## REPUBLIC OF INDONESIA

# MINISTRY OF COMMUNICATIONS DIRECTORATE GENERAL OF LAND/TRANSPORT AND INLAND WATERWAYS

# TENDER DOCUMENTS FOR NEW RAILWAY LINE FOR CENGKARENG AIRPORT CONSTRUCTION PROJECT

COST ESTIMATION & PRINCIPLES

AUGUST 1984

JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)





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国際協力事	一業団
受入 月日 '84.11.19	801
容録No. 19891	61.6
<b>亞潔N0. 10001</b>	SDF

マイクロフィシュ作成

## **CONTENTS**

- 1. TOTAL INVESTMENT COSTS
- 2. COST ESTIMATION AND PRINCIPLES
  - Package I Civil and Architectural Work
  - Package II Track Work
  - Package III Electrical Work

# 1. TOTAL INVESTMENT COSTS

Total Investment Cost

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June 18 of the Committee of the Committe

	a francis	<u> </u>				
The second of th	1			ion Cost		
	Temporar		ction	Eleva	ted Trac	k
		Grade				
Work Item	L.C.	F.C.	Total	L.C.	F.C.	Total
	Million		Million	Million	1,000	Million
	Rp	US\$	Rp	Rp	US\$	Rp
1. Survey				ra je og		
Installation of	6	2	8	0	0	0
Right-of way Stake	£1		:		<u> </u>	
2. Geological Survey	33	9	42	0	0	0
Boring	, ,,,		. 42		<u> </u>	
3. Civil Work		1 2 2 2	ابتماء		_	
Earthworks	3,137	3,180	6,254	0	0	7 707
Bridge & Viaduct	15,173	13,824	28,720	3,952	3,301	7,187
Road Construction Work	551	321	866	0.	0 001	0
Subtotal	18,861	17,325	35,840	3,952	3,301	7,187
4. Track Work			1	row igiya	501	705
Track Laying Work	2,716	6,571	9,156	216	591	795
Track Shifting	84	22	105	0	501	·0
Subtotal	2,800	6,593	9,261	216	591	795
5. Architectural Work	325.1		0 505			
Airport Terminal	1,515	1,010	2,505	0	0	0
Station	122					_
Kota Intan Station	918	379	1,290	0	0	0
Jayakarta Station	0	0.	0	135	42	175
Signal Cabin	234	86	318	<sub>1</sub> 0   1   1   1   0	0	0
Crossing Watchman's Box	63	16	79	0	0	0
Subtotal	2,730	1,491	4,192	135	42	175
6. Electrical Work		l				
Substations	479	4,192	4,587	0	0	0
Overhead Contact System		1,180	2,054		60	
Power Distribution Lines		659	720		15	•
Signalling System	206	1,858	2,027		207	235
Telecommunication	467	694	1,147	16	43	58
System			<u> </u>		000	201
Subtotal	2,124	8,583	10,535		<del></del>	
7. Land Acquisition & In-	18,375	0	18,375	565	0	565
demnity of Obstacles		8			ļ	
8. Relocation of High	671	209	876	0	0	0
Voltage Power Trans-	1 .	1				
mission Steel Towers					<del> </del>	<u> </u>
9. Relocation of Airport	1,817	1,128	2,922	0	0	. 0
Access Road			<u> </u>		<u> </u>	
10. Trial Run	318	0				
11. An Indemnity & a Burden	332	1,262	1,569	. 0	C	0
for Power Supply			<u>                                       </u>		ļ	<u> </u>
12. Administration	529	27	555	0		0
Facilities	1 03	1 3 . 3	<b></b>		1	<del> </del>
13. Construction	204	3,693	3,823	29	528	547
Supervision			<u> </u>		<u> </u>	<u> </u>
14. Contingencies	18,242	10,553	28,584			1
	<del>                                     </del>	1			<del>                                     </del>	
Total	67,042	50,875	116,900	4,991	4,78	9,682
	,	•	• •	•		

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## Total Investment Costs (Approximate Estimates)

## Alternative

				nstructi	on Cost		
			ry Conn	ection	Elev	ated T	rack
	]		t Grade				
	Work Item	L.C.	F.C.	Total	L.C.	F.C.	Total
	Ï	Million		Million			
		Rp .	US\$	Rp	Rp	US\$	Řр
1.	Survey				<del></del>		<del></del>
⊥•	Installation of	6	2	8	0	0	0
	Right-of-way Stake			Ĭ			
2.	Geological Survey				<u> </u>	ļ — —	
2.	Boring	33	. 9	42	- 0	0	· 20
3.	Civil Work	- 55					1000
٠.	Earthworks	3,148	3,217	6,301	0	o	0
	Bridge & Viaduct	15,738	17,745	33,128		3,301	7,187
	Road Construction	551	321	866	0	0	0
	Work		]	,	]	, ,	1
	Subtotal	19,437	21,283	40,295	3,952	3,301	7,187
4.	Track Work					-	
•	Track Laying Work	2,752	6,718	9,336	216	591	795
	Track Shifting	84	22	105	ľ	0	0
	Subtotal	2,836	6,740	9,441		591	795
5.	Architectural Work	· ·					
	Airport Terminal	1,515	1,010	2,505	0	0	0
	Station	• • • • •	'			1	
	Kota Intan Station	918	379	1,290	0	0	0
	Jayakarta Station	0	0	0		42	175
	Signal Cabin	234	86	318		0	0
	Crossing Watchman's	63	16	79		0	0
	Box						1 2 2
	Subtotal	2,730	1,491	4,192	135	42	175
6.	Electrical Work						
	Substations	479	4,192	4,587		0	0
	Overhead Contact	898	1,180	2,054	18	60	≒ 76
	System		}			1	1
	Power Distribution	74	659	720	9	15	25
-	Lines			}		1	
	Signalling System	206	1,858	2,027		207	235
	Telecommunication	467	694	1,147	16	43	58
	System	<u> </u>	<u> </u>	,			
	Subtotal	2,124	8,583	10,535		325	394
7.	Land Acquisition &	18,375	0	18,375	565	0	565
	Indemnity of Obsta-					1	
	cles					<u> </u>	1
8.	Relocation of High	671	209	876	0	0	0
	Voltage Power Trans-						
	mission Steel Towers			<u> </u>	<u> </u>		
	Relocation of Airport	1,817	1,128	2,922	0	0	0
9.	Access Road	1	<del> </del>	<u> </u>		1	
			1 0	318		0	
10.	Trial Run	318					
10.	Trial Run An Indemnity & a	318	1,262	1,569	0	0	0
10.	Trial Run An Indemnity & a Burden for Power			1,569	0	ט	U
10. 11.	Trial Run An Indemnity & a Burden for Power Supply	332	1,262				
10. 11.	Trial Run An Indemnity & a Burden for Power Supply Administration					0	
10. 11.	Trial Run An Indemnity & a Burden for Power Supply Administration Facilities	529	1,262 27	555	0		
10. 11.	Trial Run  An Indemnity & a  Burden for Power  Supply  Administration  Facilities  Construction	332	1,262		0		0
10. 11.	Trial Run An Indemnity & a Burden for Power Supply Administration Facilities Construction Supervision	529 190	1,262 27	555	0	0	0
10. 11.	Trial Run  An Indemnity & a  Burden for Power  Supply  Administration  Facilities  Construction	529	1,262 27	555	0 29	0	0

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2. COST ESTIMATION AND PRINCIPLES	
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하는 경험을 받았다. 그런 사람들은 사람들이 되었다. 그런 사람들은 사람들은 사람들이 되었다. 	
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## PACKAGE I CIVIL AND ARCHITECTURAL WORK

1. CONSTRUCTION COSTS

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- 2. BASIC PRINCIPLES FOR CONSTRUCTION COST ESTIMATION
- 3. CONSTRUCTION SCHEDULE

## 1. Construction Costs

## (1) Summary of Construction Costs

Construction costs estimated as per the basic principles assumed for cost estimation are summed up as shown in Table-(1).

## (2) Amounts by Work Items

Unit prices and amounts broken down by work items are as shown in Table-(2).

## 2. Basic Principles for Construction Cost Estimation

Construction costs are believed to fluctuate considerably with the economic condition of Indonesia, the timing of the contract order and other factors. In this report, the construction costs were estimated according to the following principles:

## (1) Base Date for Construction Cost Estimation

The construction costs were estimated on the basis of laws, regulations, labor wages, and prices of materials and equipment, as of October 1, 1983, the day on which site survey was conducted to estimate construction cost.

## (2) Construction Period

Construction period shall be 35 months counting from the date of work commencement, including time needed for preparatory works. The maintenance period shall cover 12 months starting from the date of completion of the construction.

## (3) Escalation Clause

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The escalation clause shall apply to possible rise in prices.

## (4) Currency Exchange Rate

The exchange rate of foreign currency is set at Rp980 = US\$1.00.

## (5) Taxes and Duties

Taxes and duties shall be estimated on the following basis.

## 1) Exempted Items

- a) Any duties or import taxes to be imposed upon necessary equipment and materials to be imported for execution of this construction work.
- b) Taxes to be imposed upon incomes of alien corporations and expatriate workers to be engaged in this construction work.
- Non-exemption Item
   Tax to be imposed upon total proceeds.

## (6) Land Acquisition and Grant

Necessary land for construction of railway track under the proposed project shall be granted at no cost to the contractor after acquisition thereof by the employer, regardless of whether it is governmental or private land.

(7) Compensatory Procedures and Expense for Removal of Obstacles

The employer shall be fully responsible for the procedure to be taken and the expense for removal and compensation of any obstacles built up on the ground or buried under the ground inevitably to obstruct the execution of the construction work.

## (8) Wage Rates by Class of Labor

The daily rate of wage payable to the workers in the Republic of Indonesia shall be as per Table-(3). Those wage levels are determined on a basis of 7 working hours per day.

## (9) Main Material Prices and Quantities

With regard to required construction materials, domestic products shall be utilized to the possible maximum. Only those materials not locally available by any means shall be off-shore purchased and their standard price levels and quantities shall be as specified in Table-(4).

## (10) Main Construction Equipment and Rates

Work and their rates shall be as listed up in Table-(5).

## (11) Overhead Charges Rate

Overhead charges may be divided into costs on and off the site.

Overhead on the site shall take a share of 12 percent in the total construction cost, as shown in Table-(6), as the result of summing up to a total of necessary expenses. Overhead off the site shall include expenses to be incurred to both head and local offices of the contractor and the profit margin, thus corresponding to 10 percent of the net construction cost.

## (12) Temporary Construction Facilities

Main items of temporary construction facilities shall be as listed up in Table-(7).

- (13) Basic Conditions for Execution of Construction Work
  - 1) The work shall be executed for single track construction for the time being. However, since land acquisition is planned to ensure future addition to double track, the spare right-of-way for such future addition may be used as the temporary construction road at no charge to the contractor.
  - 2) The contractor's base shall be established near the post of 8k500m, together with six (6) other sub-bases.

## 3. Construction Schedule

The construction work schedule is as shown in Table-(8).

Consideration was given to the following matters in setting up the construction work schedule.

- (1) Prior arrangements should be made on the side of the employer, in advance of scheduled commencement of the work, to acquire necessary land and remove obstacles for site clearance, so that the construction work schedule would not be delayed in the past.
- (2) No works can be executed in any way for earthwork construction and river bridge construction for nearly 2 months during the wet season from December to March in the next year.

Table-(1) Summary of Construction Costs

			Amount	
Work Item	Unit	Domestic Currency (Rp)	Foreign Currency (US\$)	Total (Rp)
Surveying	Lump Sum	6,073,088	1,574.4	7,616,000
Geological Survey	** \	33,299,856	8,632.8	41,760,000
Earthworks	tt,	3,136,822,910	3,180,505.5	6,253,718,300
Bridge Work	11	15,172,423,606	13,824,330.3	28,720,267,800
Road Construction Work		551,090,802	321,515.1	866,175,600
Track Work	11	84,188,522	21,721.1	105,475,200
Architectural Work		2,730,627,600	1,490,730.0	4,191,543,000
Electrical Work	11	71,494,000	72,600.0	142,642,000
Total		21,786,020,384	18,921,609.2	40,329,197,900

TOTAL

	BIDDER:	· · · · · · · · · · · · · · · · · · ·
, .	DATE:	•
	SIGNATURE:	
		122 4
	GENERAL SUMMARY	
		6 74 77 1
		AMOUNT, RP.
1.	SURVEYING	7,616,000
2.	GEOLOGICAL SURVEY	41,760,000
3.	EARTHWORKS	6,253,718,300
4.	BRIDGE WORK .	28,720,267,800
5.	ROAD CONSTRUCTION WORK	866.175.600
6.	ARCHITECTURAL WORK	4,191,543,000
7.	TRACK WORK	105,475,200
8.	ELECTRICAL WORK	142,642.000

40,329,197,900

7,616,000 7,616,000 TOTAL RP. 1,574,4 1,574.4 F.C. US\$ AMOUNT 6,073,088 6,073,088 DATE: BIDDER: SIGNATURE: L.C. 1,23 F.C. US\$ UNIT PRICE 4,744.6 L.C. UNIT No. ESTIMATED 1,280 DESCRIPTION OF ITEM TOTAL OF SURVEYING RIGHT-OF-WAY STAKE BILL OF QUANTITIES 004,019 021,022 REF. SPEC. NO. 1. SURVEYING PAY İTEM No. 1.01

BILL OF QUANTITIES 2. GEOLOGICAL SURVEY

BIDDER:

			_	1	η	<del>,</del>							 	 	 <del></del> -	
				TOTAL RP.	41,760,000	41,760,000								· .		
			AMOUNT	F.C. US\$	8,632.8	8,632.8	•								:	
	DATE:	SIGNATURE:		L.C. RP.	33,299,856	33,299,856		7 1 2 2	<del></del>			-			 	
		•	UNIT PRICE	F.C. US\$	35,97		•	· ·	·		•		•		 -	
			UNIT	L.C. RP.	138,749.4					•				- 1	 	-
				ONLT	L.M.				<u> </u>			·		•	 	
			ESTIMATED	QUANTITY	240				-				<u></u>	:	***************************************	_
TITIES	1115	SURVEY	DESCRIPTION OF THE	COORTELION OF LIEM	BORING INVESTIGATION	TOTAL OF GEOLOGICAL SURVEY							•			
RILL OF DUANTITIES		2. GEOLOGICAL SURVEY	REF.	NO.	800									The second of the second of	, 5. , ==	_
	מונה ל	2. GEO	PAY	No.	2.01			<u> </u>			······································					
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BILL OF QUANTITIES
3. EARTHWORKS

DATE: \_ SIGNATURE: \_

BIDDER:

REF.		TOT WATER		UNIT PRICE	PRICE		AMOUNT	
SPEC.	DESCRIPTION OF ITEM	QUANTITY	UNIT	L.C. RP.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
007	SAND MAT	55,170	G.M.	12,062.4	5.12	665,482,608	282,470.4	942,203,600
200	EMBANKMENT	131,210	C.M.	5,082.8	3.14	669,914,188	411,999.4	1,070,673,600
710	AGGREGATE SUBBALLAST	15,300	C.M.	10,373.8	4.96	158,719,140	71,757.0	229,041,000
900	SODDING SLOPE PROTECTION	68,190	S.M.	1,055.4	0.27	71,967,726	18,411.3	90,010,800
003	EXCAVATION OF EARTH SIDE DITCH	16,530	C.M.	4,428.0	4.40	73,194,840	72,732.0	144,472,200
004	EXCAVATION -							
	CLASS A	6,200	C.M.	1,606.0	5.30	9,957,200	32,860.0	42,160,000
	CLASS B	6,640	C.M.	15,866.8	100.84	105,355,552	669,577.6	761,541,600
	CLASS C	7,350	C.M.	23,482.8	136.64	172,598,580	1,004,304.0	1,156,816,500
	CLASS E	420	C.M.	9,261.4	25.07	3,839,788	10,529.4	14,208,600
012	AGGREGATE SUBBASE (ASB-3)	1,910	C.M.	10,554.6	2.73	20,159,286	5,214.3	25,269,300
ı	SELECT STRUCTURE BACKFILL	420	C.M.	15,435.8	24.29	6,483,036	10,201.8	16,480,800
005,016		1,100	L.M.	26,587.8	14.89	29,246,580	16,379.0	45,298,000
022	300 MM DIAMETER	-					0 21	000 000 40
900	CONCRETE SLOPE PROTECTION	260	S.M.	92,082.0	51.60	23,941,320	13,410.0	000,600,75
022	LEVELING CONCRETE	520	C.M.	72,082.4	18.62	37,482,848	9,682.4	46,9/L,6UU
022	CONCRETE FOR -	-	-			,		
	SEMI-GRAVITY TYPE RETAINING WALL	1,590	C.M.	80,496.8	39.84	127,989,912	63,345.6	190,068,600
	WATER CHANNEL	210	C.M.	77,264.8	34.74	16,225,608	7,295.4	23,375,100

BILL OF QUANTITIES
3. EARTHWORKS

BIDDER:

DATE: \_\_\_\_SIGNATURE: \_\_\_\_

UNIT L.C. F.C. L.C. F.C. US\$  RP. US\$	UNIT PRICE AMOUNT
C.M. 80,735.6 40,78 74,276,752 37,517.6 C.M. 87,005.6 46,78 376,734,248 202,557.4 C.M. 123,279.6 89,48 4,931,184 3,579.2 C.M. 85,148.8 50,44 150,713,376 89,278.8 C.M. 88,710.8 77,04 14,193,728 12,326,4 S.M. 11,057.2 3.86 29,080,436 10,151.8 C.M. 21,313,0 65,65 2,770,690 8,534,5 L.M. 5,386.6 1,43 121,239,954 31,302.7 M.T. 468,309.0 229,95 173,274,330 85,081,5	L.C. F.C. L.C. RP.  80,735.6 40.78 74,276,752 37,005.6 46.78 376,734,248 20,123,279.6 89,48 4,931,184 85,148.8 50.44 150,713,376 88,710.8 77.04 14,193,728 11,057.2 3.86 29,080,436 21,313.0 65.65 2,770,690 5,386.6 1,43 121,239,954 468.309.0 229,95 173,274,330
80,735.6 40,78 7 87,005.6 46,78 37 123,279.6 89,48 85,148.8 50,44 15 88,710.8 77,04 1 11,057,2 3,86 2	UNIT L.C. F.C. US\$  C.M. 80,735.6 40.78 7  C.M. 87,005.6 46.78 37  C.M. 123,279.6 89,48  C.M. 85,148.8 50,44 15  C.M. 88,710.8 77.04 1  S.M. 11,057.2 3.86 2
80,735.6 40.78 74,276,752 87,005.6 46.78 376,734,248 123,279.6 89,48 4,931,184 85,148.8 50,44 150,713,376 88,710.8 77.04 14,193,728	UNIT L.C. F.C. L.C. RP.  US\$ RP.  RP.  C.M. 80,735.6 40.78 74,276,752  C.M. 87,005.6 46.78 376,734,248  C.M. 123,279.6 89,48 4,931,184  C.M. 85,148.8 50,44 150,713,376  C.M. 88,710.8 77.04 14,193,728
80,735.6 40.78 74,276,752 87,005.6 46.78 376,734,248 2 123,279.6 89,48 4,931,184 85,148.8 50,44 150,713,376	UNIT L.C. F.C. L.C. RP. C. R.C. RP. C.M. 80,735.6 40.78 74,276,752 C.M. 87,005.6 46.78 376,734,248 C.M. 85,148.8 50.44 150,713,376
80,735.6 40.78 74,276,752 87,005.6 46.78 376,734,248 123,279.6 89,48 4,931,184	UNIT L.C. F.C. L.C. RP.  RP. US\$ RP.  C.M. 80,735.6 40,78 74,276,752  C.M. 87,005.6 46,78 376,734,248  C.M. 123,279.6 89,48 4,931,184
80,735.6 40,78 74,276,752 87,005.6 46,78 376,734,248 2	UNIT L.C. F.C. L.C. RP. C.M. 80,735.6 40.78 74,276,752 C.M. 87,005.6 46.78 376,734,248 2
80,735.6 40.78 74,276,752	UNIT L.C. F.C. L.C. RP. C.M. 80,735.6 40.78 74,276,752
	UNIT L.C. F.C. L.C. RP.

BILL OF QUANTITIES

DATE: BIDDER:

SIGNATURE:

514,675,000 871,102,400 2,322,978,000 68,904,000 751,350,600 543,379,200 1,035,203,400 843,231,600 2,032,825,000 177,950,100 94,472,600 1,016,092,000 1,753,924,800 3,326,327,500 ,918,802,500 52,126,200 ₩. TOTAL 1,310,889.6 1,244,524.3 656,102.6 18,374.4 598,892.0 264,616.0 675,406.8 421,438.5 10,756.2 893,201.4 304,584.0 36,681.4 259,528.5 34,875.4 193,536.0 714,515.2 F.C. USS AMOUNT 50,897,088 429,177,840 181,332,936 101,665,270 1,447,640,628 2,106,693,686 ,389,844,452 142,002,328 60,294,904 497,012,670 775,879,720 469,252,992 41,585,124 620,310,180 353,713,920 170,877,504 L.C. 124.48 237.48 16.38 16.93 213.89 24.80 23.02 2.73 23.52 24.61 25.52 49.12 37.45 43.20 70.83 18.61 F.C. USS UNIT PRICE 72,716.0 26,547.6 71,719.0 153,277.8 29,769.6 78,954.0 6,180.4 17,086.6 28,658.6 70,690.4 85,009.6 10,554.6 47,900.4 52,132.2 72,082.4 84,922.4 L. C. ₽. C.M. C.M. L.M. L.M. L.M. C.M. C.M C.M. L.M. C.M. C.M. C. ĭ C.M. C.M. C.M. UNIT ESTIMATED QUANTITY 710 4,480 2,800 10,670 54,530 26,660 6,930 1,970 29,340 12,950 5,950 5,740 5,520 3,940 73,510 PRESTRESSED CONCRETE PILES-AGGREGATE SUBBASE (ASB-3) 018,022 REINFORCED CONCRETE FOR 106 DESCRIPTION OF ITEM PIER WALL AND COLUMN ABUTMENT FOUNDATION VIADUCT FOUNDATION 500 MM DIAMETER, A 350 MM DIAMETER, 500 MM DIAMETER, 350 MM DIAMETER, LEVELING CONCRETE PIER FOUNDATION ABUTMENT WALL EXCAVATION CLASS C CLASS F CLASS B CLASS A GIRDER 4. BRIDGE AND VIADUCT REF. SPEC. NO NO 022 908 012 004 ٠. ີ່ວ່ Ġ. a a ن ð ģ 4.04 . E ₽ 4 ċ م 4.05 ITEM No. 4.02 4.03 PAY 4.01

BILL OF QUANTITIES
4. BRIDGE AND VIADUCT

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FCTTMATED	Ē		TIND	PRICE	i	AMOUNT	
DESCRIPTION OF ITEM QUANTITY	# E	LIND Z	L.C.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
BEAM AND 19,33C	1 8	C.M.	98,086.8	82.34	82.34 1,896,017,844	1,591,632.2	3,455,817,400
CONCRETE REINFORCEMENT 6,100	00	M.T.	468,309.0	229:95	229:95 2,856,684,900	1,402,695.0	4,231,326,000
PRESTRESSED CONCRETE GIRDER							
	7	L.S	L.S. 20,192,840	36,142.0	141,349,880	252,994.0	389,284,000
	9	L.S	L.S. 25,016,320	44,916.0	150,097,920	269,496.0	414,204,000
<u>.</u>	Ŋ	L.S	L.S. 33,430,100	69,005.0	167,150,500	345,025,0	505,275,000
<del> </del>		L.S	L.S. 45,297,000	82,950,0	45,297,000	82,950.0	126,588,000
	7	L.S	L.S. 37,553,060	73,203.0	37,553,060	73,203.0	109,292,000
	Ⅎ	L.S	L.S. 40,154,480	77,924.0	441,699,280	857,164.0	1,281,720,000
	C)	L.S	L.S. 42,291,800	81,790.0	126,875,400	245,370.0	367,338,000
	$\vdash$	L.S	L.S. 44,173,980	0.666,98	44,173,980	86,999.0	129,433,000
· <del></del>	4	L.S	L.S. 53,115,320	108,516.0	212,461,280	434,064.0	637,844,000
	സ	L.S	L.S. 85,697,500	136,975.0	197,092,500	410,925.0	599,799,000
FABRICATION AND DELIVERY OF THROUGH PALTE GIRDER	-	L.S.	. 7,026,760	84,938.0	7,026,760	84,938.0	90,266,000
INSTALLATION OF THROUGH PLATE GIRDER	-	L.S	L.S. 10,762,060	48,953.0	10,762,060	48,953.0	58,736,000
	1				15,172,423,606 13,824,330.3	13,824,330.3	28,720,267,800
<del>.</del>				•			

5000 Sec. 100 151,767,000 866,175,600 **RP.** 222,640,100 121,023,500 225,193,700 12,945,900 115,069,500 1,929,200 7,695,500 7,911,200 TOTAL AMOUNT 1,585.0 US\$ 397.6 3,630.8 321,515.1 71,257.5 40,194.0 32,301.8 66,832.5 3,161.4 102,154.5 F.C. 551,090,802 152,807,750 112,376,880 159,697,850 9,847,728 14,958,090 6,142,200 4,353,016 89,367,736 1,539,552 2 BIDDER: DATE: SIGNATURE: L.C. nss 8.12 7.46 5.25 9.58 97.29 1.42 31.70 2.25 F.C. UNIT PRICE RP. 4,825.0 22,702.4 20,639.2 12,545.0 29,841.6 14,245.8 15,010.4 5,498.4 122,844.0 1.C. S.M. S.M. S.M. L.M. S.M. C.H. S.M. C.X UNIT No. ESTIMATED 1,050 20 4,950 4,330 12,730 330 280 290 31,670 TOTAL OF ROAD CONSTRUCTION 012,014 ASPHALT CONCRETE CONSTRUC-DESCRIPTION OF ITEM ASPHALT PAVEMENT -CONCRETE CURBING SAFETY MARKINGS GURD RAILING ROADWAY SIGN 5. ROAD CONSTRUCTION WORK EMBANKMENT TYPE C TYPE D TYPE A TYPE B BILL OF QUANTITIES - NOII WORK REF. 200 010 123 NO. 022 5.02 <u>م</u>. ່ວ່ તં ITEM 5.05 5.01 5.06 PAY No. 5.03 5.04

BILL OF QUANTITIES
6. ARCHITECTURAL WORK

DATE: SIGNATURE:

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																		;		
		TOTAL RP.		5,457,000	1,344,743,000	299,796,000		85,475,000		•		29,412,000	180,847,000	86 108 000	000 007 60	94,646,000		• .		
	AMOUNT	F.C. US\$		1,125.0	770,776.0	61,783.0	•	17,615.0			,	6,062.0	37 270.0	17 223 0	11,532.0	19,506.0				1
		L.C. RP.		4,354,500	589,382,520	239,248,660		68,212,300				23,471,240	17.4 322 4.00	004,326,442	0,777,040	75,530,120	•	1.		
i	PRICE	F.C. US\$		1,125.0	770,776.0	61,783.0	. "	17,615.0	·-			6,062.0		_		19,506.0			•	
	UNIT F	L.C. RP.		4,354,500	589,382,500	239,248,660		68,212,300			-	23,471,240	000	144,322,400	67,122,640	75,530,120				
		UNIT		L.S.	L.S.	L.S.		L.S.				L.S.	c +	L. 5.	L.S.	L.S.				
	сттилтер	QUANTITY	:	<b></b> 1	H	H		п							-	н				
CAL WORK		DESCRIPTION OF ITEM	AIRPORT TERMINAL STATION -	EXCAVATING, FILLING AND GRADING	SUBSTRUCTURE AND SUPER- STRUCTURE	EXTERNAL FINISH		INTERNAL FINISH				DOORS, WINDOWS AND LOUVERS		FURNISHINGS	LANDSCAPING	VENTILATING AND AIR	CONDITIONING			
AKCHIIECIUKAL WUKK	REF.			003,007	008,019		105,106 110,111 125,126	021,106	110,118	121,122	127,128		7		101		135, 138	143,144	147,148	
0. A	PAY	ITEM No.	6.01	เช่	مُ	ບໍ		<b>ס</b>	-			ข้		<b>4</b>	8	Ъ.		(		
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BILL OF QUANTITIES

DATE: \_\_\_\_SIGNATURE:

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11.0 11.0 11.0 50.0	<	ARCHITECTURAL WORK	jral work							
PESCRIPTION OF ITEM   CHARTEN   CH		. 11.11					RICE		AMOUNT	
PLUMBING		REF. SPEC. NO.	DESCRIPTION OF ITEM	ESTIMATED QUANTITY	UNIT	L.C.	F.C. US\$	L.C.	F.C. US\$	TOTAL RP.
ELECTRICAL  TOTAL OF AIRPORT TERMINAL  KOTA INTAN STATION  EXCAVATING, FILLING AND SUPER- STRUCTURE  STRUCTURE  EXTERNAL FINISH  1 L.S. 291,788,000 75,350.0 291,788,000 75,350.0		36,137	PLUMBING	-	L.S.	159,063,480	41,074.0	159,063,480	41,074.0	199,316,000
TOTAL OF AIRPORT TERMINAL STATION  KOTA INTAN STATION —  EXCAVATING, FILLING AND  CRADING SUBSTRUCTURE STRUCTURE  EXTERNAL FINISH  1 L.S. 291,788,000 75,350.0  1,494,741,480 1,004,574.0  806.0  3,125,120  806.0  190,261.0  190,261.0  190,261.0  75,350.0	-	46 145	ELECTRICAL	н	L.S.	124,033,620	32,031.0	124,033,620	32,031.0	155,424,000
KOTA INTAN STATION -       L.S.       3,125,120       806.0       3,125,120       806.0         EXCAVATING, FILLING AND GRADING SUBSTRUCTURE AND SUPER-STRUCTURE       1       L.S. 188,734,220       190,261.0       188,734,220       190,261.0         STRUCTURE       1       L.S. 291,788,000       75,350.0       291,788,000       75,350.0			TOTAL OF AIRPORT TERMINAL STATION					1,494,741,480	1,004,574.0	2,479,224,000
EXCAVATING, FILLING AND 1 L.S. 3,125,120 806.0 3,125,120 806.0 GRADING SUBSTRUCTURE AND SUPER- 1 L.S.188,734,220 190,261.0 188,734,220 190,261.0 STRUCTURE AND SUPER- 1 L.S.291,788,000 75,350.0 75,350.0						:		:		
EXCAVATING, FILLING AND 1 L.S. 3,125,120 806.0 3,125,120 806.0 GRADING SUBSTRUCTURE AND SUPER— 1 L.S. 188,734,220 190,261.0 188,734,220 190,261.0 STRUCTURE  EXTERNAL FINISH 1 L.S. 291,788,000 75,350.0 291,788,000 75,350.0						· .				
GRADING SUBSTRUCTURE AND SUPER- 1 L.S. 188,734,220 190,261.0 188,734,220 190,261.0 STRUCTURE  EXTERNAL FINISH 1 L.S. 291,788,000 75,350.0 75,350.0		003,007	KOTA INTAN STATION - EXCAVATING, FILLING AND	- <del>-</del>	L.S.		806.0	3,125,120	806.0	3,915,000
EXTERNAL FINISH 1 L.S. 291,788,000 75,350.0 291,788,000 75,350.0		008,011		H	r. s.	188,734,220	190,261.0	188,734,220	190,261.0	375,190,000
		019,022 104 021,101			LS	291,788,000	75,350.0	291,788,000	75,350.0	365,631,000
071.621		102,103 105,106 110,111		· · · · · · · · · · · · · · · · · · ·	· · · · · ·					
		172,120					•	:		
								1.1		

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		·	TOTAL RP.	76,804,000	20,681,000	147,477,000	7,397,000	44,854,000	125,024,000	122,801,000	1,289,774,000	
		AMOUNT	F.C. US\$	15,829.0	4,262.0	30,393.0	1,525.0	9,242.0	25,766.0	25,307.0	378,741	
DATE:	SIGNATURE:		L.C. RP.	61,291,580	16,504,240	117,691,860	5,902,500	35,796,840	99,773,320	98,000,140	918,607,820	
		PRICE	F.C. US\$	15,829.0	4,262.0	30,393.0	1,525.0	9,242.0	25,776.0	25,307.0		
		UNIT P	L.C. RP.	61,291,580	16,504,240	117,691,860	5,902,500	35,796,840	99,773,320	98,000,140		
			UNIT	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.	L.S.		
		Call A M F Broat	QUANTITY	ť	r <del>i</del>	т	н	H	-	H	:	
SCHEDULE OF QUANTITIES	RAL WORK		DESCRIPTION OF ITEM	INTERNAL FINISH	DOORS, WINDOWS AND LOUVERS	FURNISHINGS	LANDSCAPING	VENTILATING AND AIR CONDITIONING	PLUMBING	ELECTRICAL	TOTAL OF KOTA INTAN STATION	
DULE OF (	ARCHITECTURAL WORK	ж. Т.Т.	SPEC.	021,106 108,109 110,118 119,120 121,122 123,124 127,128	112,113	133	101	131,134 135,138 139,140 143,144	147,148 136,137 141,142	146		
SCHE	9	PAV	ITEM No.	• p	ą	44	60	į.	<b>,</b> ,	j.		Francis Constitution

BILL OF QUANTITIES

BIDDER: DATE: SIGNATURE:

318,096,000 36,094,000 15,425,000 21,813,000 1,229,000 136,540,000 57,532,000 25,702,000 23,691,000 TOTAL 쯦. 3,179.0 268.0 85,936.0 4,882.0 4,496.0 48,519.0 11,855.0 7,439.0 5,298.0 F.C. US\$ AMOUNT 233,878,720 17,406,920 18,906,640 12,309,580 88,991,380 45,914,100 28,803,780 20,509,960 1,036,360 L.C. 5,298.0 18,906,640 4,882.0 3,179.0 4,496.0 268.0 45,914,100 11,855.0 28,803,780 7,439.0 88,991,380 48,519.0 F.C. US\$ UNIT PRICE 12,309,580 20,509,960 17,406,920 1,036,360 L.C. RP. L.S. L.S. L.S. L.S. L.S. L.S. UNIT L.S. L.S. ESTIMATED -1 -H EXCAVATING, FILLING AND GRADING SUBSTRUCTURE AND SUPER-DESCRIPTION OF ITEM FOTAL OF SIGNAL CABIN VENTILATING AND AIR DOORS, WINDOWS AND LOUVERS INTERNAL FINISH EXTERNAL FINISH ARCHITECTURAL WORK CONDITIONING ELECTRICAL SIGNAL CABIN STRUCTURE PLUMBING 021,102 103,108 110,111 126 136,137 141,142 021,118 119,120 121,123 124 008,019 022,105 106 112,113 114,115 116,117 003,007 REF. SPEC. 134 145 0<u>2</u> å 4 å ď. م ITEM 6.03 PAY. ė No.

BILL OF QUANTITIES

DATE:

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6. ARCHITECTURAL WORK

1,072,000 157,000 266,000 10,845,000 2,535,000 79,275,000 5,865,000 18,315,000 855,000 40,860,000 TOTAL RP. 220.0 55.0 34.0 510.0 16,290.0 165.0 1,200.0 2,235.0 8,415.0 3,765.0 F.C. US\$ AMOUNT 856,400 123,680 63,310,800 212,100 32,613,300 14,625,300 4,689,000 8,654,700 2,035,200 693,300 L.C. 251.0 34.0 220.0 \$5.0 149.0 561.0 80.0 34.0 11.0 F.C. US\$ UNIT PRICE 46,218.6 2,174,372 312,634.6 974,763.4 123,680 856,400 212,700 576,980 135,680 L.C. L. S. L.S. L.S. UNIT LOT LOI LOI LOT LOI LOI ESTIMATED QUANTITY 15 15 15 15 15 15 Н SUBSTRUCTURE AND SUPER-EXCAVATING, FILLING AND GRADING EXCAVATING, FILLING AND GRADING SUBSTRUCTURE AND SUPER-CROSSING WATCHMAN'S BOX DESCRIPTION OF ITEM DOORS, WINDOWS AND EXTERNAL FINISH INTERNAL FINISH TOTAL OF CROSSING WATCHMAN'S BOX EXTERNAL FINISH ELECTRICAL STRUCTURE STRUCTURE DUMP YARD -LOUVERS 102,103 020,118 112,113 003,007 019,022 REF. SPEC. NO. 003,007 b. 019,022 c. 102,103 145 ъ. ed. Ť. PAY ITEM 6.04 6.05

23,679,000 25,174,000 4,191,543,000 TOTAL RP. 2,730,627,600 | 1,490,730.0 4,880.0 5,189.0 F.C. US\$ AMOUNT 18,896,600 20,088,780 DATE: SIGNATURE: BIDDER: L.C. 4,880.0 F.C. US\$ UNIT PRICE L.S. 18,896,600 L.C. RP. UNIT ESTIMATED -TOTAL OF ARCHITECTURAL WORK DESCRIPTION OF ITEM TOTAL OF DUMP YARD FURNISHINGS 6. ARCHITECTURAL WORK BILL OF QUANTITIES REF. SPEC. NO. 132 ט PAY ITEM No.

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		TOTAL RP.	73,950,000	29,370,600	2,154,600	105,475,200	·								· ,		
	AMOUNT	F.C. US\$	75,237.5	6,042.6	441.0	21,721.1								•	•		
BIDDER: DATE: SIGNATURE:		L.C. RP.	59,017,250	23,448;852	1,722,420	84,188,522											
	RICE	F.C. US\$	12,19	3.73	0.35				•								
	UNIT PRICE	L.C. RP.	47,213,8	14,474,6	1,367.0				•								
	•	TIND	L.M.	L.M.	L.M.			-					-			:	
	FCTTMATEN		1,250	1,620	1,260					•							
ITITIES		DESCRIPTION OF ITEM	TRACK LAYING	TRACK SHIFTING	REMOVAL OF TRACK	TOTAL OF TRACK WORK											
BILL OF QUANTITIES	REF.	SPEC. NO.	027	027	026												
BILL 7. TRA	PAY	ITEM No.	7.01	7.02	7.03								-				we was

BILL OF QUANTITIES

DATE: \_\_\_\_SIGNATURE: \_\_\_

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8. ELE	ELECTRICAL WORK	WORK						History.	
					LIND	PRICE		AMOUNT	
PAY ITEM No.	REF. SPEC. NO.	DESCRIPTION OF ITEM	QUANTITY	UNIT	L.C. RP.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
8.01	305	IMPROVEMENT OF OVERHEAD	H	L.S.	69,664,560	72,128.0	69,664,560	72,128.0	140,350,000
8.02	025	LINE CHANGE OVER OF EXISTING SIGNALING EQUIPMENT	<b>⊢</b>	L.S.	1,829,440	472.0	1,892,440	472.0	2,292,000
		TOTAL OF ELECTRICAL WORK					71,494,000	72,600.0	142,642,000
	. Y								

Class of Labor	Daily Rate Rp
Care Taker	4,800
Special Worker	3,000
Ordinary Worker	2,800
Light-labor Worker	2,500
Mechanical Operator	5,900
Car Driver	4,000
Scaffolding Man	5,000
Chipping Man	3,600
Asphalt Paver	3,000
Carpenter	3,500
Steel Worker	3,500
Welder	3,500
Painter	3,100
Piping Man	5,300
Blacksmith	3,500
Track Worker	3,300
Train Watcher	3,000

Table-(4)

Unit Price of Main Materials

]	Item	Туре	Unit	Unit Price Rp	Required Quantity	Remark
Sand	1 (C) (3)		3	9,000	55,200	Home (for site delivery)
Grav	•		<b>tt</b>	7,700	21,200	11 11
i	Concrete	σ28 140kg/cm <sup>2</sup>	11	58,800	2,500	n 11
11	Presidente de la composición del composición de la composición de la composición de la composición de la composición del composición de la composición del composición de la composición del composición del composición del composición del composición del composición del composición d	σ28 180kg/cm <sup>2</sup>	11	60,000	4,700	11 11
	<b>11</b>	σ28 210kg/cm <sup>2</sup>	**	61,100	18,000	11 11
"	1	σ28 240kg/cm <sup>2</sup>	11	62,600	35,400	11 11
n ·	<b>n</b>	σ28 400kg/cm <sup>2</sup>	. 11	72,000	4,700	n n
	nforcing	:	t	361,000	6,900	11 18
	-stressed crete Pile	∲35cm A-class	m	23,520	54,500	11 11
"		∲35cm B-class	ţı	25,480	73,500	11 11
"	1 1 1	ø50cm A−class	н	43,120	12,900	11 11
11	1	ø50cm B-class	n .	47,040	26,700	11 11
Cri	ushed Stone	For track ballast	m <sup>3</sup>	12,200	3,100	11 11
	ose Granular phalt Concrete		t	50,000	2,600	" "
St Pi	ructural Steel pe		t	812,500	520	Import (for site delivery)
H-	shaped Steel		t	729,300	110	0 " "

Table-(5)

			· _	
Item	Standard	Basic Price Rp	Hourly Rate in Operation Rp	Daily Rate on Site Rp
Bulldozer	21t	128,100,000	28,182	80,703
11	11t	69,600,000	15,312	43,848
Dump Truck	6t	21,600,000	4,860	18,360
Back Hoe	0.6m <sup>3</sup>	73,300,000	13,560	43,466
Crawler Crane	35t .	164,200,000	29,720	95,236
11	50t	227,600,000	40,740	122,221
Tyre Roller	8 20t	39,100,000	7,741	22,834
Vibro- roller	15t	97,900,000	27,216	67,551
Vibro- hammer	45kw	62,500,000	22,687	57,062

<u> </u>	erandari e e e e e e e e e e e e e e e e e e e	Amount		4
Item	Domestic Currency Rp	Foreign Currency US\$	Total Rp	Remark
Payroll Costs for Employees	er det v	2,427,234	2,378,689,320	
Fringe Benefits Cost	5,580,000	21,064	26,222,720	
Labor Safety Protection	6,200,000	408,511	406,540,780	
Traveling Expense	77,500,000	149,362	223,874,760	
Communication Expense	43,400,000	52,766	95,110,680	
Office Supplies	46,500,000	5,532	51,921,360	
Social Dues	15,500,000	26,383	41,355,340	
Legal Welfare		65,957	64,637,860	
Sales Tax	573,375,000		573,375,000	
Insurance Premium	9,050,000	312,701	315,496,980	Construction insurance
Guarantee Fee	119,540,000		119,540,000	Bid, performance & advanced payment bonds
Sundry Expenses	83,400,000	131,915	212,676,700	
Sub-Total	980,045,000	3,601,425	4,509,441,50	
Local Employment Cost	300,700,000		300,700,00	0
Total	1,280,745,000	3,601,425	4,810,141,50	0

Table-(7)	Tempora	ry Faciliti	es 	4 (gm ) 4 (g) 
		Amount		
Item	Domestic Currency Rp	Foreign Currency US\$	Total Rp	Remark
Construction Road	270,659,400	106,964	375,484,120	
Construction Base				
Site Preparation	120,000,000		120,000,000	
Building Construction	103,280,000	474,800	568,584,000	Total floor area 1,730 <sup>m2</sup> Contractor's field office and labor-
				T20 <sup>m2</sup> Workers' domitories 580 <sup>m2</sup>
Cars for Liaison Purpose	271,800,000		271,800,000	Warehouse 430 <sup>m2</sup>
Office Fixtures and Furnitures	20,000,000		20,000,000	
Power Supply System	259,413,000	778,011	1,021,863,780	
Water Supply System	38,000,000		38,000,000	in a contraction
Water Purifi- cation & Drainage System	6,000,000		6,000,000	5, 5, de e
Test Facilities	,	43,000	42,140,000	
Weather Observatory	3,920,000		3,920,000	12 60
Total	1,093,072,400	1,402,775	2,467,791,900	

Table-(8) Construction Schedule

		Co	mmen	ceme	nt									•														<u> </u>			mplet	101		
	Construction Period		1 s	t Yea	ar					2nd	l Yea	ar							3	rd Y	ear							•	4	th Y	ear			
	Work Item	7	8	9   10	11	12	1 2	3	4 :	5 6	7	8	9 10	0 11	12	1 2	3	4	5	6 7	7 8	9	10	11	12	1 2	2 3	4	5	6	7 8	9	10	11 1
	Right-of-way Stake	1	-		-																						F		$\prod$	$\top$				
Preparatory Works	Boring			+	-																1					<u> </u>	1	1		$\top$		$\top$		
	Base Construction & Removal	ightharpoonup	-	-						$\dagger$				1							$\dagger$		T				+	-		$\top$	+			
-,,-	Earthwork on Main Track Line	<del></del>					+			+		H		-		+				+		+	-				$\dagger$	-		$\dagger$		+		
•	Concrete for Semi-Gravity Type Retaining Wall								H	-				-		+	+	+			$\bot$	+	-	1		.	十		П	十		$\top$		
	Reinforced Concrete for Retaining Wall														H		+	-			1		<u> </u>			i	$\top$		$\sqcap$	十		$\uparrow$		
Earthworks	Reinforced Concrete for Side Ditch								H	-																			П	T				
	Reinforced Concrete for Box Culvert									-	+			丰			+				+	4	-	-		•	T		П	十		$\top$		П
	Reinforced Concrete for Underground Passage						+			+	-	- 1															1						П	$\sqcap$
	Demolition of Existing Reinforced Concrete Structure						+	-	-					1:											•		$\uparrow$			$\neg$				
	Prestressed Concrete Pile			F			_							+		_	+	$\vdash$			1	+	#	-			1		$\prod$	十		T		
	Reinforced Concrete for Abutment and Pier					-	+	+			+	+-	+	+							+	Ŧ	+				1			$\top$			П	
Bridges & Viaducts	Reinforced Concrete for Viaduct				$\vdash$													-	-		+	-	-				$\mp$	-	$\prod$					
	Prestressed Concrete Girder										-										-	+	-		H									
	Fabrication, Delivery and Installation of Through Plate Girder																				+	+												
Road Construction	Embankment								H	-	+-	H																	$\prod$					П
Works	Asphalt Pavement													_																				
	Track Laying																																	
Track Works	Track Shifting									-			-	$\dashv$																				
	Removal of Track														1																			
	Airport Station					-					+			+																				
Architectural	Kota Intan Station																				-													
Works	Signal Station																_	_			$\perp$		_	┫_			$\perp$			$\perp$			$oldsymbol{\perp}$	$\coprod$
	Crossing Watchman's Box																	.					+	+							$\perp$			$\coprod$
	Improvement of Overhead Line									-																								
	Change Over of Existing Signaling Equipment									-											T		T		Γ					T				

### PACKAGE II TRACK WORK

- 1. CONSTRUCTION COSTS
- 2. BASIC PRINCIPLES FOR CONSTRUCTION COST ESTIMATION
- 3. CONSTRUCTION SCHEDULE

#### 1. Construction Costs

### (1) Summary of Construction Costs

Construction costs estimated as per the basic principles assumed for cost estimation are summed up as shown in Table-(1).

### (2) Amounts by Work Items

Unit prices and amounts broken down by work items are as shown in Table-(2).

## 2. Basic Principles for Construction Cost Estimation

Construction costs are believed to fluctuate considerably with the economic condition of Indonesia, the timing of the contract order and other factors. In this report, the construction costs were estimated according to the following principles:

# (1) Base Date for Construction Cost Estimation

The construction costs were estimated on the basis of laws, regulations, labor wages, and prices of materials and equipment, as of October 1, 1983, the day on which site survey was conducted to estimate construction cost.

### (2) Construction Period

Construction period shall be 29 months counting from the date of work commencement, including time needed for preparatory works. The maintenance period shall cover 12 months starting from the date of completion of the construction.

### (3) Escalation Clause

The escalation clause shall apply to possible rise in prices.

# (4) Currency Exchange Rate

The exchange rate of foreign currency is set at Rp980 = US\$1.00.

### (5) Taxes and Duties

Taxes and duties shall be estimated on the following basis.

#### 1) Exempted Items

a) Any duties or import taxes to be imposed upon necessary equipment and materials to be imported for execution of this construction work.

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- b) Taxes to be imposed upon incomes of alien corporations and expatriate workers to be engaged in this construction work.
- Non-exemption Item
   Tax to be imposed upon total proceeds.

### (6) Land Acquisition and Grant

Necessary land for construction of railway track under the proposed project shall be granted at no cost to the contractor after acquisition thereof by the employer, regardless of whether it is governmental or private land.

(7) Compensatory Procedures and Expense for Removal of Obstacles

The employer shall be fully responsible for the procedure to be taken and the expense for removal and compensation of any obstacles built up on the ground or buried under the ground inevitably to obstruct the execution of the construction work.

#### (8) Wage Rates by Class of Labor

The daily rate of wage payable to the workers in the Republic of Indonesia shall be as per Table-(3). Those wage levels are determined on a basis of 7 working hours per day.

### (9) Main Material Prices and Quantities

With regard to required construction materials, domestic products shall be utilized to the possible maximum. Only those materials not locally available by any means shall be off-shore purchased and their standard price levels and quantities shall be as specified in Table-(4).

### (10) Main Construction Equipment and Rates

Main construction equipment to be used for this construction work and their rates shall be as listed up in Table-(5).

#### (11) Overhead Charges Rate

Overhead charges may be divided into costs on and off the site.

Overhead on the site shall take a share of 11 percent in the total construction cost, as shown in Table-(6), as the result of summing up to a total of necessary expenses. Overhead off the site shall include expenses to be incurred to both head and local offices of the contractor and the profit margin, thus corresponding to 10 percent of the net construction cost.

### (12) Temporary Construction Facilities

Main items of temporary construction facilities shall be as listed up in Table-(7).

- (13) Basic Conditions for Execution of Construction Work
  - 1) The work shall be executed for single track construction for the time being. However, since land acquisition is planned to ensure future addition to double track, the spare right-of-way for such future addition may be used as the temporary construction road at no charge to the contractor.
  - 2) The contractor's base shall be established near the post of 5k700m.

### 3. Construction Schedule

The construction work schedule is as shown in Table-(8).

Table-(1) Summary of Construction Costs

			Amount	· .
Work Item	Unit	Domestic Currency (Rp)	Foreign Currency (US\$)	Total (Rp)
Materials	Lump Sum	2,229,067,164	5,758,103.2	7,872,008,300
Machines	11	20,921,880	213,444.0	230,097,000
Track Laying Work	11	465,900,056	599,500.3	1,053,410,350
Total		2,715,889,100	6,571,047.5	9,155,515,650

Table-(2)

BIDDER:	
DATE:	
SIGNATURE:	<u> </u>
GENERAL SUMMARY	
	AMOUNT, RP.
1. MATERIALS	7,872,008,300
2. MACHINES	230,097,000
3. TRACK LAYING WORK	1,053,410,350
TOTAL	9,155,515,650

BILL OF QUANTITIES
1. MATERIALS

BIDDER: \_\_

DATE: \_\_\_\_SIGNATURE: \_\_\_

UNIT         L.C.         F.C.         L.C.         F.C.         TOTAL           RP.         US\$         RF.         TOTAL         RF.         TOTAL           RP.         US\$         RF.         L.C.         F.C.         TOTAL           RT.         US\$         RF.         L.C.         F.C.         RF.         TOTAL           RT.         US\$         232,690,200         2,214,930         2,403,321,600         11,314,700         12,314,700           SET         131,932         1,261.6         1,187,388         11,354.4         12,314,700         12,314,700           SET         4,846         51.3         4,167,560         44,118         47,403,200           No.         28,418         25.9         1,65,138,000         1,061,900         2,205,800,000           No.         28,418         25.9         1,65,138,000         1,061,900         2,205,800,000           No.         11,352         3.1         9,081,600         1,061,900         2,198,400           SET         27,992         15.6         1,739,760         1,220,310         1,320,885,000           SET         2,992         27.1         89,760         813         749,312,000	0000000	0 0		0			0	0		
UNIT PRICE       AM         1.C. RP.       L.C. RP.         RP.       US\$         90,190       858.5       232,690,200       2,2         131,932       1,261.6       1,187,388       1,137,388         4,846       51.3       4,167,560       1,6         13,832       130.1       2,213,120       1,6         28,418       25.9       1,165,138,000       1,6         57,992       15.6       1,739,760       1,6         2,796       27.3       124,981,200       1,         2,796       27.3       124,981,200       1,         2,992       27.1       89,760       1,         4,515,306       43,180.3       72,244,896       7,888,720         4,515,306       18,859       7,888,720       1,888,720	2,198,400 1,320,885,000 16,655,100 886,500 749,312,000 81,816,000	11,512,000 2,198,400		2,205,800,000	22,612,800	47,403,200	12,314,700	2,403,321,600	TÓTAL RP.	
UNIT PRICE  L.C. F.C. L. RP. US\$  90,190 858.5 232,6  131,932 1,261.6 1,11  4,846 51.3 4,1  28,418 25.9 1,465,1  28,418 25.9 1,465,1  2,796 27.3 124,9  2,796 27.3 124,9  2,992 27.1 1,6  2,992 27.1  4,515,306 43,180.3 72,2  1,972,180 18,859 7,8	468 1,220,310 15,295,5 813 690,884.8 75,436	2,480 468		1,061,900	20,816	44,118	11,354.4	2,214,930	F.C. US\$	AMOUNT
UNIT PRICE  L.C. F.C. US\$  90,190 858.5  131,932 1,261.6  4,846 51.3  13,832 130.1  28,418 25.9  27,992 15.6  2,796 27.3  3,234 29.7  2,992 27.1  4,515,306 43,180.3  1,972,180 18,859	1,739,760 124,981,200 1,665,510 89,760 72,244,896 7,888,720	9,081,600 1,739,760		1,165,138,000	2,213,120	4,167,560	1,187,388	232,690,200	L.C. RP.	
13, 6, 11, 57, 6, 515, 1, 972, 1, 972,	15.6 27.3 29.7 27.1 43,180.3 18,859	3.1		•	130,1	51.3	1,261.6	858.5	F.C. US\$	PRICE
M.T. SET SET NO. NO. NO. SET	57,992 2,796 3,234 2,992 4,515,306 1,972,180	11,352 57,992		28,418	13,832	4,846	131,932	90,190	L.C. RP.	
	No. SET SET SET SET SET SET	No.		No.	SET	SET	SET	M.T.	UNIT	
ESTIMATED QUANTITY 2,580 9 860 41,000 41,000 30 30 515 30	30 44,700 515 30 16 4	30		41,000	160	860	6	2,580	QUANTITY	THE VALUE OF THE COLUMN THE COLUM
DESCRIPTION OF ITEM  R54 FLAT BOTTOM HEAD  RAILS - STANDARD TYPE, 25 M LENGTH  R3 COMPROMISE RAIL  FISHPLATES AND ACCESSORY  P.C. SLEEPERS FOR - JOINT  THROUGH PLATE GIRDER  FASTENING DEVICES FOR - P.C. SLEEPER  JOINT  THROUGH PLATE GIRDER	S FOR INDEP	JOINT THROUGH PLATE GIRDER	-	P.C. SLEEPERS FOR R54			LENGTH R3 COMPROMISE RAIL	R54 FLAT BOTTOM HEAD RAILS - STANDARD TYPE, 25 M	DESCRIPTION OF ITEM	
REF. SPEC. NO. 201 202 205 205 205 205 207 207 207 207 207 207 207 206 206 206 206 206 206 206 206 206 206			1	207	210	203,204,		,	SPEC. NO.	ATERIALS REF.
1. MA PAY ITEM No. 1.01 1.02 1.02 1.04 1.05 1.06 b. 1.05 a. c. c.	b. 1.06 1.07 1.07 b. b.	d o	1,05	1.04	1.03	1.02	ъ.	1.01	ITEM No.	-   ₹

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DATE:

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727,776,000 5,974,000 257,535,000 6,006,000 5,758,103.2 7,872,008,300 TOTAL RP. 237,430.5 5,525 1,302 155,040 F.C. US\$ AMOUNT 2,229,067,164 24,853,110 575,836,800 4,730,040 559,500 SIGNATURE: L.C. 110.5 3.4 8,284,370 79,143.5 3,1 F.C. ÚSS UNIT PRICE 11,262 11,190 12,628 L.C. UNIT C.M. SET SET М М ESTIMATED 420 2<u>0</u> 45,600 ന FISHPLATE FOR TEMPORARY JOINTING DESCRIPTION OF ITEM HYDRAULIC DAMPER TYPE BUFFER STOP TOTAL OF MATERIALS RAILROAD SIGNS BALLAST MATERIALS REF. SPEC. 213 208 214 1.11 PAY ITEM No. 1.10 1.08 1.09

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BIDDER: DATE:

230,097,000 230,097,000 TOTAL RP. F.C. US\$ AMOUNT 213,444 213,444 SIGNATURE: 20,921,880 20,921,880 L.C. RP. 20,921,880 213,444 F.C. US\$ UNIT PRICE L.C. RP. UNIT SET ESTIMATED QUANTITY DESCRIPTION OF ITEM TOTAL OF MACHINES HEAVY MOTOR CAR REF. SPEC. NO. 2. MACHINES 215 PAY ITEM 2.01 No.

		TOTAL RP.	000 000 000	96,390,000	199,540,000	61,180,000	127,800	8,880,000	000 670	/,042,000 62;151,000	268,800	59,664,750	
	AMOUNT	F.C. US\$		20,400	74,800	13,800	28.0	1,896 391,2		6,028.4	42.0	12,682.5	
BIDDER: DATE: SIGNATURE:		L.C. RP.		76,331,000 76,398,000	126,236,000	47,656,000	100,360	7,021,920		1,134,168	227,640	47,235,900	
	PRICE	F.C. US\$		8:65	3.4	9.0	1.4	118.5		861.2	0.11	8.9	
	UNIT	L.C. RP.		2,063	5,738	2,072	5,018	438,870			542	33,148	
		UNIT		Σ Σ S	L.M.	L.M.	L.M.	SET		SET	No.	SET	
	- 1	ESTIMATED QUANTITY		37,000	22,000	23,000	20	16		7	420	1,425	
TITIES NG WORK		DESCRIPTION OF ITEM	PLACEMENT OF BALLAST FOR -	LOWER LAYER UPPER LAYER	TRACK PANEL INSTALLATION	COMPACTING OF BALLAST AND INSPECTION OF TRACK TOLERANCE	TRACK PANEL INSTALLATION ON THROUGH PLATE GIRDER	INSTALLATION OF TURNOUTS - #12 SIMPLE TURNOUT #10 RUN-OVER TYPE	INSTALLATION OF BUFFER STOPS -	SAND DRAG TYPE	HYDRAULIC DAMPER TYPE INSTALLATION OF RAILROAD	THERMIT RAIL WELDING	
BILL OF QUANTITIES	4	SPEC. NO.	209		209	209	509	209	209		209	ť	
811L (	1.	PAY ITEM No.	3.01	ų t	3.02	3.03	3.04	3.05 a.	3.06	ณ	b.	3.08	

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BIDDER: DATE:

1,053,410,350 156,739,000 9,615,000 TOTAL RP. 82,090.8 5,748.5 599,500,3 F.C. US\$ AMOUNT 76,290,016 465,900,056 3,981,470 SIGNATURE: L.C. RP. 7,462.8 1,149.7 F.C. US\$ UNIT PRICE 6,935,456 796,294 L.C. UNIT No. No. ESTIMATED QUANTITY 11 Ŋ CONCRETE TRACK BLOCK TYPE LEVEL CROSSING CONSTRUCTION -DESCRIPTION OF ITEM TOTAL OF TRACK LAYING WORK WOODEN BLOCK TYPE TRACK LAYING WORK REF. SPEC. NO. 211 1 ď ò 3.09 PAY ITEM No.

II-10

Table-(3)

Wage Rates by Class of Labor

Class of Labor	Daily Rate Rp
Ordinary Worker	2,800
Light-labor Worker	2,500
Mechanical Operator	5,900
Car Driver	4,000
Carpenter	3,500
Welder	3,500
Track Worker	3,300
Train Watcher	3,000

Table-(4) Unit Price of Main Materials

Item	Туре	Unit	Unit Price Rp	Required Quantity	Remarks
Rail	R54 Ordinary	t	711,800	1,290	Import (for site delivery)
	R54 Preholed	ţ.	711,800	1,290	u.
Turnout	#12 Simple	set	35,786,000	16	u .
	#10 Run-over Type	set	15,630,000	4	<b>11</b> .
PC Sleeper		no.	41,112	41,000	Home (for site delivery)
Fastening Device	Elastic Type	set	22,580	44,700	Import (for site delivery)
Ballast	Crushed Stone	<sub>m</sub> 3	12,200	45,600	Home (for site delivery)
Buffer Stop	Hydraulic Damper Type	set	65,596,000	3	Import (for site delivery)

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Item	Standard	Basic Price Rp	Hourly Rate in Operation Rp	Daily Rate on Site Rp
Bulldozer	11t	69,600,000	15,312	43,848
Dump Truck	6t	21,600,000	4,860	18,360

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		Amount		
Item	Domestic Currency Rp	Foreign Currency US\$	Total Rp	Remark
Payroll Costs for Employees		668,957	655,577,860	
Fringe Benefits Cost	2,580,000	8,463	10,873,740	
Labor Safety Protection	1,550,000	100,160	99,706,800	
Traveling Expense	20,150,000	57,447	76,448,060	
Communication Expense	10,850,000	13,190	23,776,200	
Office Supplies	15,500,000	2,553	18,001,940	
Social Dues	5,100,000	13,191	18,027,180	
Legal Welfare		21,986	21,546,280	
Sales Tax	62,550,000		62,550,000	
Insurance Premium	3,878,000	92,500	94,528,000	Construction insurance
Guarantee Fee	23,907,000		23,907,000	Bid, performance & advanced payment bonds
Sundry Expenses	20,850,000	26,380	46,702,400	
Sub-Total	166,915,000	1,004,827	1,151,645,460	
Local Employment Cost	98,890,000		98,890,000	
Total	265,805,000	1,004,827	1,250,535,460	

	····	Amount		
Item	Domestic Currency Rp	Foreign Currency US\$	Total Rp	Remark
Construction Road	26,211,600	37,943	63,395,740	Length 1,500 <sup>m</sup>
Expansion of Road	6,836,400	320	7,150,000	Length 25 <sup>m</sup>
Construction Base				
Site Preparation	48,558,360	8,468	56,857,000	Total area 10,585 <sup>m2</sup>
Building Construction	4,000,000		4,000,000	Warehouse 100 <sup>m2</sup>
Track Laying	35,534,880	437	35,963,140	Track Length 460 <sup>m</sup>
Total	121,141,240	47,168	167,365,880	

Table-(8) Construction Schedule

Commencement	Construction Period 2nd Year 3rd Year 4th Year	1 2 3 4 5 6 7 8 9 101112 1 2 3 4 5 6 7 8 9 101112 1 2 3 4 5 6 7 8 9 101112 1 2 3 4 5 6 7 8 9 101112	ry Road	ase	r Lower	S	ind Laying	: Upper			erials
	Constru	Work Item	Construction of Temporary Road	Construction of Track Base	Placement of Ballast for Lower Layer	Transportation of Sleepers	Transportation of Rail and Layin	Placement of Ballast for Upper Layer	Track Maintenance	Rail Welding	Preparation of Track Materials

### PACKAGE III ELECTRICAL WORK

1. CONSTRUCTION COSTS

- 2. BASIC PRINCIPLES FOR CONSTRUCTION COST ESTIMATION
- 3. CONSTRUCTION SCHEDULE

#### 1. Construction Costs

### (1) Summary of Construction Costs

Construction costs estimated as per the basic principles assumed for cost estimation are summed up as shown in Table-(1).

#### (2) Amounts by Work Items

Unit prices and amounts broken down by work items are as shown in Table-(2).

#### 2. Basic Principles for Construction Cost Estimation

Construction costs are believed to fluctuate considerably with the economic condition of Indonesia, the timing of the contract order and other factors. In this report, the construction costs were estimated according to the following principles:

### (1) Base Date for Construction Cost Estimation

The construction costs were estimated on the basis of laws, regulations, labor wages, and prices of materials and equipment, as of October 1, 1983, the day on which site survey was conducted to estimate construction cost.

#### (2) Construction Period

Construction period shall be 27 months counting from the date of work commencement, including time needed for preparatory works. The maintenance period shall cover 12 months starting from the date of completion of the construction.

#### (3) Escalation Clause

The escalation clause shall apply to possible rise in prices.

#### (4) Currency Exchange Rate

The exchange rate of foreign currency is set at Rp980 = US\$1.00.

#### (5) Taxes and Duties

Taxes and duties shall be estimated on the following basis.

#### 1) Exempted Items

a) Any duties or import taxes to be imposed upon necessary equipment and materials to be imported for execution of this construction work.

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- b) Taxes to be imposed upon incomes of alien corporations and expatriate workers to be engaged in this construction work.
- 2) Non-exemption Item
  Tax to be imposed upon total proceeds.

### (6) Land Acquisition and Grant

Necessary land for construction of railway track under the proposed project shall be granted at no cost to the contractor after acquisition thereof by the employer, regardless of whether it is governmental or private land.

(7) Compensatory Procedures and Expense for Removal of Obstacles

The employer shall be fully responsible for the procedure to be taken and the expense for removal and compensation of any obstacles built up on the ground or buried under the ground inevitably to obstruct the execution of the construction work.

#### (8) Wage Rates by Class of Labor

The daily rate of wage payable to the workers in the Republic of Indonesia shall be as per Table-(3). Those wage levels are determined on a basis of 7 working hours per day.

#### (9) Main Material Prices and Quantities

With regard to required construction materials, domestic products shall be utilized to the possible maximum. Only those materials not locally available by any means shall be off-shore purchased and their standard price levels and quantities shall be as specified in Table-(4).

(10) Main Construction Equipment and Rates

Main construction equipment to be used for this construction work and their rates shall be as listed up in Table-(5).

### (11) Overhead Charges Rate

Overhead charges may be divided into costs on and off the site.

Overhead on the site shall take a share of 16 percent in the total construction cost, as shown in Table-(6), as the result of summing up to a total of necessary expenses. Overhead off the site shall include expenses to be incurred to both head and local offices of the contractor and the profit margin, thus corresponding to 8 percent of the net construction cost.

## (12) Temporary Construction Facilities

Main items of temporary construction facilities shall be as listed up in Table-(7).

- (13) Basic Conditions for Execution of Construction Work
  - 1) The work shall be executed for single track construction for the time being. However, since land acquisition is planned to ensure future addition to double track, the spare right-of-way for such future addition may be used as the temporary construction road at no charge to the contractor.
  - 2) The contractor's base shall be established near the post of 8k500m, together with three (3) other sub-bases.
  - 3) All laborers will be of Indonesian nationality. However, regarding transformer station, signal and telecommunication facilities, the manufacturers of machines and equipment may send their technicians to test and survey their equipment.

### 3. Construction Schedule

The construction work schedule is as shown in Table-(8).

Consideration was given to the following matters in setting up the construction work schedule.

- (1) For approximately two months during the rainy season December to March, earthwork and outdoor electrical work will not be conducted.
- (2) Construction of supporting pillars for the overhead contact line for the elevated sector will be performed before track construction work such as placement of ballast.
- (3) Soil preparation for the site of the transformer station shall be completed before commencement of basic construction for installation of machinery and equipment.
- (4) Approximately 80 percent of the roadbed work on the embankment sector and 80 percent of work on cable duct construction in the elevated sector must be finished before work on signal and communications lines are started.
- (5) In track construction, the laying of rails must be completed at least three months before completion of signal construction.
- (6) The transmission of electricity from PLN to the transformers must be made at least six months before completion of electrical construction work.
- (7) Architectural construction, excepting finish work, must be 90% completed before construction starts on signal and telecommunications facilities at the station. Burying of electrical cables will, however, proceed simultaneously with the construction of the station building.

Summary of Construction Costs

Table-(1)

		The Artist Control of the Control of	Amount	
Work Item	Unit	Domestic Currency (Rp)	Foreign Currency (US\$)	Total (Rp)
Substations	Lump Sum	479,156,100	4,191,503	4,586,829,040
Overhead Contact System	11	897,739,000	1,179,941	2,054,081,180
Power Distribu- tion Lines	19	73,697,350	658,880	719,399,750
Signalling System	11	205,791,900	1,858,139	2,026,768,120
Telecommunication System	11	466,736,300	693,748	1,146,609,340
Total		2,123,120,650	8,582,211	10,533,687,430

Table-(2)	BIDDER:	A residual
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### GENERAL SUMMARY

,	·	AMOUNT, RP.
1.	SUBSTATIONS	4,586,829,040
2.	OVERHEAD CONTACT SYSTEM	2,054,081,180
3.	POWER DISTRIBUTION LINES	719,399,750
4.	SIGNALLING SYSTEM	2,026,768,120
5.	TELECOMMUNICATION SYSTEM	1,146,609,340
		•
	TOTAL	10,533,687,430

BIDDER:

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L. SUB	SUBSTATIONS						-	TWINT	
			TO THE OTHER		UNIT PRICE	RICE		ALTOOM	
PAY ITEM No.	SPEC.	PIION OF ITEM	CUANTITY	TINU	L.C.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
			1 216	Σ	30,800	10.60	37,452,800	12,889	50,084,020
1.01	008,303 004,012 019.021	008,303 PRESTRESSED CONCRETE FILE OU4,012 CONCRETE FOUNDATIONS 019.021	505	C.N.	162,200	0	81,911,000	0	81,911,000
1.03	303 303	SUBSTATION EQUIPMENT				203	4.828.500	302,393	301,173,640
rd.		20 KV CUBICLE	- ·			267 338	4,901,600	967,338	952,892,840
þ.		DC TRANSFORMING EQUIPMENT			4,501,000	256 930	1,883,800	269,232	265,731,160
ပံ		DC FEEDER CUBICLE	r			67.580	1,609,500	67,580	67,837,900
ď		6 KV DISTRIBUTION EQUIPMENT	·		T,000,100	67 179	658,400	67,149	66,464,420
ø		LOCAL POWER EQUIPMENT	<b>-</b>		000,400	00 100	384,000	23,155	23,075,900
41		REMOTE CONTROL PANEL	<b>,-</b> -i	L.S.	384,000	73,133	200		
1.04	005,302	POWER CABLES	,	;		α	1,050,000	29,000	29,470,000
ส	303	22 KV CV 1 -	200	Σ.	2, 100	9 6	76 280 000	7,880	54,002,400
م.		3.3 KV CV 1 - CORE 300mm <sup>2</sup>	400	L.M.	115,700	0/.61	2 160 000	4,800	6,864,000
ن		3.3 KV CV 1 - CORE 25 mm <sup>2</sup>	150	I.X	14,400	25	850 000	1,629	2,446,420
ф —		6.6 KV CV 1 - CORE 35 mm <sup>2</sup>	100	L.A.	8,500	10.30	000 000 %	6,600	10,472,000
1.05	005,302	005,302 CONTROL CABLE	4,400	L. M.	016	2) -i			,
	303	303   SOUTH THE DEVICES		L.S.	2,031,500	1,371	2,031,500	1,371	3,375,080
1.06	302,303	Section 1	•	,	769 500	071 7	2,762,500	4,140	6,819,700
1.07	303	MISCELLANEOUS DEVICES	-1 60	, i	31,000	10.60	18,600,000	6,360	24,832,800
1.08	008,303	PRESTRESSED CONCRETE FILE	280	i z	40,500	0	11,340,000	0	11,340,000
1.09	019,021	CONCRETE FORMULTONS							

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		TOTAL RP.		109,685,780	097, 776, 774	228,920,500	16,465,140	66,166,200	23,075,900		11,788,000	20,250,900	4,576,000	6,664,000	2,291,600	6,440,800	16,141,320	51,330,000		364,200,920
	AMOUNT	F.C. US\$		110,226	485,252	231,950	15,868	66,770	23,155		11,600	2,955	3,200	4,200	1,070	3,910	4,134	0		362,134
SIGNATURE:		L.C. RP.		1,664,300	2,450,800	1,609,500	914,500	731,600	384,000		420,000	17,355,000	1,440,000	2,548,000	1,243,000	2,609,000	12,090,000	51,330,000		9,309,600
	PRICE	F.C. US\$		110,226	485,252	231,950	15,868	022,99	23,155		28	19.70	32	1.50	1,070	3,910	10.60			362,134
	UNIT	L.C. RP.		1,664,300	2,450,800	1,609,500	914,500	731,600	384,000		2,100	115,700	14,400	910	1,243,000	2,609,000	31,000	174,000		9,309,600
		ONTX		L.S.	L.S.	L.S.	Ľ.S.	L.S.	L.S.		L.M.	L.M.	L.M.	L.M.	L.S.	L.S.	L.M.	C.X.		L.S.
	ESTIMATED	QUANTITY		H	Н	Н	<b>-</b>	н	H		200	150	100	2,800	н	<b>.</b>	390	295		1
NS		DESCRIPTION OF ITEM	SUBSTATION EQUIPMENT	20 KV CUBICLE	DC TRANSFORMING EQUIPMENT	DC FEEDER CUBICLE	6 KV DISTRIBUTION EQUIPMENT	LOCAL POWER EQUIPMENT	REMOTE CONTROL PANEL	005,302 POWER CABLES	22 KV CV 1 - CORE 150 mm <sup>2</sup>	3.3 KV CV 1 - CORE 300mm <sup>2</sup>	3.3 KV CV 1 - CORE 25 mm <sup>2</sup>	005,302 CONTROL CABLES	GROUNDING DEVICES	MISCELLANEOUS DEVICES	PRESTRESSED CONCRETE PILE	CONCRETE FOUNDATIONS	SUBSTATION EQUIPMENT	20 KV CUBICLE (REPLACEMENT)
SUBSTATIONS	REF.	SPEC.	303							005,302	303	•		005,302	004,005 302,303	303	008,303	004,012 019,021 303	303	
.; 8	PAY	ITEM No.	1.10	rd	<u>.</u>	—	<b>.</b>	a	4	1.11	ญ่	ъ.	ن 	1.12	1.13	1.14	1.15	1.16	1.17	<b>d</b>

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41,258,000 12,376,000 4,325,260 1,142,400 18,003,780 108,089,320 1,950,240 155,016,160 75,737,680 30,001,260 27,001,200 101,300,920 75,600,940 2,446,420 495,505,380 TOTAL RP. 788 2,732 980 76,248 40,600 18,166 99,729 3,039 7,800 75,641 29,867 3,940 1,629 156,347 502,501 AMOUNT F.C. US\$ 1,796,100 23,140,000 1,647,900 182,000 201,100 1,470,000 850,000 105,111,100 3,566,500 877,900 731,600 4,732,000 1,178,000 3,054,400 1,609,500 L.C. 4.90 19.70 16.30 1.50 3,039 788 2,732 201,100 | 18,166 28 L.S. 1,796,100 156,347 877,900 | 76,248 F.C. US\$ L.S. 3,566,500 | 99,729 L.S. 1,609,500 | 75,641 731,600 29,867 L.S. 3,054,400 502,501 UNIT PRICE L.S. 1,647,900 910 8,500 L.S.105,111,100 910 L.S. 1,178,000 2,100 115,700 L.C. L.S. L.M. L.M. L M L.S. L.M. L.S. UNIT 200 ESTIMATED 700 200 100 5,200 3.3 KV CV 1 - CORE 300mm<sup>2</sup> (FOR TEMPORARY WORK)
CONTROL CABLES 6.6 KV CV 1 - CORE 35 mm<sup>2</sup> 3.3 KV CV 1 - CORE 300mm<sup>2</sup> 22 KV CV 1 - CORE 150 mm<sup>2</sup> DC TRANSFORMING EQUIPMENT LINKED BREAKING DEVICE DESCRIPTION OF ITEM MISCELLANEOUS DEVICES LOCAL POWER EQUIPMENT REMOTE CONTROL PANEL REMOTE SUPERVISORY 004,005 GROUNDING DEVICES 302,303 6 KV DISTRIBUTION EQUIPMENT DC FEEDER CUBICLE 005,302 CONTROL CABLES CONTROL PANEL (MODIFICATION) (REPLACEMENT) 005,302 POWER CABLES 303 SUBSTATIONS 303 303 303 REF. SPEC. NO. ٩ ф ф ċ 1.23 1.24 1.19 ن d. 4 1.20 1.21 1.22 å 1.18 **ف** PAY ITEM % %

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		1											. 15	1		
		TOTAL RP.	18,003,780 54,282,200	4,586,829,040								e de la companya de l			; }	
	AMOUNT	F.C. US\$	18,166	4,191,503												_
SIGNATURE:		L.C. RP.	201,100	479,156,100												
	PRICE	F.C. US\$	18,166 55,390													
	UNIT	L.C. RP.	201,100									-				
		UNIT	L.S.										•			
	ESTIMATED	QUANTITY	ਜ ਜ .													
το.		DESCRIPTION OF ITEM	LINKED BREAKING DEVICE TOOLS AND INSTRUMENTS	TOTAL OF SUBSTATIONS												
BSTATIONS	REF.	SPEC. NO.	303													
1. SU	PAY	ITEM No.	1.25				<u> </u>	<u>-</u>				- 5		* * * * * * * * * * * * * * * * * * *		
	SIGNA	SIGNATURE:	CRIPTION OF ITEM QUANTITY OF ITEM APP.  ESTIMATED ONIT PRICE AMOUNT  L.C. L.C. L.C. F.C. US\$  RP. US\$	REF.         DESCRIPTION OF ITEM QUANTITY         L.C. RP.         F.C. L.C. RP.         L.C. RP.         L.C. RP.         RP.         L.C. RP.         RP.         AMOUNT           303         LINKED BREAKING DEVICE         1         L.S.         201,100         18,166         201,100         18,166         18,166         55,390           303         TOOLS AND INSTRUMENTS         1         L.S.         201,100         55,390         0         55,390	REF.   DESCRIPTION OF ITEM   QUANTITY   L.C.   F.C.   L.C.   F.C.   RP.   US\$   US	REF.   DESCRIPTION OF ITEM   QUANTITY   L.C.   F.C.   L.C.   F.C.   RP.   UNIT   PRICE   AMOUNT   R.C.   R.C.	REF.   DESCRIPTION OF ITEM   QUANTITY   L.C.   F.C.   L.C.   R.P.   UNIT PRICE   AMOUNT	REF.   DESCRIPTION OF ITEM QUANTITY   L.C.   F.C.   L.C.   F.C.   L.C.   F.C.   L.C.   RP.   UNIT   RICE   RP.   US\$   US\$   RP.   US\$   US\$	REF.   DESCRIPTION OF ITEM   QUANTITY   L.C.   F.C.   L.C.   RP.   UNIT   R.C.   R.C.   R.C.   US\$   R.C.	REF.   DESCRIPTION OF 1TEM QUANTITY   L.C.   F.C.   R.P.   COL.   R.P.	REF.   DESCRIPTION OF ITEM   QUANTITY   NNIT PRICE   AMOUNT   L.S.   P.C.   L.C.   F.C.   R.C.   R	REF.   DESCRIPTION OF ITEM   PARTIES   PAGE   P.C.   P.C	REF.   DESCRIPTION OF ITEM   COLUMN   L.C.   F.C.   L.C.   E.C.     SPEC.   DESCRIPTION OF ITEM   QUANTITY   L.C.   F.C.   L.C.   E.C.     303	REF.   DESCRIPTION OF ITEM   DIATE   DIATE   DESCRIPTION OF ITEM   QUANTITY   DESCRIPTION OF ITEM   QUANTITY   DIATE   DESCRIPTION OF ITEM   DIATE   DESCRIPTION OF ITEM   DIATE   D	REF.   DESCRIPTION OF ITEM   QUANTITY   WIT PRICE   RP.   C.   L.C.   RP.   UNIT PRICE   RP.   UNIT PRICE   RP.   US\$   RP.   US\$   US\$   RP.   US\$   US\$	NEF.   DESCRIPTION OF ITEM   QUANTITY   NUT PRICE   NO.   NO.

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				-			SIGNATURE:		
0	ERHEAD C	2. OVERHEAD CONTACT SYSTEM			antida mina	2010		AMOUNT	
PAY ITEM	REF. SPEC. NO.	DESCRIPTION OF ITEM	ESTIMATED	UNIT	L.C.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
·   · · .	004,012	SUPPORTING STRUCTURES	422	S	638,000	943	269,236,000	397,946	659,223,080
2.02	022,304 304 005,302	OVERHEAD CATENARIES FEEDER WIRES	26,200	L.M.	1,800.	21	47,160,000	550,200	586,356,000 721,680,000
•	304		<b>-</b> 4	L.S.	22,878,000	45,795	22,878,000	45,795	67,757,100
	304		<b>-</b>	r.s.	19,065,000	0	19,065,000	0	19,065,000
	5	TOTAL OF OVERHEAD CONTACT SYSTEM					897,739,000	1,179,941	2,054,081,180

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3. POWER DISTRIBUTION LINES

m	PUWER DIS	PUWER DISINIBULION ELMES							
PAY	<u> </u>		ESTIMATED	1	UNIT	PRICE		AMOUNT	
ITEM No.	SPEC.	DESCRIPTION OF ITEM	QUANTITY	H.	L.C. RP.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
3.01	004, 302 305	OVERHEAD DISTRIBUTION LINES	58,455	L.M.	250	2.90	14,613,750	344,884	352,600,070
3.02	004,302	OVERHEAD GROUND WIRES	22,280	L.M.	770	4.20	17,155,600	93,575	108,859,100
3.03	004,005 302,305	POWER CABLES -				, <b>, , , ,</b>			
69		6.6 KV CV CABLES	2,979	L.M.	009,6	9.80	28,598,400	29,194	57,208,520
م.		600 V NYY CABLES	240	L.M.	11,200	5.40	2,688,000	1,296	3,958,080
3.04	302,305	DISTRIBUTION EQUIPMENT	-	L.S.	9,232,800	112,394.00	9,232,800	112,394	119,378,920
3.05	302,305	POWER DISTRIBUTION CUBICLES	H	L.S.	1,408,800	77,537.00	1,408,800	77,537	77,395,060
.: 	•	TOTAL OF POWER DISTRIBU- TION LINES					73,697,350	658,880	719,399,750
					-				
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			·					
i in Sin				:					

82,220 98,580 16,042,320 4,418,960 1,063,640 163,138,800 103,532,160 264,940,260 210,773,600 23,671,800 752,000 328,880 RP. 4,951,600 19,720,400 TOTAL 22,860 213,860 14,664 268,407 98,112 4,272 1,028 316 19 96 710 15,680 161,460 4,720 AMOUNT F.C. US\$ 1,269,000 56,200 326,000 1,671,600 7,382,400 56,200 19,200 4,500 4,354,000 4,800 1,901,400 1,190,800 232,400 4,908,000 DATE: SIGNATURE: BIDDER: L.C. 1,222 4,088 8,073 F.C. US\$ 355 236 448 29 1,068 514 32 762 79 633,800 | 89,469 595,400 106,930 UNIT PRICE 139,300 4,800 1,500 245,400 28,100 4,800 307,600 42,300 58,100 28,100 16,300 124,400 L.C. UNIT No. Š. Š တ S S ta Ø S S S · ເລ S ESTIMATED QUANTITY 20 12 24 30 20 35 SIGNALLING SYSTEM AND SAFETY FACILITIES RESTRICTED SPEED RELEASE RELAY INTERLOCKING DEVICES ELECTRIC SWITCH MACHINE SHUNTING LIMIT MARKER DESCRIPTION OF ITEM TYPE A SINGLE TRACK - DO - DOUBLE TRACK COLOUR LIGHT SIGNALS SHUNTING SIGNALS -10 ROUTE OR LESS CAR STOP MARKER TRACK CIRCUITS -4 ROUTE OR LESS EMERGENCY SIGNAL 3 ASPECTS SIGNAL MAST 2 ASPECTS MARKERS -MARKER TYPE A BILL OF QUANTITIES TYPE B 004,022 310 004,022 307 REF. SPEC. NO. 311 312 309 308 306 307 **ب** þ æ ů Ġ 4.08 مُ đ તં 4.06 4.07 ď 4.05 4.04 4.01 4.03 PAY ITEM 4.02

No.

4. SIGNALLING SYSTEM AND SAFETY FACILITIES

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	4. S	TENALLIN	SIGNALLING SISIEM AND SMELL INCLUSIONS	2						
<u> </u>	PAY	REF.		ESTIMATED		UNIT	UNIT PRICE	2.5	AMOUNT	
·	ITEM No.	SPEC.	DESCRIPTION OF ITEM	QUANTITY	LIND	L.C. RP.	F.C. US\$	L.C. RP.	F.C. US\$	TOTAL RP.
<del>-</del>	ပံ		TYPE B DIVIDED FREQUENCY	7	တ	1,144,300	14,557	4,577,200	58,228	61,640,640
· ·	<del>p</del>	- <u>-</u>	- DO - COMMERCIAL FREQUENCY	1	S	912,300	11,327	912,300	11,327	12,012,760
	4.09	313	LEVEL CRO							
	લ		CROSSING SIGNAL	30	No.	146,700	688	4,401,000	20,640	24,628,200
	ф •		CROSSING BARRIER, A TYPE	22	No.	249,700	8,283	5,493,400	182,226	184,074,880
	ບໍ		- DO - , B TYPE	14	No.	170,000	3,297	2,380,000	46,158	47,614,840
	Ġ.		X-MARK INDICATOR	28	No.	141,900	633	3,973,200	17,724	21,342,720
	e e		TRAIN DETECTOR	35	No.	89,100	818	3,118,500	28,630	31,175,900
	ų.		CONTROL DEVICE	IJ	No.	599,500	9,488	8,992,500	142,320	148,466,100
7	4.10	3 <u>1</u> 4	ATS WAYSIDE DEVICE	47	S	78,500	863	3,689,500	40,561	43,439,280
4	4.11	315	STAND -BY GENERATOR	2	တ	1,022,800	105,268	2,045,600	210,536	208,370,880
4	4.12	316	APPARATUS CASE	20	S	130,600	2,215	2,612,000	44,300	46,026,000
4	4.13	005,317	SIGNAL CABLES -							
	8		GENERAL TYPE CABLE	25,500	L.M.	770	4.5	19,635,000	114,750	132,090,000
	Ď.		DIRECT BURIAL TYPE CABLE	17,800	L.M.	1,600	7.3	28,480,000	129,940	155,821,200
	ပံ		TROUGH	8,100	L.M.	11,200	0	90,720,000	0	90,720,000
4	<b>1</b> 7	318	IMPROVEMENT OF EXISTING LEVEL CROSSING EQUIPMENT	<b>.</b>	L.S.	1,385,200	4,535	1,385,200	4,535	5,829,500
			MURICIAN OWN TANGE					טטט רטר	0000	001 001
1000	. 1 . 1 		AND SAFETY FACILITIES					202,791,900	1,858,139	2,026,768,120

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177,190,560 19,686,600 11,469,640 294,400 19,776,320 5,891,600 60,366,560 19,543,400 6,400,160 5,996,460 8,717,800 2,055,640 23,245,600 3,574,800 2,488,320 TOTAL RP. 61,102 19,780 20,024 4,745 179,982 19,470 1,343 11,063 23,720 110 1,260 8,460 3,232 5,937 1,264 AMOUNT F.C. USS 152,800 1,241,500 808,200 000,909 486,600 2,340,000 3,232,800 1,249,600 739,500 427,000 627,900 159,000 186,600 178,200 SIGNATURE: L.C. 6,490 1,979 676 89,991 3,956 126 404 79 F.C. US\$ 79 846 1,186 55 20,024 481 30,551 UNIT PRICE 152,800 404,100 202,000 243,300 234,000 29,400 248,300 43,700 27,300 31,800 78,100 43,500 93,300 404,100 L.C. UNIT No. No. No. No. No No. <u>%</u> No. S **છ** ⋅ છ \_ 압 ESTIMATED QUANTITY 16 7 Ŋ N S ω 2 2 23 LINE REPEATER EQUIPMENT, SLAVE CLOCK DOUBLE FACE SLAVE CLOCK SINGLE FACE PUBLIC ADDRESS EQUIPMENT CABLE CARRIER EQUIPMENT DISPATCHING TELEPHONE DIRECT LINE TELEPHONE DYNAMIC TYPE SPEAKER TRUMPET TYPE SPEAKER DESCRIPTION OF ITEM AUTOMATIC TELEPHONE TERMINAL EQUIPMENT PORTABLE TELEPHONE RELAY SLAVE CLOCK MASTER EQUIPMENT 600 MM DIAMETER 300 MM DIAMETER OPERATION PANEL MICROPHONE BOX ELECTRIC CLOCK -MASTER CLOCK INDOOR TYPE 5. TELECOMMUNICATION SYSTEM TELEPHONE -REF. SPEC. NO. 322 321 320 319 ф ф ۻ ċ រ Ġ. ບໍ ф • ė ġ 5.04 ບ່ Ġ ۵, 5.03 ਚ 5.02 5.01 PAY ITEM No.

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TELECOMMUNICATION SYSTEM

4,147,800 62,680,080 270,336,000 167,508,000 25,376,000 48,120,000 30,263,200 2,205,000 21,526,700 27,206,640 1,450,880 23,642,460 7,691,200 TOTAL RP. 46,056 51,200 39,600 19,200 24,000 6,840 4,110 25,428 1,076 20,057 7,315 F.C. US\$ AMOUNT 120,000 396,400 220,160,000 17,545,200 6,560,000 23,560,000 128,700,000 24,600,000 2,205,000 21,526,700 3,986,600 522,500 2,287,200 L.C. RP. 4.0 4.4 1.8 7,676 F.C. US\$ 0: 0 24 822 4,238 538 665 647 UNIT PRICE 14,300 2,924,200 8,200 4,100 6,200 10,500 24,000 381,200 17,200 742,300 198,200 47,500 128,600 L.C. ₽. UNIT 12,800 |L.M. L.M. L M I.M. L.M No. 6,000 L.M. No. No. No. Ňo. No. Š. ESTIMATED QUANTITY 000,6 800 3,800 210 9 디 29 3 PAIRS UP TO 40 PAIRS, WITH 0 INDOOR TYPE, UP TO 100 P LINE REPEATER EQUIPMENT COM CABLE (30 PAIRS UP TO DIRECT BURIAL MAIN TELE-OUTDOOR TYPE, UP TO 10 TERMINAL BOX AND OUTDOOR INDOOR TYPE, UP TO 20 DESCRIPTION OF ITEM MAIN TELECOM CABLE (30 OVERHEAD TELECOM CABLE LOCAL TELECOM CABLE (2 TELECOM DUCTS (TROUGH) PAIRS UP TO 20 PAIRS) TELECOM BRANCH CABLE LYPE TELEPHONE BOX -WALL MOUNTING TYPE DISTRIBUTION BOXES -POLE MOUNTING TYPE OUTDOOR TYPE (10 PAIRS) 40 PAIRS) IN DUCT) HANDHOLE 005,323 REF. 005,323 004,323 004,302 004,323 NO. 323 323 323 323 ů ITEM 5.05 5.13 5.10 5.12 PAY 5.11 ď ວ່ 5.06 ٠. ď No. 5.07 5.08 5.09 

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		TOTAL RP.		8,14/,200 79,610,320		1,146,609,340		·						
	AMOUNT	F.C. US\$		8,230		693,748		·						
		L.C. RP.		81,800		466,736,300								
	PRICE	F.C. US\$		4,115								<del>,</del>	,	
	UNIT PRICE	L.C.		40,900	220671				 ···		•			
	<u> </u>	UNIT		No.					 	 -				
	ESTINATED U			7	t									
TELECOMMUNICATION SYSTEM		DESCRIPTION OF ITEM	TRAIN BOARDING INFORMATION EQUIPMENT -	OPERATION PANEL	INDICATION FAMEL	TOTAL OF TELECOMMUNICATION SYSTEM								
LECOMMUN	220	SPEC.	324				<u> </u>		 	 				
5. 11	3,6	rai ITEM No.	5.14	. ๗ .	<u>,</u>					·				

Table-(3) Wage Rates by Class of Labor

Class of Labor	Daily Rate Rp
Care Taker	4,800
Special Worker	3,000
Ordinary Worker	2,800
Light-labor Worker	2,500
Mechanical Operator	5,900
Special Vehicle Driver	4,900
Car Driver	4,000
Chipping Man	3,600
Carpenter	3,500
Steel Worker	3,500
Welder	3,500
Painter	3,100
Electrician	5,900
Piping Man	5,300
Mason	3,500
Train Watcher	3,000

Table-(4) Unit Price of Main Materials (1)

	(4) 01126 1126				
Item	Type	Unit	Unit Price Rp	Required Quantity	Remarks
High Voltage Cubicles			754,290,000	1	Import
Low Voltage Cubicles	·		122,780,000	1	TE
Remote Control Panels			155,200,000	1	U
Transformers			1,290,300,000	1	11
Trolly Wires	Cu 110 mm <sup>2</sup>	km	2,300,000	27	tt.
Hard-drawn Copper Stranded Wires	300 mm <sup>2</sup>	11	8,000,000	21	Home
6.6 kV Polyethylene Insulated Wires	38 mm <sup>2</sup>	11	1,670,000	60	Import
Structual Steels		t	271,000	90	u
Concrete Poles	for Overhead Contact Line	no.	243,500	420	Home
Concrete Poles	for Level Crossing Pro- tection	11	178,000	50	· ·
Concrete Poles	for Telecom.		39,000	30	11
Power Cables		km	5,030,000	3	II .
Signalling Cables		11	2,713,000	40	ıı
Telecom. Cables		11	8,660,000	30	71

Table-(4) Unit Price of Main Materials (2)

	DIE-(4) OHIE II	<del></del>	THE THE CELLAR		
Item	Туре	Unit	Unit Price Rp	Required Quantity	Remarks
Relay Inter- locking Devices		set	47,942,000	5	Import
Colour Light Signal Lamp Units		tt	117,000	70	11
Electric Turn- our Switch Machines		**	3,753,000	20 ·	u
Track Relays		11	275,000	40	tt
Impeadance Bonds	500 A	"	696,000	60	11
Level Crossing Equipment		11	9,640,000	15	tt
ATS Wayside Devices		11	288,000	40	u
Standby Generators	10 kVA	11	14,596,000	2	π
Public Address Equipment		te	17,800,000	2	ιι
Electric Clock Equipment		11	10,600,000	1 1	n
Cable Carrier Equipment	PCM	"	76,600,000	1	11
Train Boarding Information Equipment		set	18,200,000	2	n .

Table-(5)

Rates for Equipment

.Item	Standard	Basic Price Rp	Hourly Rate in Operation Rp	Daily Rate on Site Rp
Crawler Crane	50t	227,600,000	40,740	122,221
Truck Crane	15t	84,600,000	12,182	66,326
Pile Hammer	3.5t	37,900,000	13,757	34,603

		Amount		
Item	Domestic Currency Rp	Foreign Currency US\$	Total Rp	Remarks
Payroll Costs for Employees		576,000	564,480,000	
Fringe Benefits Cost		144,000	141,120,000	
Labor Safety Protection		57,000	55,860,000	
Traveling Expense	46,500,000	13,400	59,632,000	
Communication Expense	1,580,000	1,200	2,756,000	
Office Supplies	4,800,000	10,600	15,188,000	
Social Dues	33,360,000	23,000	55,900,000	
Legal Welfare		115,000	112,700,000	
Insurance Premium		74,000	72,520,000	Construction insurance
Guarantee Fee	27,920,000		27,920,000	Bid, perform- ance & advanced Payment bonds
Sundry Expenses	2,830,000	26,000	28,310,000	
Sub-Total	116,990,000	1,040,200	1,136,386,000	
Local Employ- ment Cost	13,510,000		13,510,000	
Total	130,500,000	1,040,200	1,149,896,000	

Table-(7)	<b>T</b> (	emporary ]	Facilities	
		Amount		
Item	Domestic Currency	Foreign Currency	Total	Remarks
	Rp	US\$	Rp	
Construction Road				Service road constructed under package I (Civil
				Work) shall be made available without cost to the Contractor of Package III (Electric-
Construction Base				al Work)
Site Preparation	4,960,000		4,960,000	
Building Construction	113,888,000	75,000	187,388,000	Including appertenant utilities
Office Fix- tures and Furnitures	6,500,000	2,000	8,460,000	
Total	125,348,000	77,000	200,808,000	·

Table-(8)	J	Construction Commencement	tion Schedule	Commodetion	ţ
	+			Tardinon	TOIL
Construction	•	2nd Year	3rd Year	4th Year	
Work Item	1 2 3	4 5 6 7 8 9 101112	1 2 3 4 5 6 7 8 9 101112 1	1 2 3 4 5 6 7 8 9	1011112
Substation Facility		Preparation of Equip- ment and Materials	Foundation Equipment Ins	Installation	
Overhead Catenary		Preparation of Equip- ment and Materials	Supporting Structure . Feeder Wire	Contact Wire	
Power Distribution		Preparation Equand	Equipment Line Equ	Equipment Installation	
Signalling		Preparation of Equip- nent and Materials	ssing Equipmen	ment  Equipment  By Interlocking Equipment	at
Telecom.		Preparation of Equipment and Materials	Telecom. Cabling Starion	Equipment	
Testing					

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