8	15766.4	12375.3	40186.0
Carpenter	man day	257.2	2337.6	3742.2	8472.1	6619.5	21428.6
Mason	man day	51.2	0.0	339.8	0.0	0.0	391.0
Labourer	man day	6669.4	18124.5	20951.0	20212.2	20515.4	86472.5
Driver	man day	1705.9	3859.8	4128.9	3608.1	3556.6	16859.3
Operator	man day	902.7	1647.7	1842.7	1560.8	1478.5	7432.4
MATERIAL :							
Bitumen	l	0.0	0.0	0.0	0.0	0.0	0.0
Asphalt Oil	l	0.0	0.0	0.0	0.0	0.0	0.0
Kerosene	l	0.0	0.0	0.0	0.0	0.0	0.0
Sand	m ³	143.5	3.2	223.1	79.2	79.4	528.4
Cement	bag	413.9	48.0	744.1	270.7	274.0	1750.7
River Stone	m ³	451.2	0.0	407.8	0.0	0.0	859.0
Steel Houlds	set	150.0	0.0	90.0	90.0	90.0	420.0
Timber	m ³	31.3	212.0	337.3	769.3	600.7	1950.6
Paint	l	41.1	1351.3	2037.1	5060.2	4213.5	12703.2
Reinforcing Steel	kg	4885.3	246.6	9297.1	3105.9	3123.0	20657.9
Tying Wire	kg	844.4	2.2	84.4	28.2	28.3	987.5
Equivalent Royalty	m ³	14223.4	38750.6	38313.6	27796.7	23802.6	142886.9

Appendix A-5

CONSTRUCTION AND MAINTENANCE COSTS
FOR ALL PROPOSED ROAD LINKS
(CONSTRUCTION)

PROV : SULAWESI SELATAN KAB : MAMUJU

(1000 Rp)

I T E M	UNIT	< 1988 >	< 1989 >	< 1990 >	< 1991 >	< 1992 >	< TOTAL >
EQUIPMENT :							
		101,337	205,509	226,820	167,262	155,342	856,270
Bulldozer/Ripper	17373	5,978	3,604	5,088	4,965	5,557	25,192
Swamp Bulldozer	12693	0	10,750	9,240	4,908	2,642	27,540
Motor Grader	14707	12,233	9,265	11,989	11,231	12,381	57,099
Hand-guide Vib. Roller	1678	365	425	1,433	2,341	2,436	7,000
Tire Roller	12332	0	0	0	0	0	0
Vibratory Roller (O&T)	7300	4,363	9,025	8,886	6,505	5,448	34,227
Hydraulic Excavator; Wheel	14091	0	41,216	35,204	20,608	11,096	108,124
Wheel Loader	17870	18,223	28,793	32,266	24,371	24,047	127,700
Water Tank Truck	4595	1,645	3,890	3,766	2,628	2,162	14,091
Dump Truck	6144	45,829	95,714	101,407	71,485	68,734	383,169
Flat Bed Truck with Crane	5650	1,062	2,495	6,866	10,146	7,485	28,054
Flat Bed Truck	3934	575	332	1,168	1,850	1,924	5,849
Portable Crusher/Screening	47291	10,522	0	6,162	6,072	11,278	34,034
Concrete Mixer	9038	509	0	2,792	139	139	3,579
Water Pump	534	24	0	540	8	8	580
Concrete Vibrator	364	9	0	13	5	5	32
Asphalt Sprayer	2148	0	0	0	0	0	0
LABOUR :							
		18,942	56,412	76,870	104,961	86,353	343,538
Handur	2500	1,462	4,412	5,982	7,830	6,405	26,091
Skilled Labourer	2000	1,054	7,817	13,344	30,688	22,412	75,315
Carpenter	3500	666	7,394	12,378	28,866	20,979	70,283
Mason	3500	179	0	1,189	0	0	1,368
Labourer	1500	6,563	18,958	23,892	21,329	21,329	92,071
Driver	3500	4,860	10,468	11,670	9,436	8,828	45,262
Operator	5000	4,158	7,363	8,415	6,812	6,400	33,148
MATERIAL :							
		17,111	43,275	78,769	144,033	107,209	390,397
Bitumen	270	0	0	0	0	0	0
Asphalt Oil	700	0	0	0	0	0	0
Kerosene	250	0	0	0	0	0	0
Sand	3500	497	0	770	266	266	1,799
Cement	4500	1,774	0	3,149	1,012	1,012	6,947
River Stone	3500	1,579	0	1,427	0	0	3,006
Steel Moulds	7000	1,050	0	630	630	630	2,940
Timber	160000	4,064	30,704	51,024	119,872	87,088	292,752
Paint	2750	0	3,330	5,250	13,530	10,489	32,599
Reinforcing Steel	800	3,828	0	7,255	2,296	2,296	15,675
Tying Wire	1100	927	0	90	28	28	1,073
Equivalent Royalty	250	3,392	9,241	9,174	6,399	5,400	33,606

CONSTRUCTION AND MAINTENANCE COSTS
FOR ALL PROPOSED ROAD LINKS
(MAINTENANCE)

PROV : SULAWESI SELATAN KAB : MAMUJU

(1000 Rp)

I T E M	UNIT	(1988)	(1989)	(1990)	(1991)	(1992)	(TOTAL)
EQUIPMENT :		15,098	39,815	36,354	43,527	45,909	180,703
Bulldozer/Ripper	17373	0	0	0	0	0	0
Swamp Bulldozer	12693	0	0	0	0	0	0
Motor Grader	14707	2,448	5,846	5,348	6,451	6,451	26,544
Hand-guide Vib. Roller	1678	0	0	0	0	0	0
Tire Roller	12332	2,053	4,901	4,485	5,410	5,410	22,259
Vibratory Roller (D&T)	7300	0	0	0	0	0	0
Hydraulic Excavator; Wheel	14091	0	0	0	0	0	0
Wheel Loader	17870	823	2,246	2,033	2,771	2,773	10,646
Water Tank Truck	4595	0	0	0	0	0	0
Dump Truck	6144	1,703	4,638	4,198	5,721	5,722	21,982
Flat Bed Truck with Crane	5650	4,518	13,388	12,266	13,143	15,516	58,831
Flat Bed Truck	3934	2,450	5,792	5,305	6,332	6,332	26,211
Portable Crusher/Screening	47291	1,092	2,974	2,690	3,669	3,674	14,099
Concrete Mixer	9038	11	28	27	28	29	123
Water Pump	534	0	1	1	1	1	4
Concrete Vibrator	364	0	1	1	1	1	4
Asphalt Sprayer	2148	0	0	0	0	0	0
LABOUR :		5,904	15,036	13,756	16,172	20,203	71,071
Handur	2500	512	1,260	1,153	1,369	1,624	5,918
Skilled Labourer	2000	253	846	773	844	2,337	5,053
Carpenter	3500	234	787	718	786	2,188	4,713
Mason	3500	0	0	0	0	0	0
Labourer	1500	3,440	8,228	7,534	8,989	9,443	37,634
Driver	3500	1,110	3,040	2,780	3,192	3,619	13,741
Operator	5000	355	875	798	992	992	4,012
MATERIAL :		1,391	4,472	4,090	4,554	11,105	25,612
Bitumen	270	0	0	0	0	0	0
Asphalt Dil.	700	0	0	0	0	0	0
Kerosene	250	0	0	0	0	0	0
Sand	3500	4	11	10	10	11	46
Cement	4500	87	216	198	205	220	926
River Stone	3500	0	0	0	0	0	0
Steel Moulds	7000	0	0	0	0	0	0
Timber	160000	944	3,216	2,944	3,216	9,024	19,344
Paint	2750	113	385	352	385	1,098	2,333
Reinforcing Steel	800	80	197	181	187	201	846
Tying Wire	1100	0	2	2	2	2	8
Equivalent Royalty	250	163	445	403	549	549	2,109

CONSTRUCTION AND MAINTENANCE COSTS
FOR ALL PROPOSED ROAD LINKS
(TOTAL)

PROV : SULAWESI SELATAN KAB : MAMUJU

(1000 Rp)

I T E M	UNIT	< 1988 >	< 1989 >	< 1990 >	< 1991 >	< 1992 >	< TOTAL >
EQUIPMENT :		116,435	245,324	263,174	210,789	201,251	1,036,973
Bulldozer/Ripper	17373	5,978	3,604	5,088	4,965	5,557	25,192
Swamp Bulldozer	12693	0	10,750	9,240	4,908	2,642	27,540
Motor Grader	14707	14,681	15,111	17,337	17,682	18,032	83,643
Hand-guided Vib. Roller	1678	365	425	1,433	2,341	2,436	7,000
Tire Roller	12332	2,053	4,901	4,485	5,410	5,410	22,259
Vibratory Roller (D&T)	7300	4,363	9,025	8,886	6,505	5,448	34,227
Hydraulic Excavator; Wheel	14091	0	41,216	35,204	20,608	11,096	108,124
Wheel Loader	17870	19,046	31,039	34,299	27,142	26,870	138,346
Water Tank Truck	4595	1,645	3,890	3,766	2,628	2,162	14,091
Dump Truck	6144	47,532	100,352	105,605	77,206	74,456	405,151
Flat Bed Truck with Crane	5650	5,580	15,883	19,132	23,289	23,001	86,885
Flat Bed Truck	3934	3,025	6,124	6,473	8,162	8,256	32,060
Portable Crusher/Screening	47291	11,614	2,974	8,852	9,741	14,952	48,133
Concrete Mixer	9038	520	28	2,819	167	168	3,702
Water Pump	534	24	1	541	9	9	584
Concrete Vibrator	364	9	1	14	6	6	36
Asphalt Sprayer	2148	0	0	0	0	0	0
LABOUR :		24,846	71,448	90,626	121,133	106,556	414,609
Handur	2500	1,974	5,672	7,135	9,199	8,029	32,009
Skilled Labourer	2000	1,307	8,663	14,117	31,532	24,749	80,368
Carpenter	3500	900	8,181	13,096	29,652	23,167	74,996
Mason	3500	179	0	1,189	0	0	1,368
Labourer	1500	10,003	27,186	31,426	30,318	30,772	129,705
Driver	3500	5,970	13,508	14,450	12,628	12,447	59,003
Operator	5000	4,513	8,238	9,213	7,804	7,392	37,160
MATERIAL :		18,502	47,747	82,859	148,587	118,314	416,009
Bitumen	270	0	0	0	0	0	0
Asphalt Oil	700	0	0	0	0	0	0
Kerosene	250	0	0	0	0	0	0
Sand	3500	501	11	780	276	277	1,845
Cement	4500	1,861	216	3,347	1,217	1,232	7,873
River Stone	3500	1,579	0	1,427	0	0	3,006
Steel Moulds	7000	1,050	0	630	630	630	2,940
Timber	160000	5,008	33,920	53,968	123,088	96,112	312,096
Paint	2750	113	3,715	5,602	13,915	11,587	34,932
Reinforcing Steel	800	3,908	197	7,436	2,483	2,497	16,521
Tying Wire	1100	927	2	92	30	30	1,081
Equivalent Royalty	250	3,555	9,686	9,577	6,948	5,949	35,715

Appendix A-6

QUANTITIES OF BRIDGE ON PROPOSED ROAD LINKS

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO	BRIDGE NAME	Km	From	<< TYPE >>		DESIGN LOAD	SPAN CLASS	LENGTH (m)	SPAN NO (no)	SPAN LENGTH (m)	WIDTH (m)	AREA	AREA	PIER (no)	ABUT (no)	ROAD CLASS
				(EXIST)	(NEW)							(EXIST)	(NEW)			
11	LABUANG	22	SMRE	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	IIIC
	SARANA	22	SMRE	--	TH	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	OROBATU	24	SMRE	--	TH	10T	(C)	6.00	1	6.00	4.00	0.00	24.00	0	2	
	TAPALANG	27	SMRE	--	TH	10T	(C)	60.00	8	7.50	4.00	0.00	240.00	7	2	
12	PALIMATE I	48	MMJU	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	IIIC
	PALIMATE II	48	MMJU	--	TH	10T	(C)	12.00	2	6.00	4.00	0.00	48.00	1	2	
	WAIMATE	49	MMJU	--	TH	10T	(C)	20.00	3	6.67	4.00	0.00	80.00	2	2	
	TADADEKO	50	MMJU	--	TH	10T	(B)	9.00	2	4.50	4.00	0.00	36.00	1	2	
	BABAKEANG	52	MMJU	--	TH	10T	(C)	52.00	7	7.43	4.00	0.00	208.00	6	2	
	SALUKEANG	53	MMJU	--	TH	10T	(C)	19.00	3	6.33	4.00	0.00	76.00	2	2	
	SALUBATU	53	MMJU	--	TH	10T	(C)	37.00	5	7.40	4.00	0.00	148.00	4	2	
	SALUPEO	53	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	SALULE BANI	53	MMJU	--	TH	10T	(C)	7.00	1	7.00	4.00	0.00	28.00	0	2	
	KATELO	53	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	SALUTAKE	54	MMJU	--	TH	10T	(C)	7.00	1	7.00	4.00	0.00	28.00	0	2	
	KALASISSI	54	MMJU	--	TH	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	PARADANG	54	MMJU	--	TH	10T	(C)	7.00	1	7.00	4.00	0.00	28.00	0	2	
	KODO	55	MMJU	PB				6.00	1	6.00	4.00	24.00		0	2	
	LANBANAN I	55	MMJU	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	LANBANAN II	57	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	MAO-MAO	57	MMJU	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	SALU BEDO	57	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	PELOSIAN	58	MMJU	--	TH	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	LEPE LEPE	59	MMJU	--	TH	10T	(C)	7.00	1	7.00	4.00	0.00	28.00	0	2	
	ATU ATU	59	MMJU	--	TH	10T	(C)	6.00	1	6.00	4.00	0.00	24.00	0	2	
	SALUENO	60	MMJU	--	TH	10T	(B)	4.00	1	4.00	4.00	0.00	16.00	0	2	
	TATALUNANG	60	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
TABALO-BAIO	61	MMJU	--	TH	10T	(C)	20.00	3	6.67	4.00	0.00	80.00	2	2		

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO	BRIDGE NAME	Km	From	((TYPE))		DESIGN LOAD	SPAN CLASS	LENGTH (m)	SPAN NO	SPAN LENGTH (m)	WIDTH (m)	AREA	AREA	PIER (no)	ABUT (no)	ROAD CLASS
				(EXIST)	(NEW)							(EXIST)	(NEW)			
4	PANAD	38	MMJU	KK				20.00	1	20.00	7.00	140.00		0	2	IIIC
	TAPESE	39	MMJU	KK				5.00	1	5.00	4.00	20.00		0	2	
	SALU SALU I	39	MMJU	PB	RC	BMSO	(B)	5.00	1	5.00	4.50	20.00	22.50	0	2	
	SALU SALU II	39	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	SALU SALU III	39	MMJU	PB				5.00	1	5.00	4.00	20.00		0	2	
	SALU SALU IV	40	MMJU	PB	RC	BMSO	(B)	5.00	1	5.00	4.50	20.00	22.50	0	2	
	PESUSAAN	42	MMJU	--	TM	10T	(B)	10.00	2	5.00	4.00	0.00	40.00	1	2	
	BARANA ROMBE KUNAKA	45	MMJU	--	TM	10T	(C)	17.00	3	5.67	4.00	0.00	68.00	2	2	
		47	MMJU	--	TM	10T	(C)	14.00	2	7.00	4.00	0.00	56.00	1	2	
5	MAO I	7	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	IIIC
	MAO II	8	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	LUMIRA	8	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	HARADIKA	8	MMJU	--	TM	10T	(B)	4.00	1	4.00	4.00	0.00	16.00	0	2	
	LIMBONG	8	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	SALULULU	8	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	SALUKONA	8	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	SALULIANG	9	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	KARIMATU	9	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	LEKKANA	9	MMJU	--	TM	10T	(B)	4.00	1	4.00	4.00	0.00	16.00	0	2	
	SALUKAPAYA	9	MMJU	--	TM	10T	(C)	12.00	2	6.00	4.00	0.00	48.00	1	2	
	TAKKASI	9	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	POSEAK	9	MMJU	--	TM	10T	(B)	4.00	1	4.00	4.00	0.00	16.00	0	2	
	KASALLE	9	MMJU	--	TM	10T	(C)	14.00	2	7.00	4.00	0.00	56.00	1	2	
	BURAKE	9	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	SALUTARRAK	10	MMJU	--	TM	10T	(B)	4.00	1	4.00	4.00	0.00	16.00	0	2	
	BUADAD	10	MMJU	--	TM	10T	(B)	9.00	2	4.50	4.00	0.00	36.00	1	2	
	PAMEKONG	10	MMJU	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	SALUKAHIRI	10	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	SALUBUNDUN	10	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
SALUANA	10	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2		
MAKULA	11	MMJU	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2		
SALULEKKONG	11	MMJU	--	TM	10T	(C)	6.00	1	6.00	4.00	0.00	24.00	0	2		
BETOONG	12	MMJU	--	TM	10T	(C)	20.00	3	6.67	4.00	0.00	80.00	2	2		
10	KAMPUNG BARU	19	NI	PB				9.00	2	4.50	4.00	36.00		1	2	IIIC
	AHUNI	20	NI	LL				44.00	1	44.00	4.00	176.00		0	2	
	AHUNI I	20	NI	LL				44.00	1	44.00	4.00	176.00		0	2	
	KOPI	21	NI	PB				5.00	1	5.00	4.00	20.00		0	2	
	LARI	22	NI	PB				5.00	1	5.00	4.00	20.00		0	2	
	GENTUNGAN	22	NI	PB				5.00	1	5.00	4.00	20.00		0	2	
	RANGA RANGA	23	NI	LL				12.00	1	12.00	4.00	48.00		0	2	
	PURE	24	NI	LL				24.00	5	4.80	4.00	96.00		4	2	
	LEBENG	28	NI	PB				5.00	1	5.00	4.00	20.00		0	2	
	TASIU	30	NI	LL				12.00	4	3.00	6.00	72.00		3	2	
11	AHU I	18	SHRE	--	TM	10T	(C)	90.00	12	7.50	4.00	0.00	360.00	11	2	IIIC
	AHU II	19	SHRE	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	LEBE	20	SHRE	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	
	BERU-BERU	21	SHRE	--	TM	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2	
	PASABU	22	SHRE	--	TM	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2	

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO	BRIDGE NAME	Km	From	<< TYPE >>		DESIGN LOAD	SPAN CLASS	LENGTH (m)	SPAN NO (no)	SPAN LENGTH (m)	WIDTH (m)	AREA (EXIST) (m2)	AREA (NEW) (m2)	PIER (no)	ABUT (no)	ROAD CLASS		
				(EXIST)	(NEW)													
1	TAMOTORA	0	NJ		KB			4.00	1	4.00	4.00	16.00		0	2	111C		
	MAMUJU	1	NJ		LL			28.00	1	28.00	4.00	112.00		0	2			
	KALUBIBING I	2	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	KALUBIBING II	2	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	KALUBIBING III	2	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	TUHUKI	3	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	BAOBATU I	4	NJ		PB			4.00	1	4.00	4.00	16.00		0	2			
	BAOBATU II	4	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	ANGKENE	4	NJ		PB			8.00	2	4.00	4.00	32.00		1	2			
	SALULAYANG	5	NJ		PB			8.00	2	4.00	4.00	32.00		1	2			
	BONE-BONE	6	NJ		LL			20.00	1	20.00	4.00	80.00		0	2			
	LOMBOKNA	9	NJ		PB			5.00	1	5.00	4.00	20.00		0	2			
	BARBU	9	NJ		PB			8.00	2	4.00	4.00	32.00		1	2			
	TADUI	11	NJ		LL			18.00	1	18.00	4.00	72.00		0	2			
	2	SANGSING	2	PTLG		KB			11.00	1	11.00	4.50	49.50		0		2	111C
BALANG PUNNIA		2	PTLG		KB			26.00	2	13.00	4.50	117.00		1	2			
BALANG SAWANGI		3	PTLG		KB			18.00	2	9.00	4.00	72.00		1	2			
3		TAKKE	1	SMRE	--	TH	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2	111C	
		LABOKO	2	SMRE	--	TH	10T	(C)	25.00	4	6.25	4.00	0.00	100.00	3	2		
		TAMALA	2	SMRE	--	TH	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2		
		LEBANI	3	SMRE	--	TH	10T	(B)	10.00	2	5.00	4.00	0.00	40.00	1	2		
		LANDI	4	SMRE	--	TH	10T	(C)	30.00	4	7.50	4.00	0.00	120.00	3	2		
		LUPPATANG	4	SMRE	--	TH	10T	(C)	40.00	5	8.00	4.00	0.00	160.00	4	2		
		PENANTAI	5	SMRE	--	TH	10T	(C)	25.00	4	6.25	4.00	0.00	100.00	3	2		
		TURADU	6	SMRE	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2		
		TINAUNGAN	7	SMRE	--	TH	10T	(C)	38.00	5	7.60	4.00	0.00	152.00	4	2		
		LAB. RANO I	7	SMRE	--	TH	10T	(C)	12.00	2	6.00	4.00	0.00	48.00	1	2		
		LAB. RANO II	8	SMRE	--	TH	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2		
		AIR PANAS	9	SMRE	--	TH	10T	(B)	5.00	1	5.00	4.00	0.00	20.00	0	2		
	SITANDUK I	9	SMRE	--	TH	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2			
	DUNGKAIT I	10	SMRE	--	TH	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2			
	DUNGKAIT II	14	SMRE	--	TH	10T	(C)	15.00	2	7.50	4.00	0.00	60.00	1	2			
DUNGKAIT III	15	SMRE	--	TH	10T	(C)	8.00	1	8.00	4.00	0.00	32.00	0	2				
4	SALUKAHA I	33	MMJU		KK			5.00	1	5.00	4.00	20.00		0	2	111C		
	SALUKAHA II	34	MMJU		PB			5.00	1	5.00	4.00	20.00		0	2			
	SALUKAHA III	34	MMJU		KK			5.00	1	5.00	4.00	20.00		0	2			
	SALUKAHA IV	34	MMJU		--	TH	10T	(C)	24.00	3	8.00	4.00	0.00	96.00	2		2	
	SALUKAHA V	34	MMJU		--	TH	10T	(C)	25.00	4	6.25	4.00	0.00	100.00	3		2	
	SALUKAHA VI	34	MMJU		--	TH	10T	(C)	6.00	1	6.00	4.00	0.00	24.00	0		2	
	SALUKAHA VII	35	MMJU		KK			5.00	1	5.00	4.00	20.00		0	2			
	SALUKAHA VIII	37	MMJU		PB			5.00	1	5.00	4.00	20.00		0	2			
SALUTAK KEBATU	37	MMJU		PB			5.00	1	5.00	4.00	20.00		0	2				

Appendix A-7 CONSTRUCTION AND MAINTENANCE COST OF BRIDGES
ON PROPOSED ROAD LINKS

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 1 (ITIC) LENGTH : 17 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber; Span 3m; 10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber; Span 5m; 10T)	m2	0.00	58,174	4,210	0	0	0
Superstructure (Timber; Span 8m; 10T)	m2	0.00	77,055	5,529	0	0	0
Superstructure (Timber; Span 3m; BMSO)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber; Span 5m; BMSO)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber; Span 8m; BMSO)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete; Span 3m; BMSO)	m2	0.00	54,054	89,335	0	0	0
Superstructure (Concrete; Span 5m; BMSO)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete; Span 8m; BMSO)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete; Span 10m; BMSO)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete; Span 5m; BMSO)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier; for Timber; 10T)	NO	0.00	457,406	35,428	0	0	0
Substructure (Abut; for Timber; 10T)	NO	0.00	1,244,461	163,285	0	0	0
Substructure (Pier; for Timber; BMSO)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut; for Timber; BMSO)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier; for Concrete; BMSO)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut; for Concrete; BMSO)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,584	1,177	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	472.00	9,297	2,433	4,388,184	1,148,376	5,536,560
Maintenance of Concrete Bridge (Exist)	m2	336.00	4,914	2,390	1,651,104	803,040	2,454,144
<hr/>							
(Without Overhead)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0
<hr/>							
(Overhead : 15%)	TOTAL COST (Timber Bridge)				0	0	0
	(Concrete Bridge)				0	0	0
	TOTAL COST (without Maintenance)				0	0	0

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 2 (IIC) LENGTH : 14 Km

(Rp)

I T E M	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		>>>>> TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber;Span 3m;10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	0.00	58,174	4,210	0	0	0
Superstructure (Timber;Span 8m;10T)	m2	0.00	77,055	5,529	0	0	0
Superstructure (Timber;Span 3m;BH50)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber;Span 5m;BH50)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber;Span 8m;BH50)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete;Span 3m;BH50)	m2	0.00	54,854	89,335	0	0	0
Superstructure (Concrete;Span 5m;BH50)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete;Span 8m;BH50)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete;Span10m;BH50)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete;Span15m;BH50)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	457,406	35,428	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,244,461	163,285	0	0	0
Substructure (Pier;for Timber;BH50)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut;for Timber;BH50)	NO	0.00	1,406,642	191,918	0	0	0
Substructure (Pier;for Concrete;BH50)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut;for Concrete;BH50)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Timber Bridge (New)	m2	0.00	9,584	1,177	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	238.50	4,914	2,390	1,171,989	570,015	1,742,004
(Without Overhead)			TOTAL COST (Timber Bridge)		0	0	0
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		0	0	0
(Overhead : 15%)			TOTAL COST (Timber Bridge)		0	0	0
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		0	0	0

PROV : SULAWESI SELATAN KAD : MANUJU

LINK NO : 3 (IIIC) LENGTH : 15 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber;Span 3m;10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber;Span 5m;10T)	m2	80.00	58,174	4,210	4,653,920	336,800	4,990,720
Superstructure (Timber;Span 8m;10T)	m2	1044.00	77,055	5,529	80,445,420	5,772,276	86,217,696
Superstructure (Timber;Span 3m;BH50)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber;Span 5m;BH50)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber;Span 8m;BH50)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete;Span 3m;BH50)	m2	0.00	54,854	89,335	0	0	0
Superstructure (Concrete;Span 5m;BH50)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete;Span 8m;BH50)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete;Span10m;BH50)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete;Span15m;BH50)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier;for Timber;10T)	NO	24.00	457,406	35,428	10,977,744	850,272	11,828,016
Substructure (Abut;for Timber;10T)	NO	32.00	1,244,461	183,285	39,822,752	5,225,120	45,047,872
Substructure (Pier;for Timber;BH50)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut;for Timber;BH50)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier;for Concrete;BH50)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut;for Concrete;BH50)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Timber Bridge (New)	m2	1124.00	9,584	1,177	10,772,416	1,322,948	12,095,364
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	4,914	2,390	0	0	0
(Without Overhead)			TOTAL COST (Timber Bridge)		135,899,836	12,184,468	148,084,304
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		135,899,836	12,184,468	148,084,304
(Overhead : 15%)			TOTAL COST (Timber Bridge)		156,284,811	14,012,138	170,296,950
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		156,284,811	14,012,138	170,296,950

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 4 (IITC) LENGTH : 15 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber; Span 3m; 10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber; Span 5m; 10T)	m2	40.00	58,174	4,210	2,326,960	168,400	2,495,360
Superstructure (Timber; Span 8m; 10T)	m2	344.00	77,055	5,529	26,506,920	1,901,976	28,408,896
Superstructure (Timber; Span 3m; BHSO)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber; Span 5m; BHSO)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber; Span 8m; BHSO)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete; Span 3m; BHSO)	m2	0.00	54,054	89,335	0	0	0
Superstructure (Concrete; Span 5m; BHSO)	m2	45.00	56,035	99,771	2,521,575	4,489,695	7,011,270
Superstructure (Concrete; Span 8m; BHSO)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete; Span 10m; BHSO)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete; Span 15m; BHSO)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier; for Timber; 10T)	NO	9.00	457,406	35,428	4,116,654	318,852	4,435,506
Substructure (Abut; for Timber; 10T)	NO	12.00	1,244,461	163,285	14,933,532	1,959,420	16,892,952
Substructure (Pier; for Timber; BHSO)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut; for Timber; BHSO)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier; for Concrete; BHSO)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut; for Concrete; BHSO)	NO	4.00	3,417,174	984,591	13,668,696	3,938,364	17,607,060
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	40.00	81,826	69,705	3,273,040	2,788,200	6,061,240
Maintenance of Timber Bridge (New)	m2	384.00	9,584	1,177	3,680,256	451,968	4,132,224
Maintenance of Concrete Bridge (New)	m2	45.00	2,045	2,726	92,025	122,670	214,695
Maintenance of Timber Bridge (Exist)	m2	220.00	9,297	2,433	2,045,340	535,260	2,580,600
Maintenance of Concrete Bridge (Exist)	m2	100.00	4,914	2,390	491,400	239,000	730,400
(Without Overhead)			TOTAL COST (Timber Bridge)		47,884,066	4,348,648	52,232,714
			(Concrete Bridge)		19,463,311	11,216,259	30,679,570
			TOTAL COST (without Maintenance)		67,347,377	15,564,907	82,912,284
(Overhead : 15%)			TOTAL COST (Timber Bridge)		55,066,676	5,000,945	60,067,621
			(Concrete Bridge)		22,382,808	12,898,698	35,281,506
			TOTAL COST (without Maintenance)		77,449,484	17,899,643	95,349,127

PROV : SULAWESI SELATAN KAD : MAMUKU

LINK NO : 5 (TIC) LENGTH : 13 Km

(Rp)

ITEM	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber; Span 3m; IOT)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber; Span 5m; IOT)	m2	260.00	58,174	4,210	15,125,240	1,094,600	16,219,840
Superstructure (Timber; Span 8m; IOT)	m2	432.00	77,055	5,529	33,287,760	2,388,528	35,676,288
Superstructure (Timber; Span 3m; BMSO)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber; Span 5m; BMSO)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber; Span 8m; BMSO)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete; Span 3m; BMSO)	m2	0.00	54,854	89,335	0	0	0
Superstructure (Concrete; Span 5m; BMSO)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete; Span 8m; BMSO)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete; Span 10m; BMSO)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete; Span 15m; BMSO)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier; for Timber; IOT)	NO	5.00	457,406	35,428	2,287,030	177,140	2,464,170
Substructure (Abut; for Timber; IOT)	NO	48.00	1,244,461	163,285	59,734,128	7,837,680	67,571,808
Substructure (Pier; for Timber; BMSO)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut; for Timber; BMSO)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier; for Concrete; BMSO)	NO	0.00	1,573,479	467,989	0	0	0
Substructure (Abut; for Concrete; BMSO)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Timber Bridge (New)	m2	692.00	9,584	1,177	6,632,128	814,484	7,446,612
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	4,914	2,390	0	0	0
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(Without Overhead)	TOTAL COST (Timber Bridge)		110,434,158		11,497,948	121,932,106	
	(Concrete Bridge)		0		0	0	
	TOTAL COST (without Maintenance)		110,434,158		11,497,948	121,932,106	
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(Overhead : 15%)	TOTAL COST (Timber Bridge)		126,999,282		13,222,640	140,221,922	
	(Concrete Bridge)		0		0	0	
	TOTAL COST (without Maintenance)		126,999,282		13,222,640	140,221,922	

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 10 (IIC) LENGTH : 17 Km

(Rp)

I T E M	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber;Span 3a;10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber;Span 5a;10T)	m2	0.00	58,174	4,210	0	0	0
Superstructure (Timber;Span 8a;10T)	m2	0.00	77,055	5,529	0	0	0
Superstructure (Timber;Span 3a;BH50)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber;Span 5a;BH50)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber;Span 8a;BH50)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete;Span 3a;BH50)	m2	0.00	54,854	89,335	0	0	0
Superstructure (Concrete;Span 5a;BH50)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete;Span 8a;BH50)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete;Span10a;BH50)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete;Span15a;BH50)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier;for Timber;10T)	NO	0.00	457,406	35,428	0	0	0
Substructure (Abut;for Timber;10T)	NO	0.00	1,244,461	163,285	0	0	0
Substructure (Pier;for Timber;BH50)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut;for Timber;BH50)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier;for Concrete;BH50)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut;for Concrete;BH50)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Tiaber Bridge (New)	m2	0.00	9,584	1,177	0	0	0
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Tiaber Bridge (Exist)	m2	568.00	9,297	2,433	5,280,696	1,381,944	6,662,640
Maintenance of Concrete Bridge (Exist)	m2	116.00	4,914	2,390	570,024	277,240	847,264
(Without Overhead)			TOTAL COST (Timber Bridge)		0	0	0
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		0	0	0
(Overhead : 15%)			TOTAL COST (Timber Bridge)		0	0	0
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		0	0	0

PROV : SULAWESI SELATAN KAB : MAMUJU

LINK NO : 11 (IIC) LENGTH : 12 Km

(Rp)

I T E M	UNIT	QUANTITY	<<< UNIT COST >>>		<<<<< COST >>>>>		TOTAL
			LOCAL	FOREIGN	LOCAL	FOREIGN	
Superstructure (Timber; Span 3m; 10T)	m2	0.00	52,520	3,812	0	0	0
Superstructure (Timber; Span 5m; 10T)	m2	60.00	58,174	4,210	3,490,440	252,600	3,743,040
Superstructure (Timber; Span 8m; 10T)	m2	720.00	77,055	5,529	55,479,600	3,980,880	59,460,480
Superstructure (Timber; Span 3m; BMSO)	m2	0.00	65,123	4,714	0	0	0
Superstructure (Timber; Span 5m; BMSO)	m2	0.00	71,097	5,108	0	0	0
Superstructure (Timber; Span 8m; BMSO)	m2	0.00	90,171	6,466	0	0	0
Superstructure (Concrete; Span 3m; BMSO)	m2	0.00	54,854	89,335	0	0	0
Superstructure (Concrete; Span 5m; BMSO)	m2	0.00	56,035	99,771	0	0	0
Superstructure (Concrete; Span 8m; BMSO)	m2	0.00	57,494	108,638	0	0	0
Superstructure (Concrete; Span 10m; BMSO)	m2	0.00	62,696	123,327	0	0	0
Superstructure (Concrete; Span 15m; BMSO)	m2	0.00	67,112	145,197	0	0	0
Substructure (Pier; for Timber; 10T)	NO	18.00	457,406	35,428	8,233,308	637,704	8,871,012
Substructure (Abut; for Timber; 10T)	NO	18.00	1,244,461	163,285	22,400,298	2,939,130	25,339,428
Substructure (Pier; for Timber; BMSO)	NO	0.00	672,697	52,434	0	0	0
Substructure (Abut; for Timber; BMSO)	NO	0.00	1,406,642	181,918	0	0	0
Substructure (Pier; for Concrete; BMSO)	NO	0.00	1,573,479	467,969	0	0	0
Substructure (Abut; for Concrete; BMSO)	NO	0.00	3,417,174	984,591	0	0	0
Demolition of Bridge (Timber->Timber)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Timber->Concrete)	m2	0.00	14,529	1,463	0	0	0
Demolition of Bridge (Concrete)	m2	0.00	81,826	69,705	0	0	0
Maintenance of Timber Bridge (New)	m2	780.00	9,584	1,177	7,475,520	918,060	8,393,580
Maintenance of Concrete Bridge (New)	m2	0.00	2,045	2,726	0	0	0
Maintenance of Timber Bridge (Exist)	m2	0.00	9,297	2,433	0	0	0
Maintenance of Concrete Bridge (Exist)	m2	0.00	4,914	2,390	0	0	0
(Without Overhead)			TOTAL COST (Timber Bridge)		89,603,646	7,810,314	97,413,960
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		89,603,646	7,810,314	97,413,960
(Overhead : 15%)			TOTAL COST (Timber Bridge)		103,044,193	8,981,861	112,026,054
			(Concrete Bridge)		0	0	0
			TOTAL COST (without Maintenance)		103,044,193	8,981,861	112,026,054

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