

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**THE GOVERNMENT OF THE REPUBLIC OF INDONESIA
MINISTRY OF PUBLIC WORKS
DIRECTORATE GENERAL OF WATER RESOURCES DEVELOPMENT**

**THE DETAILED DESIGN STUDY
ON MEDAN FLOOD CONTROL PROJECT**

FINAL REPORT

VOL. V

COST ESTIMATE

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OCTOBER 1996

CTI ENGINEERING CO., LTD.

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LIST OF REPORTS

VOLUME I	SUMMARY
VOLUME II	MAIN REPORT
VOLUME III	DESIGN NOTES
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VOLUME V	COST ESTIMATE
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COST ESTIMATE
IS BASED ON THE PRICE LEVEL OF NOVEMBER 1995
AND EXPRESSED IN INDONESIAN RUPIAH (RP.)
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**THE DETAILED DESIGN STUDY
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FINAL REPORT

VOL. V

COST ESTIMATE

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CHAPTER 1. GENERAL

1.1 Construction Work Portions and Features

In accordance with results of the Detailed Design Study (D/D Study), the Medan Flood Control Project is divided into the following seven (7) construction work portions taking features and work volumes into account:

Work Portion	Total Length (m)	Location
(1) MFC-1	5,040 m	Downstream of Lower Percut River, PE0-200 to PE46
(2) MFC-2	8,270 m	Upstream of Lower Percut River, PE46 to PE129
(3) MFC-3	8,100 m	Downstream of Upper Percut River, PE129 to PE210
(4) MFC-4	6,500 m	Upstream of Upper Percut River, PE210 to PE274
(5) MFC-5	2,680 m	Downstream of Floodway including Junction to Percut River, FW0 to FW24 and PE274 to PE274+320
(6) MFC-6	1,010 m	Upstream of Floodway, FW24 to FW34
(7) MFC-7	1,500 m	Upmost Portion of Floodway and Deli River Retarding Channel, FW34 to FW39+50 and UD12-85 to UD23

The volume of work for each work portion is as tabulated below:

(1) MFC-1

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	290,600
- Stripping	m ³	36,500
- Dredging	m ³	82,600
- Excavation (Common)	m ³	139,600
- Excavation (River Channel)	m ³	164,600
- Embankment	m ³	263,800
- Parapet Wall	m ³	1,560
- Revetment (Wet Stone Masonry)	m ³	2,560
- Sodding	m ²	86,100
Other Works		
- Jetty (Landing Stage)	L.S.	1
- Channel Excavation for Sungai Lalang (PE0-60 ~ PE8+50)	m	910
- Relocation of Kabupaten Road (PE14+80 ~ PE33+100)	m	1,920
- Intake Sluice Gate for Fishpond	No.	2

(2) MFC-2

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	528,000
- Stripping	m ³	61,000
- Excavation (Common)	m ³	340,900
- Excavation (River Channel)	m ³	166,200
- Embankment	m ³	338,000
- Bandar Sidoras Intake Weir	L.S.	1
- Groundsill	L.S.	1
- Revetment (Wet Stone Masonry)	m ³	2,680
- Sodding	m ²	175,400
Bridge Works		
- Titi Besi Bridge, W=7.0m, L=82.8m	L.S.	1
- Perkebunan Bridge, W=7.0m, L=104.0m	L.S.	1
- Titi Gantung Bridge, W=7.0m, L=57.4m	L.S.	1
Drainage Works		
- Drainage Gate, Flap Dia 600mm	L.S.	1
- Drainage Gate, 2.0m×1.5m×2	L.S.	1
Other Works		
- Relocation of Existing Road (PE82 ~ PE97)	m	1,500
- Relocation of Irrigation Channel for SL2 (PE95+35 ~ PE103+10)	m	710

(3) MFC-3

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	332,400
- Stripping	m ³	16,300
- Excavation (Common)	m ³	626,300
- Excavation (River Channel)	m ³	161,900
- Embankment	m ³	95,200
- Revetment (Wet Stone Masonry)	m ³	10,200
- Sodding	m ²	88,500
Protection Works		
- Titi Runtuh Bridge	L.S.	1
- Railway Bridge	L.S.	1
Bridge Works		
- Payung Bridge, W=7.0m, L=40.8m	L.S.	1
- Pedestrian Bridge, W=2.0m, L=40.8m	L.S.	1
- Medan Tembung Bridge, W=9.0m, L=40.8m	L.S.	1
- Medan Denai Bridge, W=16.0m, L=40.8m	L.S.	1
Drainage Works		
- Drainage Gate, 1.5 m×1.5m	site	2
- Drainage Gate, 2.0 m×1.5m	site	1
- Drainage Box Culvert, 2.0m×1.5m	site	1
- Drainage Pipe, Dia 1,000mm×2	site	1
- Drainage Pipe, Dia 1,000mm	site	1

- Drainage Pipe, Dia 800mm	site	3
- Drainage Pipe, Dia 600mm	site	3
- Drainage Ditch, W=1,000mm	site	1
- Drainage Ditch, W=600mm	site	1

(4) MFC-4

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	228,700
- Stripping	m ³	8,750
- Excavation (Common)	m ³	342,900
- Excavation (River Channel)	m ³	99,500
- Embankment	m ³	59,200
- Revetment (Wet Stone Masonry)	m ³	5,880
- Sodding	m ²	65,500
Protection Works		
- National Road Bridge	L.S.	1
Bridge Works		
- Binjai Bridge, W=16.0m, L=40.8m	L.S.	1
- Amplas Bridge, W=16.0m, L=40.8m	L.S.	1
Drainage Works		
- Drainage Box Culvert, 1.5m×1.5m 2	site	1
- Drainage Box Culvert, 2.0m×2.0m	site	1
- Drainage Box Culvert, 2.0m×2.0m×2	site	1
- Drainage Box Culvert, 2.1m×2.4m×2	site	1
- Drainage Pipe, Dia 1,000mm×2	site	1
- Drainage Pipe, Dia 1,000mm	site	2
- Drainage Pipe, Dia 800mm	site	4
- Drainage Pipe, Dia 600 mm	site	6
- Drainage Ditch, W=600mm	site	3

(5) MFC-5

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	152,900
- Stripping	m ³	4,210
- Excavation (Floodway)	m ³	646,300
- Embankment	m ³	15,800
- Floodway Groundsill	L.S.	1
- Revetment (Wet Stone Masonry)	m ³	19,100
- Sodding	m ²	35,200
Bridge Works		
- Jalan Bajak Bridge, W=7.0m, L=31.6m	L.S.	1
- PTP IX Bridge, W=9.0m, L=31.6m	L.S.	1
- Pipe Bridge, Dia 800mm	L.S.	1

Drainage Works		
- Drainage Box Culvert, 2.0m×2.0m	site	1
- Drainage Pipe, Dia 1,000mm	site	3
- Drainage Pipe, Dia 800mm	site	1

(6) MFC-6

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	63,200
- Stripping	m ³	2,270
- Excavation (Floodway)	m ³	290,200
- Embankment	m ³	4,620
- Revetment (Concrete)	m ³	29,800
- Revetment (Wet Stone Masonry)	m ³	3,140
- Sodding	m ²	5,680
Bridge Works		
- STM Ujung Bridge, W=9.0m, L=31.6m	L.S.	1
- Railway Bridge, W=3.0m, L=31.6m	L.S.	1
- Deli Dua Bridge, W=16.0m, L=31.6m	L.S.	1
- Pipe Bridge, Dia 300mm	L.S.	1
- Pipe Bridge, Dia 600, 300mm	L.S.	1
Drainage Works		
- Batuan River Box Culvert, 2.0m×2.0m×2	site	1
- Drainage Pipe, Dia 1,000mm	site	1

(7) MFC-7

Work Item	Unit	Quantity
River Works		
- Clearing and Grubbing	m ²	143,700
- Stripping	m ³	24,800
- Excavation (Common)	m ³	40,500
- Excavation (Floodway)	m ³	137,000
- Excavation (River Channel)	m ³	13,000
- Embankment	m ³	267,700
- Floodway Weir	L.S.	1
- Deli River Weir	L.S.	1
- Revetment (Concrete)	m ³	22,600
- Revetment (Wet Stone Masonry)	m ³	5,120
- Sodding	m ²	31,700
Bridge Works		
- Pipe & Pedestrian Bridge, W=3.0m, L=31.6m	L.S.	1
- Jalan SMA Bridge, W=4.5m, L=16.6m	L.S.	1
- Gg. Seksama Bridge, W=2.0m, L=58.8m	L.S.	1
Drainage Works		
- Drainage Pipe, Dia 1,000mm	site	1

1.2 Implementation Schedule

The implementation schedule is prepared to achieve the prompt construction of the Project. The necessary undertakings and activities are incorporated in the schedule, as shown in Fig. 1.1.

This D/D Study is to be completed in August 1996, and the final report will be submitted in September 1996. During the D/D Study, environmental impact assessment and compensation works were simultaneously undertaken and either the local currency portion of funds for the Project or the foreign currency portion (loan) will be prepared for the pre-construction works including land acquisition and compensation. Then, construction of the Project is expected to be started in April 1998 and completed in March 2001.

The implementation period of major work items is estimated, as shown below:

Major Work Items	Implementation Period
I. Detailed Design	
I-1 Basic Study/Design	Apr. 1995 to Aug. 1995
I-2 Detailed Design including Tender Documents	Nov. 1995 to Aug. 1996
I-3 Approval on ANDAL and RKL/RPL	Jun. 1995 to Nov. 1995
I-4 Inventory Survey for Compensation Works	Sep. 1995 to Mar. 1996
II. Required Administration Works	
II-1 Fund Requirement (APBN and APBD)	Sep. 1996 to Nov. 1996
II-2 Land Acquisition and Compensation	Dec. 1996 to Feb. 1998
III. Loan (OECD) Acquisition	
III-1 Request for Loan	Nov. 1996 to Jan. 1997
III-2 Loan Appraisal	Mar. 1997 to Apr. 1997
III-3 Pledge/Loan Agreement	Aug./Nov. 1997
IV. Construction of the Project	
IV-1 Selection and Contract of Consultant	Aug. 1997 to Dec. 1997
IV-2 P/Q, Tendering and Contract for Construction	Aug. 1997 to Feb. 1998
IV-3 Construction	Apr. 1998 to Mar. 2001
(3-1) Percut River Improvement Works	Apr. 1998 to Mar. 2001
(3-2) Medan Floodway	Apr. 1998 to Mar. 2001

CHAPTER 2. BASIC CONDITIONS FOR COST ESTIMATE

2.1 Currency of Cost Estimate

Construction cost is estimated in foreign and local currencies. Both of the estimated costs are expressed in Indonesian Rupiah using currency conversion rates.

2.2 Price Level, Price Escalation Rate and Exchange Rate

Project cost is estimated on the basis of the design, the construction plan, and the following assumptions and conditions:

(1) Price Level

Price level is as of November 1995.

(2) Price Escalation

Price escalation rate is assumed at 8% for the local currency and 3% for foreign currency.

(3) Currency Conversion Rate

Currency conversion rates among U.S. Dollar (US\$), Indonesian Rupiah (Rp.) and Japanese Yen (¥) are: US\$1.00 = Rp 2,285 = ¥103.6.

CHAPTER 3. PROJECT COST AND PRINCIPLES OF COST ESTIMATE

3.1 Constitution of Project Cost

Project cost consists of the costs for civil works, preparatory and miscellaneous works, administration, engineering services, compensation and physical contingencies, divided proportionately as per Table 3.1 into foreign currency (FC) and local currency (LC) portions by referring to data obtained from similar OECF loan projects.

3.2 Construction Base Cost

Cost for civil works is estimated on the unit price basis. The unit price is composed of the unit cost of labor, material, equipment, miscellaneous and contractor's indirect cost.

(1) Unit Price

(a) Labor Cost

The unit cost of labor is estimated using the local basic wage in Medan for 1995-1996, and calculated based on the regulations for employment (HIMPUNAN PERATURAN, 1988) in Indonesia. The estimated cost of labor per day is shown in Table 3.2.

(b) Material Cost

The unit cost of construction materials is estimated at November 1995 prices based on the data collected at the project site. The cost of materials which have to be supplied from outside of Medan area shall include transportation and insurance costs to the site. The materials which have to be imported shall consider insurance, freight to port of destination, transport to port and transport to the site. The estimated cost of materials is shown in Table 3.3.

(c) Equipment Cost

The unit cost of construction equipment is estimated based on the local government prices as of 1991 and consider the price escalation of 4% per year. The price of equipment is calculated on rental basis per hour. The estimated cost of equipment per hour is shown in Table 3.4.

(d) Indirect Cost

The Contractor's indirect cost is computed as a percentage of each unit cost. Indirect cost is estimated at 7% for contractor's profit and 8% for overhead and other incidentals.

3.3 Compensation Base Cost

Compensation base cost is estimated as follows:

Classification	Unit	Unit Price (Rp.)
Land		
- Residential Area	m ²	91,000
- Dryland/Wasteland	m ²	3,000
- Cultivated Land	m ²	5,300
- Paddy Field	m ²	40,000
- Plantation/Woods	m ²	5,000
- Wetland	m ²	4,000
- Factory	m ²	91,000
House		
- Type A	No.	1,943,000
- Type B	No.	972,000
- Type C	No.	486,000
Factory	No.	479,763,500

3.4 Other Costs

3.4.1 Administration Base Cost

The administration base cost is provided to cover all expenses for the Government staff's management and supervision throughout the pre-construction and construction periods, and is assumed in the local currency portion as 5% of the sum of both local and foreign currency portions of the construction and compensation base costs.

3.4.2 Price Contingency

Price contingency is provided to compensate for price escalation from the present up to the completion of project construction. Price contingency is calculated at the annual rates of 8% and 3% of the sum of base costs for the local and the foreign currency portions, respectively.

3.4.3 Physical Contingency

Physical contingency is assumed as 10% of the total amount of base cost and the price contingency for each of the local and foreign currency portions.

Table 3.4 BASIC UNIT COSTS OF CONSTRUCTION EQUIPMENT

Construction Equipment	Capacity/ Specification	Power	Type	Economic Life (Year)	Yearly Working (hour)	Basic Price (Rp/hour)	Code No.
1. Bulldozer A	15 ton	145 PS	D58E-1	5	2,000	74,900	EQ1
2. Bulldozer B	12 ton	100 PS		5	2,000	60,200	EQ2
3. Bulldozer C	6 ton	71 PS		5	2,000	37,700	EQ3
4. Bulldozer with Ripper	21 ton	225 PS	D53A-17	5	2,000	119,400	EQ4
5. Back hoe / Excavator A	0.60 m3	120 PS	PC200-5	4	2,000	65,700	EQ5
6. Back hoe / Excavator B	0.40 m3	88 PS	PC100-5	4	2,000	43,000	EQ6
7. Crawler-Type Loader	1.20 m3	93 PS	951C	5	2,000	49,500	EQ7
8. Wheel-type Loader	1.20 m3	81 PS	920	5	2,000	55,600	EQ8
9. Dump Truck A	8 ton	253 PS	TDZ-60	5	2,000	33,000	EQ9
10. Dump Truck B	6 ton	188 PS	TSD-6	5	2,000	16,500	EQ10
11. Ordinary Truck	4 ton	180 PS	TE-100	5	2,000	12,300	EQ11
12. Wheel Crane A	10 ton	100 PS	KB-122	5	2,000	38,200	EQ12
13. Wheel Crane B	4.9 ton	50 PS	TSO45	5	2,000	33,400	EQ13
14. Truck with Crane	6 ton	190 PS	TXO-60	5	2,000	19,400	EQ14
15. Truck with Crane	4 ton	162 PS	TS-3	5	2,000	12,900	EQ15
16. Trailer A	35 ton	320 PS	VOZ-441	5	2,000	61,700	EQ16
17. Trailer B	20 ton	320 PS	F-2100	5	2,000	43,500	EQ17
18. Truck Mixer	4.5 ton	290 PS	TDJ-50	5	2,000	49,700	EQ18
19. Concrete Pump Truck	55 m3/hr	164 PS	NCP-900	4	2,000	62,400	EQ19
20. Water Tanker	4 m3		4862-WD	5	2,000	14,100	EQ20
21. Tamper	80/100 kg	4 PS	BS-60Y	3	1,600	5,500	EQ21
22. Vibrator Roller A	1 ton	8 PS	SV-10	5	1,600	13,100	EQ22
23. Vibrator Roller B	4 ton	27.3 PS	SV-25	5	1,600	26,700	EQ23
24. Vibrator Roller C	12 ton	91 PS	SV-900	6	2,000	66,500	EQ24
25. Tire Roller	8/12 ton	99 PS	TS-150	7	1,600	36,500	EQ25
26. Tandem Roller	8/12 ton	99 PS		5	2,000	39,200	EQ26
27. Motor Grader	2.8 m	94 PS	GD510R-1	6	2,000	49,500	EQ27
28. Crawler Crane A	50 ton	156 PS	TG-500	6	1,400	146,600	EQ28
29. Crawler Crane B	35 ton	117 PS	DH-350	6	1,400	115,500	EQ29
30. Crawler Crane C	15 ton	96 PS	421D	6	1,400	64,600	EQ30
31. Portable Engine Compressor	3.5m3/min.	36 PS	EC-50Hz	6	1,200	16,300	EQ31
32. Diesel Engine Generator A	100KVA	120 PS	3304	6	1,600	40,400	EQ32
33. Diesel Engine Generator B	35KVA	42 PS	DCA-35	6	1,600	15,100	EQ33
34. Diesel Engine Generator C	15KVA	20 PS	DCA-21	6	1,600	8,400	EQ34
35. Diesel Pile Hammer	2.5 ton	102 PS	335-A	4	1,400	28,500	EQ35
36. Vibro Hammer	23/24 ton	30 KW		4	1,400	11,200	EQ36
37. Drop Hammer	0.5 ton	9 PS		4	1,400	5,000	EQ37
38. Concrete Vibrator		1 KW	Dia.0-13	3	1,600	1,300	EQ38
39. Portable Concrete Mixer	0.5 m3		SM-500	3	1,600	28,900	EQ39
40. Portable Concrete Mixer	0.2 m3		KNP-7US	3	1,600	9,200	EQ40
41. Asphalt Plant	30 ton/hr	110 KW	BDM-50	5	1,400	192,500	EQ41
42. Asphalt Finisher	2.4 m	33 PS	MP-30-2	5	1,600	41,400	EQ42
43. Asphalt Sprayer	30 Lit./min.	5.5 PS	BAD-200L	5	2,000	26,300	EQ43
44. Concrete Breaker A	600 kg	108 PS	HB-700	3	1,200	29,100	EQ44
45. Pneumatic Hand Breaker	20 kg	8/10 PS	CB-21	3	1,200	2,000	EQ45
46. Submersible Pump A	D 150mm	7.5 KW		5	1,200	3,500	EQ46
47. Submersible Pump B	D 50 mm	0.75 KW		5	1,200	2,000	EQ47
48. Engine Welder	250 AMP	19.1 PS	250 MK	6	1,200	7,500	EQ48
49. Chain Saw		0.7 PS		6	1,200	2,400	EQ49
50. Drag Line	0.8 m3			5	2,000	51,400	EQ50
51. Bar Cutting Machine	-	-	-	6		1,100	EQ51
52. Bar Bending Machine	-	-	-	6		3,000	EQ52
53. Portal Crane	25 ton			5	2,000	56,700	EQ53
54. Dredger		200 PS		5	2,000	71,600	EQ54

Note :

- Hourly costs of equipment are estimated based on owning, operation and maintenance cost system in Indonesia
- Operator and labour cost are excluded.
- Mobilization and demobilization cost is not included.
- Price Escalation is considered 4 % for every year.

Source of Data :

- Keputusan Menteri Pekerjaan Umum Nomor : 167/KPTS/1991

3.4.4 Engineering Service Cost

The Government of Indonesia will procure consultants through international competitive tendering to provide the construction supervision services for the works. The cost, referred to as the engineering service cost, is estimated independently and includes price and physical contingencies.

CHAPTER 4. RESULTS OF COST ESTIMATE

4.1 Summary of Project Cost

The total project cost is estimated at Rp. 263,118 million, excluding value added tax, as summarized below.

Item	Amount (million Rp.)
1. Construction Base Cost	194,604
1.1 Civil Works	176,913
1.2 Physical Contingency	17,691
2. Compensation Cost	41,976
2.1 Compensation Cost	38,160
2.2 Physical Contingency	3,816
3. Administration Cost	12,521
3.1 Administration Cost	11,383
3.2 Physical Contingency	1,138
4. Engineering Service Cost	14,017
4.1 Engineering Service Cost	12,743
4.2 Physical Contingency	1,274
5. Total	263,118
6. Value Added Tax	26,312
7. Grand Total	289,430

4.2 Construction Cost of Each Work Portion

The construction cost of each work portion without price escalation is estimated as follows (refer to BQ):

		(Unit: Billion Rp.)								
Work Portion	BQ	Amount			1st Year		2nd Year		3rd Year	
		F.C.	L.C.	Total	F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
MFC-1	Construction Cost	5,471	6,511	11,982	4,122	4,198	1,349	2,313	0	0
MFC-2	Construction Cost	14,346	11,260	25,606	10,217	7,026	4,129	4,234	0	0
MFC-3	Construction Cost	14,000	12,948	26,948	384	564	6,167	4,555	7,450	7,829
MFC-4	Construction Cost	9,707	9,125	18,832	389	578	4,864	3,622	4,453	4,925
MFC-5	Construction Cost	11,278	11,374	22,652	4,417	4,078	6,861	7,296	0	0
MFC-6	Construction Cost	9,701	11,722	21,423	311	407	4,542	5,335	4,848	5,980
MFC-7	Construction Cost	9,716	12,489	22,205	477	642	4,877	6,970	4,362	4,877
	Total	74,219	75,429	149,648	20,316	17,493	32,789	34,325	21,114	23,611

4.3 Compensation Cost

The compensation cost for land and houses is estimated as follows:

Classification	Unit	Quantity	Amount (Rp. 1000)
Land			
- Residential Area	m ²	195,400	17,781,400
- Dryland/Wasteland	m ²	436,470	1,309,410
- Cultivated Land	m ²	446,348	2,365,644
- Paddy Field	m ²	80,105	3,204,200
- Plantation/Forest	m ²	335,848	1,679,240
- Wetland	m ²	362,190	1,448,760
- Factory	m ²	16,635	1,513,785
Total		1,885,956	29,302,439
House		879	
- Type A	No.	555	1,078,365
- Type B	No.	160	155,520
- Type C	No.	164	79,704
Factory	No.	7	3,358,345
Total		899	4,671,934

4.4 Engineering Service Cost

The engineering service cost is estimated without price escalation at Rp. 11,258 million, consisting of Rp. 3,125.7 million for the local currency portion and ¥374.09 million for the foreign currency portion.

Table 3.1 PROPORTION OF FOREIGN AND LOCAL CURRENCY

Description	Foreign Portion (%)	Local Portion (%)
1. Labor	0	100
2. Construction equipment	70	30
3. Material		
(1) Cement	40	60
(2) Re-bar	90	10
(3) Fuel, Oil & Lubricant	20	80
(4) Aggregate (crushed by plant)	10	90
(5) Boulder, Gravel & Sand (River)	10	90
(6) Lumber, Plywood & Wooden Material	10	90
(7) Timber Pile	10	90
(8) Ready Mixed Concrete	40	60
(9) R.C. Products	40	60
(10) P.C. Products	30	70
(11) Asphalt Bituminous	40	60
(12) Steel Sheet Pile	90	10
(13) Steel Plate, Angle, Channel and other Hardware	90	10
(14) Welding rod	80	20
(15) Water stop	30	70

**Table 3.2 BASIC UNIT COSTS OF LABOUR AND COMPUTATION OF LABOUR COSTS
IN KABUPATEN DELI SERDANG 1995-1996**

Unit : Rupiah

Qualification	Basic Wage (1) Daily	Additional Cost (Monthly Base)				COST PER DAY	Rounded	Code No.
		(2) Overtime	(3) Leave	(4) Bonus	(5) Others			
1 Foreman	10,000	5,000	833	833	2,500	19,167	19,200	LA1
2 Operator	10,000	5,000	833	833	2,500	19,167	19,200	LA2
3 Electrician	9,000	4,500	750	750	2,250	17,250	17,300	LA3
4 Mechanic	9,000	4,500	750	750	2,250	17,250	17,300	LA4
5 Welder	9,000	4,500	750	750	2,250	17,250	17,300	LA5
6 Driver	7,500	3,750	625	625	1,875	14,375	14,400	LA6
7 Mason	8,000	4,000	667	667	2,000	15,333	15,300	LA7
8 Carpenter	9,000	4,500	750	750	2,250	17,250	17,300	LA8
9 Scaffolding Man	8,000	4,000	667	667	2,000	15,333	15,300	LA9
10 Plumber	8,000	4,000	667	667	2,000	15,333	15,300	LA10
11 Steel Worker	8,000	4,000	667	667	2,000	15,333	15,300	LA11
12 Concrete Worker	8,000	4,000	667	667	2,000	15,333	15,300	LA12
13 Painter	8,000	4,000	667	667	2,000	15,333	15,300	LA13
14 Plasterer	8,000	4,000	667	667	2,000	15,333	15,300	LA14
15 Asphalt Worker	8,000	4,000	667	667	2,000	15,333	15,300	LA15
16 Skilled Labour	6,000	3,000	500	500	1,500	11,500	11,500	LA16
17 Common Labour	5,000	2,500	417	417	1,250	9,583	9,600	LA17
18 Watchman	5,500	2,750	458	458	1,375	10,542	10,500	LA18

(1) : SOURCE; DAFTAR HARGA SATUAN BAHAN - UPAH KERJA
TAHUN ANGGARAN 1995-1996

(2) : 7 Basic Working Hours + 2 Hours Overtime +
1 Hour Rest Time

- Overtime, 1st Hour; Basic Wage / 7 * 1.5

- Overtime, 2nd Hour; Basic Wage / 7 * 2.0

(3) : Vacation and Sick Leave;

Basic Wage / 12

(4) : Bonus or 13th Month Pay;

Basic Wage / 12

(5) : Food, Transportation and other Allowances +
Taxes and Insurances

((1) + (2) + (3) + (4)) * 0.15

**Table 3.3 (1/4) BASIC UNIT COSTS OF CONSTRUCTION MATERIALS
IN MEDAN CITY**

(unit : Rp.)

No.	Materials	Unit	Local Currency (Rp.)	Foreign Currency (Rp.)	Total Nov.1.95	Code No.
A. Combustibles						
1	Gasoline	lit.	560	140	700	A-1
2	Light Oil (Diesel Oil)	lit.	304	76	380	A-2
3	Kerosene	lit.	210	140	350	A-3
4	Propane Gas	kg	600	150	750	A-4
5	Oxygen (big tube)	7m ³	45,000	5,000	50,000	A-5
6	Grease	kg	3,600	400	4,000	A-6
B. Sand and Stones						
1	Fine Aggregate (Washed Sand) (10km)	m ³	11,880	1,320	13,200	B-1
2	Sand for Filling and Base Course (10 km)	m ³	9,900	1,100	11,000	B-2
3	Cobble Stone (Average Delivery Dis. 20km)	m ³	13,500	1,500	15,000	B-3
4	Crasher Run (Average Delivery Dis. 20 km)	m ³	31,500	3,500	35,000	B-4
5	River Gravel (Average Delivery Dis. 25 km)	m ³	18,000	2,000	20,000	B-5
6	Boulder (Average Delivery Dis. 25km)	m ³	19,800	2,200	22,000	B-6
C. Concretes and Asphalt						
1	Portland Cement	bag	5,100	3,400	8,500	C-1
2	Cut-back Asphalt	kg	480	320	800	C-2
3	Asphalt Concrete (Hot Mix)	ton	66,000	44,000	110,000	C-3
4	Asphalt Tack Coat	lit	720	480	1,200	C-4
5	Asphalt Prime Coat	lit	600	400	1,000	C-5
6	Ready Mixed Concrete; 400 kg/cm ² , 25 mm (A)	m ³	109,560	73,040	182,600	C-6
7	Ready Mixed Concrete; 350 kg/cm ² , 25 mm (B)	m ³	104,940	69,960	174,900	C-7
8	Ready Mixed Concrete; 225 kg/cm ² , 25 mm (C1)	m ³	95,040	63,360	158,400	C-8
9	Ready Mixed Concrete; 225 kg/cm ² , 10 mm (C2)	m ³	90,720	60,480	151,200	C-9
10	Ready Mixed Concrete; 175 kg/cm ² , 40 mm (D)	m ³	87,420	58,280	145,700	C-10
11	Ready Mixed Concrete; 120 kg/cm ² , 25 mm (E)	m ³	80,160	53,440	133,600	C-11
12	Prestressed Concrete Pile Dia. 300 mm A	m	23,800	10,200	34,000	C-12
13	Prestressed Concrete Pile Dia. 300 mm AB	m	28,700	12,300	41,000	C-13
14	Prestressed Concrete Pile Dia. 400 mm B	m	52,500	22,500	75,000	C-14
15	Prestressed Concrete Pile Dia. 400 mm AB	m	48,300	20,700	69,000	C-15
16	Prestressed Concrete Pile Dia. 500 mm AB	m	73,500	31,500	105,000	C-16
17	Prestressed Concrete Pile Dia. 600 mm AB	m	99,400	42,600	142,000	C-17
18	Concrete Pipe (Without Re-bar) Dia. 600 mm	m	18,200	7,800	26,000	C-18
19	Concrete Pipe (Without Re-bar) Dia. 400 mm	m	8,400	3,600	12,000	C-19
20	Reinforced Concrete Pipe, Dia. 300 mm	m	17,400	11,600	29,000	C-20
21	Reinforced Concrete Pipe, Dia. 400 mm	m	27,000	18,000	45,000	C-21
22	Reinforced Concrete Pipe, Dia. 500 mm	m	43,200	28,800	72,000	C-22
23	Reinforced Concrete Pipe, Dia. 600 mm	m	58,800	39,200	98,000	C-23
24	Reinforced Concrete Pipe, Dia. 800 mm	m	104,400	69,600	174,000	C-24
25	Reinforced Concrete Pipe, Dia. 1000 mm	m	162,600	108,400	271,000	C-25
26	Concrete Block for Pavement : 21 x 10.5 x 8 cm	pcs	440	110	550	C-26
27	Concrete Hollow Block : 40 x 20 x 10 cm	pcs	496	124	620	C-27
28	Form Tie	pcs	3,000	2,000	5,000	C-28
29	Non Shrinkage Mortar	m ³	41,500	41,500	83,000	C-29

**Table 3.3 (2/4) BASIC UNIT COSTS OF CONSTRUCTION MATERIALS
IN MEDAN CITY**

(unit : Rp.)					
No.	Materials	Unit	Local Currency (Rp.)	Foreign Currency (Rp.)	Total Nov.1.95
30	Sealant	m ³	40,000	40,000	80,000
31	Prestressed Concrete Sheet Pile	m	86,064	57,376	143,440
32	Precast Prestressed Concrete Main Beam	m ³	1,010,400	673,600	1,684,000
33	Precast Prestressed Panel	m ³	280,000	280,000	560,000
34	Precast Prestressed Concrete Diaphragm	m ³	339,200	339,200	678,400
D. Log and Timber					
1	Log Pile, Dia. 15 cm	m	1,980	220	2,200
2	Log Pile, Dia. 10 cm	m	990	110	1,100
3	Timber	m ³	337,500	37,500	375,000
4	Plywood, t = 12 mm	m ²	12,600	1,400	14,000
5	Door incl. Frame Accessories, 2.0 x 0.8 m	nos	110,880	12,320	123,200
6	Form Timber	m ³	405,000	45,000	450,000
7	Coconut Pile, Dia. 25 cm, 10-12 m	nos.	45,000	5,000	50,000
E. Iron					
1	Reinforcing Bars, Round	kg	165	1,485	1,650
2	Reinforcing Bars, Deformed	kg	165	1,485	1,650
3	Structural Steel	kg	315	2,835	3,150
4	Steel Plate	kg	225	2,025	2,250
5	Steel Pipe, Dia. 800 mm incl. Coating & Lining	m	79,940	719,460	799,400
6	Steel Pipe, Dia. 600 mm incl. Coating & Lining	m	69,750	627,750	697,500
7	Steel Pipe, Dia. 400 mm incl. Coating & Lining	m	46,500	418,500	465,000
8	Steel Pipe, Dia. 300 mm incl. Coating & Lining	m	41,000	369,000	410,000
9	Steel Pipe, Dia. 150 mm incl. Coating & Lining	m	18,500	166,500	185,000
10	Steel Pipe, Dia. 125 mm incl. Coating & Lining	m	15,500	139,500	155,000
11	Steel Pipe, Dia. 100 mm incl. Coating & Lining	m	9,300	83,700	93,000
12	Steel Pipe, Dia. 38 mm (1.5 inch)	m	2,025	18,225	20,250
13	Steel Pipe Pile, Dia. 600 mm (spiral welded)	m	36,000	324,000	360,000
14	Steel Pipe Pile, Dia. 400 mm (spiral welded)	m	23,800	214,200	238,000
15	Galvanized Steel Pipe, Dia. 40 mm	m	2,213	19,912	22,125
16	Galvanized Steel Pipe, Dia. 50 mm	m	2,775	24,975	27,750
17	Galvanized Steel Pipe, Dia. 75 mm	m	4,500	40,500	45,000
18	Galvanized Steel Pipe, Dia. 100 mm	m	6,000	54,000	60,000
19	Steel Door, 40 mm thick, 2.10 x 1.70 m	pcs	285,000	2,565,000	2,850,000
20	Steel Sheet Pile	ton	247,500	2,227,500	2,475,000
21	Expansion Joint, Steel Profile L-75 x 6 mm	m	705	6,345	7,050
22	Anchor, Steel Bar (Dia. 32 & 22) incl. PVC Pipe	nos	3,000	27,000	30,000
23	Galvanized Steel Wire	kg	500	2,000	2,500
24	Bolt and Nut	kg	3,750	33,750	37,500
25	Welding Rod	kg	1,950	7,800	9,750
26	Galvanized Steel Fence, H = 1.75 m	m	20,580	82,320	102,900
27	Gabion Mattress; 4 mm, 1.5 x 3.0 x 0.5 m	pcs	34,000	136,000	170,000
28	Gabion Cylinder; 4 mm, Dia. = 50 cm	m	5,000	20,000	25,000
29	Zinc Roof	m ²	1,800	7,200	9,000
30	Checkered Steel Plate, 6 mm thick	kg	450	1,800	2,250
31	Live and Anchorage	set	189,000	441,000	630,000
32	Steel Pipe, Dia. 350 mm incl. Coating & Lining	m	43,750	393,750	437,500
33	Steel Pipe, Dia. 200 mm incl. Coating & Lining	m	25,150	226,350	251,500

**Table 3.3 (3/4) BASIC UNIT COSTS OF CONSTRUCTION MATERIALS
IN MEDAN CITY**

(unit : Rp.)

No.	Materials	Unit	Local Currency (Rp.)	Foreign Currency (Rp.)	Total Nov.1.95	Code No.
F. Valves						
1	Air Valve, Dia 25 mm	set	124,200	496,800	621,000	F-1
2	Sluice Valve for 400 mm Dia. Pipe	set	1,725,000	6,900,000	8,625,000	F-2
3	Counterflow Prevetion Valve for 100 mm Dia. Pipe	set	0	45,423	45,423	F-3
4	Butterfly Valve for 600 mm Dia. Pipe	set	2,250,000	9,000,000	11,250,000	F-4
5	Butterfly Valve for 400 mm Dia. Pipe	set	1,500,000	6,000,000	7,500,000	F-5
6	Flap Gate 1000 mm Dia	set	4,684,800	3,123,200	7,808,000	F-6
7	Flap Gate 600 mm Dia	set	2,812,800	1,875,200	4,688,000	F-7
8	Air Valve Dia. 75 mm	set	903,600	602,400	1,506,000	F-8
9	Air Valve, Dia. 50 mm	set	638,400	425,600	1,064,000	F-9
10	Steel Gate 2.0 * 2.0 m (Slide Gate Type)	set	9,000,000	6,000,000	15,000,000	F-10
11	Steel Gate 2.0 * 1.5 m (Slide Gate Type)	set	6,969,600	4,646,400	11,616,000	F-11
12	Steel Gate 1.5 * 1.5 m (Slide Gate Type)	set	5,270,400	3,513,600	8,784,000	F-12
13	Steel Gate 1.0 * 1.25 m (Slide Gate Type)	set	4,128,000	2,752,000	6,880,000	F-13
14	Steel Gate 1.0 * 1.0 m (Slide Gate Type)	set	3,600,000	2,400,000	6,000,000	F-14
15	Expansion Joint for Pipe, Dia. 100 mm	nos.	852,000	1,988,000	2,840,000	F-15
16	Expansion Joint for Pipe, Dia. 125 mm	nos.	952,500	2,222,500	3,175,000	F-16
17	Expansion Joint for Pipe, Dia. 150 mm	nos.	1,047,900	2,445,100	3,493,000	F-17
18	Expansion Joint for Pipe, Dia. 300 mm	nos.	1,092,900	2,550,100	3,643,000	F-18
19	Expansion Joint for Pipe, Dia. 350 mm	nos.	1,293,900	3,019,100	4,313,000	F-19
20	Expansion Joint for Pipe, Dia. 400 mm	nos.	2,119,500	4,945,500	7,065,000	F-20
21	Expansion Joint for Pipe, Dia. 600 mm	nos.	2,338,500	5,456,500	7,795,000	F-21
22	Expansion Joint for Pipe, Dia. 800 mm	nos.	5,268,300	12,292,700	17,561,000	F-22
23						F-23
G. Chemicals						
1	PVC Pipe, Dia. 150 mm	m	29,925	12,825	42,750	G-1
2	PVC Pipe, Dia. 100 mm	m	14,490	6,210	20,700	G-2
3	PVC Pipe, Dia. 75 mm	m	7,350	3,150	10,500	G-3
4	PVC Pipe, Dia. 50 mm	m	5,250	2,250	7,500	G-4
5	PVC Air Vent Pipe, Dia. 75 mm, 80 cm Long	pcs	24,500	10,500	35,000	G-5
6	Elastic Joint Filler 10 mm thick	m ²	17,500	7,500	25,000	G-6
7	Geotextile	m ²	5,250	2,250	7,500	G-7
8	Waterstop; B = 300 mm	m	31,500	13,500	45,000	G-8
9	Elastomeric Bearing, 300 x 300 x 60 mm	pcs	175,000	75,000	250,000	G-9
10	Elastomeric Bearing, 406 x 280 x 67 mm	pcs	218,750	93,750	312,500	G-10
11	Elastomeric Bearing, 480 x 300 x 67 mm	pcs	280,000	120,000	400,000	G-11
12	PVC Pipe, Dia. 200 mm	m	48,825	20,925	69,750	G-12
H. Rubber Dam						
1	Rubber Body (6.315*32.33 m)	LS	0	595,350,000	595,350,000	H-1
2	Fixing Materials (Anchor Bolts, Plate, etc.)	LS	0	529,200,000	529,200,000	H-2
3	Spacer Parts and Pipelines	LS	0	66,150,000	66,150,000	H-3
4	Operation Equipment	LS	0	132,300,000	132,300,000	H-4
I. Plants and Grass						
1	Acasia Petandra	tree	7,000	0	7,000	I-1
2	Fillisium	tree	10,500	0	10,500	I-2
3	Bougainvillea	tree	5,000	0	5,000	I-3
4	Cemara Kipas	tree	35,000	0	35,000	I-4

**Table 3.3 (4/4) BASIC UNIT COSTS OF CONSTRUCTION MATERIALS
IN MEDAN CITY**

(unit : Rp.)

No.	Materials	Unit	Local Currency (Rp.)	Foreign Currency (Rp.)	Total Nov.1.95	Code No.
5	Cemara Lilin	tree	35,000	0	35,000	I-5
6	Palem Hijau	tree	15,000	0	15,000	I-6
7	Tanjung	tree	10,500	0	10,500	I-7
8	Cendrawasih/Taiwan Lila	tree	105	0	105	I-8
9	Soka	tree	250	0	250	I-9
10	Filling of Fertilized Soil	kg	1,200	0	1,200	I-10
J. Others						
1	Palm Fiber, 20 mm thick	m ²	18,000	2,000	20,000	J-1
2	Brick ; 23 x 11.5 x 5.5 cm	pcs	90	10	100	J-2
3	Floor Tile	m ²	16,650	1,850	18,500	J-3
4	Wall Tile	m ²	15,750	1,750	17,500	J-4
5	Mosaic Tile	m ²	20,790	2,310	23,100	J-5
6	Roof Tile	m ²	16,650	1,850	18,500	J-6
7	Wall Paint	m ²	6,750	750	7,500	J-7
8	Window with Accessory, 0.6 x 1.20 m	m ²	36,000	4,000	40,000	J-8
9	Synthetic Shell (5 m ² / kg)	kg	3,125	3,125	6,250	J-9
10	Water Proofing Coat	m ²	10,200	10,200	20,400	J-10
11	Staff Gauge (5.0 m)	nos	140,000	60,000	200,000	J-11
12	Asbestos Cemet, 6 mm thick	m ²	875	875	1,750	J-12
13	Aluminium Frame	m ²	125,000	125,000	250,000	J-13
14	Cast-iron Cover, Dia.60 cm	pcs	400,000	400,000	800,000	J-14
15	Nails	kg	1,200	800	2,000	J-15
16	Handy Talky	set	240,000	160,000	400,000	J-16
17	Trash Can	nos	28,000	7,000	35,000	J-17
18	Trash Carrier	nos	128,000	32,000	160,000	J-18
19	Water Tank, 5.0 m ³	nos	2,500,000	625,000	3,125,000	J-19
20	Maintenance Post Marker	nos	39,000	26,000	65,000	J-20
21	Submerged Motor Pump, 0.1 m ³ /min. 2.2 kw	nos	3,525,000	2,350,000	5,875,000	J-21
22	Submerged Motor Pump, 0.1 m ³ /min. 1.5 kw	nos	2,550,000	1,700,000	4,250,000	J-22
23	Name Plate (marble)	m ²	360,000	40,000	400,000	J-23
24	Bench (wooden)	nos.	165,000	110,000	275,000	J-24
25	Bench (steel)	nos.	200,000	0	200,000	J-25
26	Sodding Grass	m ²	500	0	500	J-26

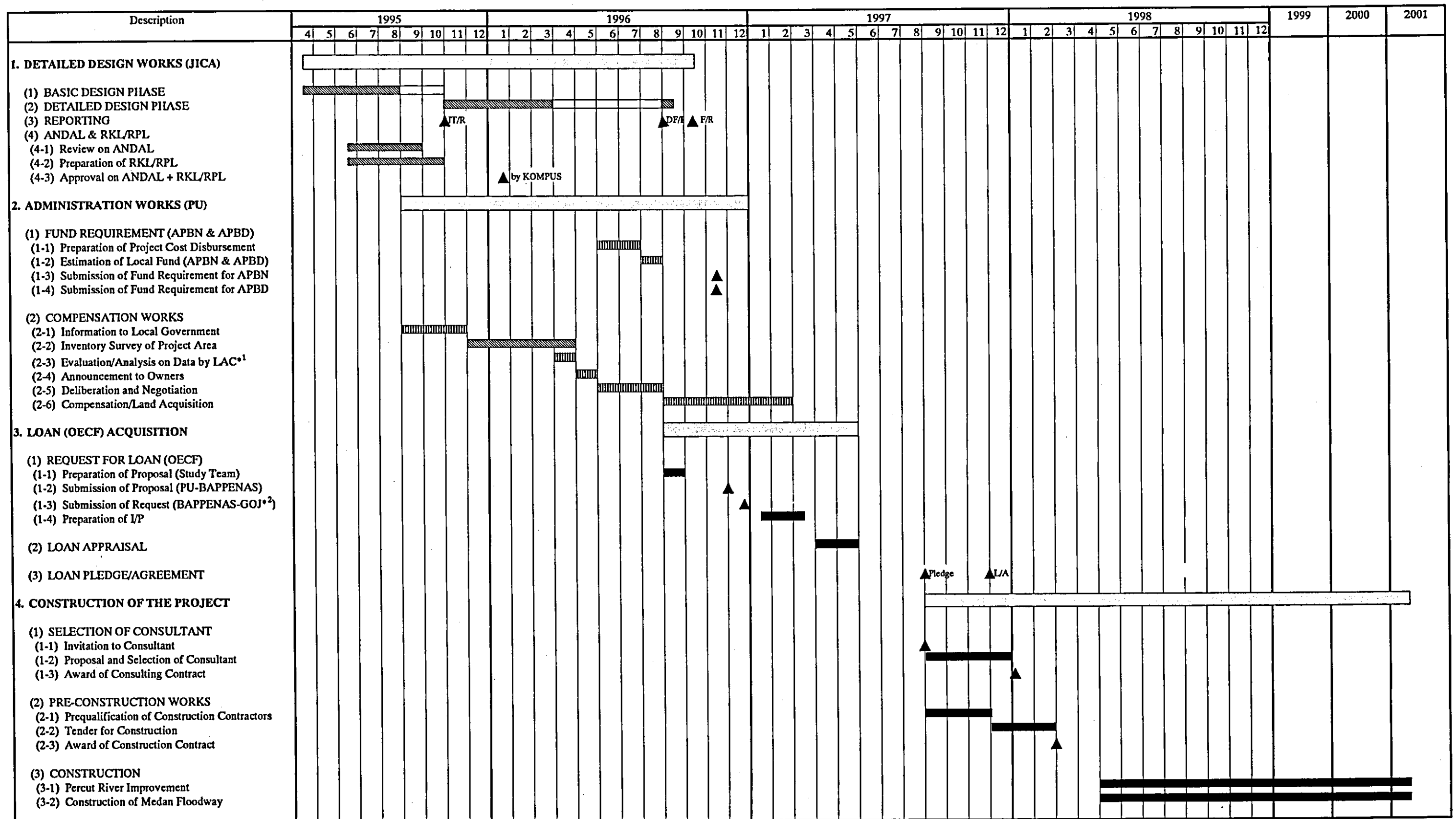
Source:

1 DAFTAR HARGA SATUAN BAHAN - UPAHKERJA, TAHUN ANGGARAN 1995-1996

DI DATI II KABUPATEN DELI SERDANG.

2 JURUAL HARGA SATUAN BAHAN BANGUNAN DAN KONSTRUKSI, EDISI III/September 1995

**Fig. 1.1 IMPLEMENTATION SCHEDULE OF THE PROJECT
MEDAN FLOOD CONTROL PROJECT**



Legend : ^{*1} LAC = Land Acquisition Committee
^{*2} GOJ = Government of Japan

IT/R = Interim Report,

DF/R = Draft Final Report,

F/R = Final Report

APPENDICES

VOL. VI

COST ESTIMATE

ANNUAL DISBURSEMENT SCHEDULE FOR MEDAN FLOOD CONTROL PROJECT

UNIT: million Rp.

PORTION NO.	BQ-ITEMS (DRAFT)	AMOUNT		TOTAL	1 ST YEAR		2 ND YEAR		3 RD YEAR	
		F.C.	L.C.		F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
		(RP.)	(RP.)		(RP.)	(RP.)	(RP.)	(RP.)	(RP.)	(RP.)
MFC-1	CONSTRUCTION COST	5,471,000	6,511,000	11,982,000	4,121,600	4,198,400	1,349,400	2,312,600	0	0
MFC-2	CONSTRUCTION COST	14,346,000	11,260,000	25,606,000	10,216,700	7,025,600	4,129,300	4,234,400	0	0
MFC-3	CONSTRUCTION COST	14,000,000	12,948,000	26,948,000	383,600	563,600	6,166,700	4,555,000	7,449,700	7,829,400
MFC-4	CONSTRUCTION COST	9,707,000	9,125,000	18,832,000	389,200	577,600	4,864,400	3,622,300	4,453,400	4,925,100
MFC-5	CONSTRUCTION COST	11,278,000	11,374,000	22,652,000	4,416,800	4,078,300	6,861,200	7,295,700	0	0
MFC-6	CONSTRUCTION COST	9,701,000	11,722,000	21,423,000	311,200	407,200	4,541,600	5,334,900	4,848,200	5,979,900
MFC-7	CONSTRUCTION COST	9,716,000	12,489,000	22,205,000	477,200	642,000	4,876,500	6,970,200	4,362,300	4,876,800
	PROJECT TOTAL CONSTRUCTION COST	74,219,000	75,429,000	149,648,000	20,316,300	17,492,700	32,789,100	34,325,100	21,113,600	23,611,200

ANNUAL DISBURSEMENT SCHEDULE FOR MEDAN FLOOD CONTROL PROJECT

UNIT: million Rp.

ITEM NO.	BQ-ITEMS (DRAFT)	AMOUNT		TOTAL	1 ST YEAR		2 ND YEAR		3 RD YEAR	
		F.C.	L.C.		F.C.	L.C.	F.C.	L.C.	F.C.	L.C.
		(RP.)	(RP.)		(RP.)	(RP.)	(RP.)	(RP.)	(RP.)	(RP.)
MFC-1										
A	GENERAL	593,000	815,000	1,408,000	415,100	570,500	177,900	244,500	0	0
B	CHANNEL AND DIKE WORKS	3,532,000	3,016,000	6,548,000	2,867,100	2,367,100	664,900	648,900	0	0
C	SLOPE AND RIVERBED PROTECTION WORKS	625,000	1,587,000	2,212,000	283,100	557,200	341,900	1,029,800	0	0
D	RIPARIAN STRUCTURES	107,000	171,000	278,000	67,800	103,600	39,200	67,400	0	0
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	57,000	43,000	100,000	57,000	43,000	0	0	0	0
I	OTHER WORKS	557,000	879,000	1,436,000	431,500	557,000	125,500	322,000	0	0
	TOTAL	5,471,000	6,511,000	11,982,000	4,121,600	4,198,400	1,349,400	2,312,600		
MFC-2										
A	GENERAL	775,000	1,237,000	2,012,000	542,500	865,900	232,500	371,100	0	0
B	CHANNEL AND DIKE WORKS	5,034,000	3,805,000	8,839,000	3,507,900	2,561,000	1,526,100	1,244,000	0	0
C	SLOPE AND RIVERBED PROTECTION WORKS	878,000	1,252,000	2,130,000	86,800	100,600	791,200	1,151,400	0	0
D	RIPARIAN STRUCTURES	244,000	241,000	485,000	16,500	19,600	227,500	221,400	0	0
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	121,000	167,000	288,000	16,000	25,900	105,000	141,100	0	0
F	BANDAR SIDORAS INTAKE WEIR AND IRRIGATION FACILITIES	4,084,000	1,861,000	5,945,000	3,775,800	1,726,000	308,200	135,000	0	0
H	BRIDGE WORKS	3,084,000	2,555,000	5,639,000	2,208,200	1,655,600	875,800	899,400	0	0
I	OTHER WORKS	126,000	142,000	268,000	63,000	71,000	63,000	71,000	0	0
	TOTAL	14,346,000	11,260,000	25,606,000	10,216,700	7,025,600	4,129,300	4,234,400	0	0
MFC-3										
A	GENERAL	959,000	1,409,000	2,368,000	383,600	563,600	287,700	422,700	287,700	422,700
B	CHANNEL AND DIKE WORKS	6,397,000	4,552,000	10,949,000	0	0	2,708,000	1,989,000	3,689,000	2,563,000
C	SLOPE AND RIVERBED PROTECTION WORKS	2,227,000	3,494,000	5,721,000	0	0	91,300	113,600	2,135,700	3,380,400
D	RIPARIAN STRUCTURES	211,000	250,000	461,000	0	0	0	0	211,000	250,000
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	226,000	288,000	514,000	0	0	201,300	249,500	24,700	38,500
H	BRIDGE WORKS	3,595,000	2,256,000	5,851,000	0	0	2,878,400	1,780,200	716,600	475,800
I	OTHER WORKS	385,000	699,000	1,084,000	0	0	0	0	385,000	699,000
	TOTAL	14,000,000	12,948,000	26,948,000	383,600	563,600	6,166,700	4,555,000	7,449,700	7,829,400
MFC-4										
A	GENERAL	973,000	1,444,000	2,417,000	389,200	577,600	291,900	433,200	291,900	433,200
B	CHANNEL AND DIKE WORKS	3,343,000	2,435,000	5,778,000	0	0	2,435,900	1,679,000	907,100	756,000
C	SLOPE AND RIVERBED PROTECTION WORKS	1,202,000	1,929,000	3,131,000	0	0	0	0	1,202,000	1,929,000
D	RIPARIAN STRUCTURES	194,000	229,000	423,000	0	0	0	0	194,000	229,000
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	249,000	344,000	593,000	0	0	133,200	176,200	115,800	167,800
H	BRIDGE WORKS	3,438,000	2,194,000	5,632,000	0	0	2,003,400	1,333,900	1,434,600	860,100
I	OTHER WORKS	308,000	550,000	858,000	0	0	0	0	308,000	550,000
	TOTAL	9,707,000	9,125,000	18,832,000	389,200	577,600	4,864,400	3,622,300	4,453,400	4,925,100
MFC-5										
A	GENERAL	593,000	808,000	1,401,000	415,100	565,600	177,900	242,400	0	0
B	CHANNEL AND DIKE WORKS	4,090,000	2,563,000	6,653,000	2,040,000	1,276,100	2,050,000	1,286,900	0	0
C	SLOPE AND RIVERBED PROTECTION WORKS	2,519,000	5,218,000	7,737,000	499,000	1,032,000	2,020,000	4,186,000	0	0
D	RIPARIAN STRUCTURES	10,000	21,000	31,000	4,800	10,200	5,200	10,800	0	0
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	409,000	758,000	1,167,000	194,100	371,700	214,900	386,300	0	0
H	BRIDGE WORKS	1,501,000	965,000	2,466,000	1,048,200	718,600	452,800	246,400	0	0
I	OTHER WORKS	2,156,000	1,041,000	3,197,000	215,600	104,100	1,940,400	936,900	0	0
	TOTAL	11,278,000	11,374,000	22,652,000	4,416,800	4,078,300	6,861,200	7,295,700	0	0
MFC-6										
A	GENERAL	778,000	1,018,000	1,796,000	311,200	407,200	233,400	305,400	233,400	305,400
B	CHANNEL AND DIKE WORKS	1,823,000	1,140,000	2,963,000	0	0	1,439,700	896,400	383,300	243,600
C	SLOPE AND RIVERBED PROTECTION WORKS	3,374,000	6,778,000	10,152,000	0	0	1,646,700	3,308,500	1,727,300	3,469,500
D	RIPARIAN STRUCTURES	2,000	5,000	7,000	0	0	2,000	5,000	0	0
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	272,000	464,000	736,000	0	0	0	0	272,000	464,000
H	BRIDGE WORKS	2,269,000	1,501,000	3,770,000	0	0	1,219,800	819,600	1,049,200	681,400
I	OTHER WORKS	1,183,000	816,000	1,999,000	0	0	0	0	1,183,000	816,000
	TOTAL	9,701,000	11,722,000	21,423,000	311,200	407,200	4,541,600	5,334,900	4,848,200	5,979,900
MFC-7										
A	GENERAL	1,193,000	1,605,000	2,798,000	477,200	642,000	357,900	481,500	357,900	481,500
B	CHANNEL AND DIKE WORKS	2,055,000	1,477,000	3,532,000	0	0	1,334,100	967,700	720,900	509,300
C	SLOPE AND RIVERBED PROTECTION WORKS	3,104,000	5,772,000	8,876,000	0	0	2,013,200	3,870,300	1,090,800	1,901,700
D	RIPARIAN STRUCTURES	25,000	41,000	66,000	0	0	0	0	25,000	41,000
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY	104,000	170,000	274,000	0	0	6,200	8,200	97,800	161,800
G	DIVERSION WEIRS	1,512,000	2,293,000	3,805,000	0	0	882,500	1,333,500	629,500	959,500
H	BRIDGE WORKS	568,000	574,000	1,142,000	0	0	282,600	309,000	285,400	265,000
I	OTHER WORKS	1,155,000	557,000	1,712,000	0	0	0	0	1,155,000	557,000
	TOTAL	9,716,000	12,489,000	22,205,000	477,200	642,000	4,876,500	6,970,200	4,362,300	4,876,800

APPENDIX 1

CONSTRUCTION COST OF MFC-1

SUMMARY OF MFC-1

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (RP.)	SECTION TOTAL IN INDONESIAN CURRENCY (RP.)	TOTAL (RP.)
A	GENERAL	593,000,000	815,000,000	1,408,000,000
B	CHANNEL AND DIKE WORKS			
B1	PREPARATION WORKS	313,000,000	249,000,000	562,000,000
B2	CHANNEL EXCAVATION	1,914,000,000	1,462,000,000	3,376,000,000
B3	EARTH DIKE WORKS	1,106,000,000	941,000,000	2,047,000,000
B4	PARAPET WALL ON DIKE (PE14L-10m to PE33)	60,000,000	117,000,000	177,000,000
B5	FLOOD RETAINING WALL (PE17L-6.5m to PE18+20m)	120,000,000	199,000,000	319,000,000
B6	FILLING ON RIVER BANK	19,000,000	48,000,000	67,000,000
	SUB-TOTAL OF B.	3,532,000,000	3,016,000,000	6,548,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS			
C1	PREPARATION WORKS	3,000,000	10,000,000	13,000,000
C2	SODDING AND DIKE	5,000,000	121,000,000	126,000,000
C3	REVTMENT - WET STONE MASONRY TYPE	290,000,000	627,000,000	917,000,000
C6	REVTMENT - GABION AND RIPRAP/RIPRAP TYPE	82,000,000	375,000,000	457,000,000
C7	GROIN (PILE TYPE)	194,000,000	288,000,000	482,000,000
C13	REVTMENT RANDOM MASONRY TYPE	51,000,000	166,000,000	217,000,000
	SUB-TOTAL OF C.	625,000,000	1,587,000,000	2,212,000,000
D	RIPARIAN STRUCTURES			
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES	9,000,000	23,000,000	32,000,000
D4	APPROACH STEPS, TYPE PA (5 place)	25,000,000	27,000,000	52,000,000
D5	APPROACH STEPS, TYPE PB (6 place)	5,000,000	16,000,000	21,000,000
D6	APPROACH STEPS, TYPE PC (4 place)	2,000,000	6,000,000	8,000,000
D11	JETTY - LANDING STAGE AND MOORING FACILITIES(PE14+57m)	66,000,000	99,000,000	165,000,000
	SUB-TOTAL OF D.	107,000,000	171,000,000	278,000,000

SUMMARY OF MFC-1

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN		SECTION TOTAL IN		TOTAL (RP.)
		FOREIGN CURRENCY (RP.)		INDONESIAN CURRENCY (RP.)		
E	DRAINAGE CHANNEL AND OUTLET WORKS					
E1	PREPARATION WORKS FOR DRAINAGE WORKS	18,000,000		16,000,000		34,000,000
E22	EARTH DRAINAGE CHANNEL (PE8R+90m to PE32+65m)	39,000,000		27,000,000		66,000,000
	SUB-TOTAL OF E.	57,000,000		43,000,000		100,000,000
I	OTHER WORKS					
I1	CHANNEL EXCAVATION FOR SUNGAI LATANG (PE0R-60 m to PE8+50m)	293,000,000		216,000,000		509,000,000
I3	RELOCATION OF KABUPATEN ROAD, (PE14L+80m to PE33+100) CLASS III	251,000,000		644,000,000		895,000,000
I9	INTAKE FISHPOND (PE 6R+00, PE 6+125m)	13,000,000		19,000,000		32,000,000
	SUB-TOTAL OF I.	557,000,000		879,000,000		1,436,000,000
TOAL A.- I.		5,471,000,000		6,511,000,000		11,982,000,000
	VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE	547,100,000		651,100,000		1,198,200,000
	TENDER PRICE	6,018,100,000		7,162,100,000		13,180,200,000

MFC-1

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL								
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	48,648,003	592,323,984	34,119,840	814,883,943	1,407,209,327	GS.6.03
A2	ESTABLISHMENT	L.S.	1.0	541,153,446	49,648,003	712,612,594	34,119,840	82,767,843	GS.6.03
A3	RELOCATION OF EXISTING FACILITIES	P.S.	1.0	2,523,934	541,153,446	4,351,510	712,612,594	1,253,766,040	GS.7.05
A4	GEOLOGICAL INVESTIGATION							6,875,444	GS.14.04
	Hand Auger	m	100.0	0	0	110,000	11,000,000	11,000,000	GS.9.06
	Mechanical Boring	m	140.0	0	0	220,000	30,800,000	30,800,000	GS.9.06
	Exploratory Excavation	m³	400.0	0	0	55,000	22,000,000	22,000,000	GS.9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
B1.1	Coffering and Dewatering	L.S.	1.0	2,630,042	312,172,687	14,668,354	216,347,937	568,460,644	TS. 1.04
B1.2	Clearing and Grubbing	m²	290,600.0	1,065	309,482,645	804	233,679,604	543,162,249	TS. 2.10
B2	CHANNEL EXCAVATION							3,374,311,488	
B2.1	Dredging (Rivermouth to PE14)	m³	82,600.0	2,197	181,476,020	3,468	286,483,013	467,959,033	TS. 2.10
B2.2	Excavation (River Channel)	m³	164,600.0	6,744	1,110,140,926	4,581	754,021,136	1,864,162,062	TS. 2.10
B2.3	Excavation (Common)	m³	139,600.0	4,452	621,494,430	3,014	420,695,963	1,042,190,393	TS. 2.10
B3	EARTH DIKE WORKS							2,046,347,238	
B3.1	Stripping of Top Soil	m³	36,500.0	1,317	48,085,008	1,887	68,886,927	116,971,935	TS. 2.10
B3.2	Embankment	m³	263,800.0	3,918	1,033,560,677	2,848	751,334,978	1,784,895,655	TS. 2.10
B3.3	Gravel Pavement, 200 mm thick	m³	4,250.0	5,360	22,779,110	27,751	117,943,317	140,722,427	TS. 7.09
B3.4	Maintenance Marker Post	nos.	45.0	31,395	1,412,775	52,099	2,344,446	3,757,221	TS. 12.10
B4	PARAPET WALL ON DIKE (PE14L-10 to PE33)							176,272,127	
B4.1	Excavation (Common)	m³	2,080.0	4,452	9,260,089	3,014	6,268,249	15,528,338	TS. 2.10
B4.2	Wet Stone Masonry (1:3) for Retement	m³	1,560.0	25,600	39,936,021	52,811	82,385,281	122,321,301	TS. 4.14
B4.3	Crusher Run Bedding	m³	210.0	7,270	1,526,616	47,207	9,913,511	11,440,126	TS. 4.14
B4.4	Elastic Joint Filler, 10 mm thick	m²	150.0	9,056	1,358,438	24,444	3,666,586	5,025,023	TS. 3.24
B4.5	Water Stop, 30 cm wide	m	250.0	17,116	4,279,078	43,230	10,807,477	15,086,555	TS. 3.24
B4.6	Backfill with Selected Soil	m³	1,120.0	2,931	3,283,077	3,203	3,587,706	6,870,783	TS. 2.10
B5	FLOOD RETAINING WALL (PE17L-6.5m to PE18+20m)							317,649,840	
B5.1	Excavation (Common)	m³	290.0	4,452	1,291,070	3,014	873,939	2,165,009	TS. 2.10
B5.2	Concrete, Type C1	m³	270.0	79,200	21,384,000	118,800	32,076,000	53,460,000	TS. 3.24
B5.3	Concrete, Type E	m³	35.0	66,800	2,338,000	100,200	3,507,000	5,845,000	TS. 3.24
B5.4	Formwork FW1	m²	800.0	4,300	3,440,168	34,861	27,888,621	31,328,789	TS. 3.24
B5.5	Supply and Driving of PC Sheet Piles, L=5.0 m	m²	600.0	149,615	89,768,946	216,279	129,767,370	219,536,316	TS. 5.07
B5.6	Log Pile, Dia. 150mm, L=4.0m	m	320.0	758	242,424	4,854	1,553,333	1,795,757	TS. 5.07
B5.7	Elastic Joint Filler, 10 mm thick	m²	26.0	9,056	235,463	24,444	635,542	871,004	TS. 3.24
B5.8	Water Stop, 30 cm wide	m	39.0	17,116	667,536	43,230	1,685,966	2,353,503	TS. 3.24
B5.9	Backfill with Selected Soil	m³	48.0	2,931	140,703	3,203	153,759	294,462	TS. 2.10
B6	FILLING ON RIVER BANK							66,301,474	
B6.1	Soil Filling	m³	14,000.0	1,334	18,676,557	3,402	47,624,917	66,301,474	TS. 2.10

MFC1-1

MFC-1

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS	L.S.	1.0		2,939,167		2,939,167	11,999,093	TS. 1.04
C1.1	Coffering and Dewatering			2,939,167			2,939,167	11,999,093	TS. 1.04
C2	SODDING AND DIKE	m ²	86,100.0	55	4,764,917		4,764,917	123,338,041	TS. 4.14
C2.1	Solid Sodding				289,576,257		289,576,257	916,443,756	TS. 4.14
C3	REVETMENT - WET STONE MASONRY TYPE	m ³	4,640.0	4,452	20,657,121	3,014	13,983,018	34,640,139	TS. 2.10
C3.1	Excavation (Common)	m ³	11.0	2,931	32,245	3,203	35,236	67,481	TS. 2.10
C3.2	Backfill with Selected Soil	m ³	2,840.0	7,270	20,645,659	47,207	134,068,431	154,714,090	TS. 4.14
C3.3	Crusher Run Bedding	m ³	2,560.0	22,458	57,492,161	48,217	123,436,577	180,928,738	TS. 4.14
C3.4	Wet Stone Masonry (1:4) for Revetment	m ³	8,990.0	3,445	30,974,870	7,007	62,996,202	93,971,072	TS. 4.14
C3.5	Cement Mortar Plastering	m ²	600.0	79,200	47,520,000	118,800	71,280,000	118,800,000	TS. 3.24
C3.6	Concrete, Type C1	kg	37,800.0	1,954	73,878,189	427	16,129,728	90,007,917	TS. 3.24
C3.7	Reinforcing Steel Bar	m ²	3,340.0	4,300	14,362,699	34,861	116,434,994	130,797,693	TS. 3.24
C3.8	Formwork FW1	m	9,880.0	758	7,484,949	4,854	47,959,150	55,444,000	TS. 5.07
C3.9	Log Pile, Dia. 150 mm, L=3.0m	m ²	970.0	9,056	8,784,563	24,444	23,710,588	32,495,151	TS. 3.24
C3.10	Elastic Joint Filler, 10 mm thick	m ²	590.0	2,536	1,496,093	23,903	14,102,849	15,598,941	TS. 4.14
C3.11	Palm Fiber Filler	m ³	45.0	138,840	6,247,803	60,683	2,730,731	8,978,534	TS. 4.14
C3.12	Gabion Cylinder	m ³			87,853,037		87,853,037	456,064,817	TS. 4.14
C6	REVETMENT - GABION AND RIPRAP / RIPRAP TYPE								
C6.1	Gabion Cylinder	m ³	44.0	138,840	6,108,963	60,683	2,670,048	8,779,011	TS. 4.14
C6.2	Boulder Riprap, (300mm - 500mm)	m ³	5,180.0	7,429	38,480,025	32,803	169,920,788	208,400,812	TS. 4.14
C6.3	Boulder Riprap, (200mm - 300mm)	m ³	6,420.0	5,804	37,264,050	31,405	201,620,944	238,884,993	TS. 4.14
C7	GRON (PILE TYPE)								
C7.1	RC. Piles 200mm x 200mm, including Driving	m	1,050.0	20,360	193,457,782	20,283	21,296,722	42,674,602	TS. 12.10
C7.2	Concrete, Type C1	m ³	2,040.0	79,200	161,568,000	118,800	242,352,000	403,920,000	TS. 3.24
C7.3	Reinforcing Steel Bar	kg	3,130.0	1,954	6,117,427	427	1,335,610	7,453,037	TS. 3.24
C7.4	Formwork FW1	m ²	210.0	4,300	903,044	34,861	7,320,763	8,223,807	TS. 3.24
C7.5	Boulder Riprap, (300mm - 500mm)	m ³	470.0	7,429	3,491,431	32,803	15,417,523	18,908,954	TS. 4.14
C13	REVETMENT RANDOM MASONRY TYPE								
C13.1	Excavation (Common)	m ³	5,030.0	4,452	22,393,388	3,014	15,158,314	37,551,703	TS. 2.10
C13.2	Rubble Stone Bedding	m ³	2,280.0	4,743	10,814,588	23,785	54,228,996	65,043,584	TS. 4.14
C13.3	Boulder Pitching, (300mm - 500mm)	m ³	4,220.0	4,209	17,760,005	22,782	96,140,278	113,900,283	TS. 4.14

MFC-1

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D	RIPARIAN STRUCTURES								
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES								
D1.1	Coffering and Dewatering	L.S.	1.0	8,395,119	8,980,857	21,589,741	22,032,011	31,012,868	TS. 1.04
D1.2	Clearing and Grubbing	m ²	550.0	1,065	585,738	804	442,270	1,028,008	TS. 2.10
D4	APPROACH STEPS, TYPE PA (5 places)								
D4.1	Excavation (Common)	m ³	380.0	4,452	1,691,747	3,014	1,145,161	51,632,686	TS. 2.10
D4.2	Backfill with Selected Soil	m ³	2.0	2,931	5,863	3,203	6,407	2,836,908	TS. 2.10
D4.3	Log Pile, Dia. 150mm, L=3.0m & 2.0m	m	240.0	758	181,818	4,854	1,165,000	12,269	TS. 5.07
D4.4	Concrete, Type C1	m ³	6.0	79,200	475,200	118,800	712,800	1,346,818	TS. 3.24
D4.5	Concrete, Type D	m ³	44.0	72,850	3,205,400	109,275	4,808,100	1,188,000	TS. 3.24
D4.6	Concrete, Type E	m ³	4.0	66,800	267,200	101,200	401,800	8,013,500	TS. 3.24
D4.7	Reinforcing Steel Bar	kg	230.0	1,954	449,523	427	98,144	668,000	TS. 3.24
D4.8	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	547,667	TS. 3.24
D4.9	Wet Stone Masonry (1:4) for Revetment	m ³	35.0	22,458	786,026	48,217	1,687,609	5,482,538	TS. 3.24
D4.10	Crusher Run Bedding	m ³	56.0	7,270	407,098	47,207	2,643,603	2,473,635	TS. 4.14
D4.11	Plastering	m ²	120.0	3,445	413,458	7,007	840,884	3,050,700	TS. 4.14
D4.12	Gabion Mattress	m ³	75.0	85,210	6,390,755	47,689	3,576,704	1,254,341	TS. 4.14
D4.13	Gabion Cylinder	m ³	70.0	138,840	9,718,805	60,683	4,247,804	9,967,459	TS. 4.14
D4.14	Cobble Stone Filling	m ³	31.0	5,489	170,164	21,099	654,078	13,966,608	TS. 4.14
D5	APPROACH STEPS, TYPE PB (6 places)								
D5.1	Excavation (Common)	m ³	79.0	4,452	351,705	3,014	15,979,009	824,242	TS. 4.14
D5.2	Backfill with Selected Soil	m ³	9.0	2,931	26,382	3,203	238,073	20,413,124	TS. 2.10
D5.3	Concrete, Type C1	m ³	3.0	79,200	237,600	118,800	356,400	589,778	TS. 2.10
D5.4	Concrete, Type D	m ³	29.0	72,850	2,112,650	109,275	3,168,975	55,212	TS. 3.24
D5.5	Formwork FW1	m ²	160.0	4,300	688,034	34,861	5,577,724	594,000	TS. 3.24
D5.6	Crusher Run Bedding	m ³	140.0	7,270	1,017,744	47,207	6,609,007	5,281,625	TS. 3.24
D6	APPROACH STEPS, TYPE PC (4 places)								
D6.1	Excavation (Common)	m ³	17.0	4,452	75,683	3,014	5,741,787	7,626,751	TS. 4.14
D6.2	Log Pile, Dia. 150mm, L=3.0m	m	24.0	758	18,182	4,854	51,231	7,414,865	TS. 2.10
D6.3	Concrete, Type D	m ³	9.0	72,850	655,650	109,275	116,500	126,914	TS. 5.07
D6.4	Formwork FW1	m ²	95.0	4,300	408,520	34,861	983,475	134,682	TS. 3.24
D6.5	Wet Stone Masonry (1:3) for Revetment	m ³	17.0	25,600	435,200	52,811	3,311,774	1,639,125	TS. 3.24
D6.6	Crusher Run Bedding	m ³	6.0	7,270	43,618	47,207	897,788	3,720,294	TS. 3.24
D6.7	Elastic Joint Filler, 10 mm thick	m ²	4.0	9,056	36,225	24,444	283,243	1,332,989	TS. 4.14
D11	JETTY - LANDING STAGE AND MOORING FACILITIES(PE14+57)								
D11.1	Excavation (Common)	m ³	240.0	4,452	65,840,818	3,014	98,420,040	326,861	TS. 4.14
D11.2	Backfill with Selected Soil	m ³	170.0	2,931	1,068,472	3,203	723,260	134,001	TS. 3.24
D11.3	Supply and Driving of PC Sheet Piles L=4.0 m and 4.75 m	m	290.0	149,615	43,388,324	216,279	544,562	164,260,858	TS. 2.10
							62,720,895	1,791,731	TS. 2.10
								1,042,887	TS. 2.10
								106,109,220	TS. 5.07

MFC-1

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D11.4	Log Piles, Dia. 150mm, L=4.0m	m	370.0	758	280,303	4,854	1,796,041	2,076,344	TS. 5.07
D11.5	Concrete, Type C1 for Base Concrete and Top Concrete	m ³	50.0	79,200	3,960,000	118,800	5,940,000	9,900,000	TS. 3.24
D11.6	Concrete, Type C2 for Step	m ³	23.0	75,600	1,738,800	113,400	2,608,200	4,347,000	TS. 3.24
D11.7	Concrete, Type E	m ³	7.0	66,800	467,600	100,200	701,400	1,169,000	TS. 3.24
D11.8	Wet Stone Masonry (1:3) for Gravity Type Wall and Steps	m ³	87.0	25,600	2,227,201	52,811	4,594,564	6,821,765	TS. 4.14
D11.9	Concrete Block Pavement for Landing Stage	m ³	260.0	1,111	288,803	17,057	4,434,889	4,723,692	TS. 7.09
D11.10	Crusher Run Bedding	m ³	25.0	7,270	181,740	47,207	1,180,180	1,361,920	TS. 4.14
D11.11	Reinforcing Steel Bar	kg	1,750.0	1,954	3,420,287	427	746,747	4,167,033	TS. 3.24
D11.12	Formwork FW1	m ²	200.0	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
D11.13	Gabion Mattress	m ³	23.0	85,210	1,959,832	47,689	1,096,856	3,056,687	TS. 4.14
D11.14	Gabion Cylinder	m ³	15.0	138,840	2,082,601	60,683	910,244	2,992,845	TS. 4.14
D11.15	Mooring Post, Block Type	nos.	15.0	9,370	140,548	12,303	184,550	325,098	TS. 12.10
D11.16	Mooring Post, Pile Type	nos.	20.0	163,897	3,277,942	163,275	3,265,497	6,543,439	TS. 12.10

MFC-1

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E	DRAINAGE CHANNEL ALONG RIGHT DIKE								
E1	PREPARATION WORKS FOR DRAINAGE WORKS								
E1.1	Coffering and Dewatering	L.S.	1.0	309,456	17,242,608	2,703,571	15,489,206	32,731,814	TS. 1.04
E1.2	Clearing and Grubbing	m ²	15,900.0	1,065	309,456	804	2,703,571	3,013,026	TS. 2.10
E2	EARTH DRAINAGE CHANNEL (PE8+90m to PE32R+65m)								
E2.1	Stripping	m ²	190.0	1,317	38,850,604	1,887	26,562,223	65,412,827	TS. 2.10
E2.2	Excavation (Common)	m ³	8,460.0	4,452	37,663,631	3,014	25,494,899	63,158,530	TS. 2.10
E2.3	Embankment	m ³	310.0	3,022	936,668	2,286	708,735	1,645,403	TS. 2.10
I	OTHER WORKS								
I1	CHANNEL EXCAVATION FOR SUNGAI LALANG (PEUR-60 to PE8+50)								
I1.1	Clearing and Grubbing	m ²	30,900.0	1,065	292,548,330	804	215,362,200	507,910,530	TS. 2.10
I1.2	Excavation (River Channel)	m ³	31,900.0	6,744	32,907,824	4,581	24,847,556	57,755,380	TS. 2.10
I1.3	Stripping of Top Soil	m ³	3,020.0	1,317	215,148,819	1,887	146,131,678	361,280,497	TS. 2.10
I1.4	Embankment	m ³	13,300.0	3,022	3,978,540	2,286	5,699,685	9,678,226	TS. 2.10
I1.5	Solid Sodding	m ²	5,910.0	55	40,186,078	1,400	30,407,007	70,593,085	TS. 2.10
I3	RELOCATION OF KABUPATEN ROAD, (PE14L+70 to PE33+100)								
I3.1	Demolition and Removal of Existing Structure	L.S.	1.0	9,436	327,069	8,193	8,276,274	860,343	TS. 4.14
I3.2	Stripping	m ³	500.0	1,317	250,574,106	1,887	643,808,007	894,382,113	TS. 2.10
I3.3	Embankment	m ³	4,630.0	3,022	9,436	2,286	8,193	17,629	TS. 2.10
I3.4	Solid Sodding	m ²	4,060.0	55	658,699	1,400	943,657	1,602,355	TS. 2.10
I3.5	Sub-Base Course, (Class C)	m ³	1,310.0	5,903	13,989,589	32,642	10,585,296	24,574,886	TS. 2.10
I3.6	Base Course, (Class B)	m ³	870.0	6,447	224,687	37,532	5,685,562	5,910,249	TS. 4.14
I3.7	Asphalt Treatment Base, (A.T.B)	ton	1,420.0	156,585	7,733,147	388,149	42,760,684	50,493,831	TS. 7.09
I9	INTAKE FOR FISHPOND (PE 6R+00, PE 6+125)								
I9.1	Excavation (Common)	m ³	430.0	4,452	222,350,057	3,014	551,171,672	773,521,728	TS. 7.09
I9.2	Backfill with Selected Soil	m ³	420.0	2,931	12,252,744	3,203	18,200,346	30,453,090	TS. 2.10
I9.3	Log Pile, Dia. 150 mm, l=4.0m	m	760.0	758	1,914,345	4,854	1,295,840	3,210,185	TS. 2.10
I9.4	Concrete, Type C1	m ³	30.0	79,200	1,231,154	118,800	1,345,390	2,576,543	TS. 5.07
I9.5	Concrete, Type E	m ³	7.0	66,800	575,758	100,200	3,689,165	4,264,923	TS. 3.24
I9.6	Reinforcing Steel Bar	kg	2,400.0	1,954	2,376,000	427	3,564,000	5,940,000	TS. 3.24
I9.7	Formwork FW1	m ²	170.0	4,300	467,600	34,861	701,400	1,169,000	TS. 3.24
I9.8	Gabion Mattress	m ³	9.0	9,056	4,690,679	24,444	1,024,110	5,714,788	TS. 3.24
I9.9	Gabion Cylinder	m ³	10.0	17,116	731,036	43,230	5,926,332	6,657,368	TS. 3.24
I9.10	Steel Slide Gate (1m x 1m)	nos.	4.0	3,376	81,506	454	219,995	301,501	TS. 4.14
					171,163		432,299	603,462	TS. 4.14
					13,504		1,815	15,319	TS. 9.19

APPENDIX 2

CONSTRUCTION COST OF MFC-2

SUMMARY OF MFC - 2

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN		SECTION TOTAL IN		TOTAL (Rp.)
		FOREIGN CURRENCY (Rp.)	INDONESIA CURRENCY (Rp.)	FOREIGN CURRENCY (Rp.)	INDONESIA CURRENCY (Rp.)	
A	GENERAL		775,000,000		1,237,000,000	2,012,000,000
B	CHANNEL AND DIKE WORKS					
B1	PREPARATION WORKS		563,000,000		425,000,000	988,000,000
B2	CHANNEL EXCAVATION		3,303,000,000		2,195,000,000	5,498,000,000
B3	EARTH DIKE WORKS		1,156,000,000		1,155,000,000	2,311,000,000
B6	FILLING ON RIVER BANK		12,000,000		30,000,000	42,000,000
	SUB-TOTAL OF B.		5,034,000,000		3,805,000,000	8,839,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS					
C1	PREPARATION WORKS		6,000,000		22,000,000	28,000,000
C2	SDDING AND DIKE		10,000,000		246,000,000	256,000,000
C3	REVTMENT - WET STONE MASONRY TYPE		354,000,000		614,000,000	968,000,000
C4	GABION TYPE FOOT PROTECTION		71,000,000		42,000,000	113,000,000
C5	REVTMENT - GABION CYLINDER TYPE		437,000,000		328,000,000	765,000,000
	SUB-TOTAL OF C.		878,000,000		1,252,000,000	2,130,000,000
D	RIPARIAN STRUCTURES					
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES		29,000,000		25,000,000	54,000,000
D2	GROUND SILL (PE55+00)		79,000,000		45,000,000	124,000,000
D4	APPROACH STEPS, TYPE PA (24 places)		122,000,000		131,000,000	253,000,000
D5	APPROACH STEPS, TYPE PB (29 places)		14,000,000		40,000,000	54,000,000
	SUB-TOTAL OF D.		244,000,000		241,000,000	485,000,000
E	DRAINAGE CHANNEL AND OUTLET WORKS					
E1	PREPARATION WORKS FOR DRAINAGE WORKS		2,000,000		7,000,000	9,000,000
E2	DRAINAGE OUTLET (SL1), PIPE CULVERT WITH FLAP GATE		36,000,000		59,000,000	95,000,000
E3	DRAINAGE OUTLET (SL2), BOX CULVERT WITH SLUICE GATE		71,000,000		84,000,000	155,000,000
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS		12,000,000		17,000,000	29,000,000
	SUB-TOTAL OF E.		121,000,000		167,000,000	288,000,000

SUMMARY OF MFC - 2

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
F	BANDAR SIDORAS INTAKE WEIR AND IRRIGATION FACILITIES			
F1	PREPARATION WORKS	24,000,000	40,000,000	64,000,000
F2	INFLATABLE RUBBER-MADE DAM	2,067,000,000	641,000,000	2,708,000,000
F3	IRRIGATION INTAKE FACILITIES	464,000,000	525,000,000	989,000,000
F4	CHANNEL PROTECTION WORKS	17,000,000	32,000,000	49,000,000
F5	MAINTENANCE FACILITIES	1,512,000,000	623,000,000	2,135,000,000
	SUB-TOTAL OF F.	4,084,000,000	1,861,000,000	5,945,000,000
H	BRIDGE WORKS			
H1	PREPARATION WORKS	7,000,000	21,000,000	28,000,000
H2	TITI BESI BRIDGE (P1)	957,000,000	793,000,000	1,750,000,000
H3	PERKUBUNAN BRIDGE (P2)	1,093,000,000	1,119,000,000	2,212,000,000
H4	TITI GANTUNG BRIDGE (P3)	1,027,000,000	622,000,000	1,649,000,000
	SUB-TOTAL OF H.	3,084,000,000	2,535,000,000	5,639,000,000
I	OTHER WORKS			
I2	DRAINAGE CHANNEL EXCAVATION (PE95L+35 to PE105+30)	83,000,000	59,000,000	142,000,000
I4	RELOCATION OF EXISTING FARM ROAD (BETWEEN PE97 AND PE82) CLASS IV	43,000,000	83,000,000	126,000,000
	SUB-TOTAL OF I.	126,000,000	142,000,000	268,000,000
	TOTAL A - I	14,346,000,000	11,260,000,000	25,606,000,000
	VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE	1,434,600,000	1,126,000,000	2,560,600,000
	TENDER PRICE	15,780,600,000	12,386,000,000	28,166,600,000

MFC-2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL								
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1	50,902,007	774,311,961	35,560,821	1,236,237,994	2,010,549,955	GS.6.03
A2	ESTABLISHMENT	L.S.	1	721,700,416	50,902,007	1,093,436,966	35,560,821	86,462,828	GS.6.03
A3	RELOCATION OF EXISTING FACILITIES	P.S.	1	1,709,539	721,700,416	1,640,206	1,093,436,966	1,815,137,382	GS.7.05
A4	GEOLOGICAL INVESTIGATION							3,349,745	GS.14.04
A4.1	Hand Auger	m	130	0	1,709,539	230,000	28,600,000	28,600,000	GS.9.06
A4.2	Mechanical Boring	m	300	0	0	110,000	33,000,000	33,000,000	GS.9.06
A4.3	Exploratory Excavation	m³	800	0	0	55,000	44,000,000	44,000,000	GS.9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
B1.1	Clearing and Grubbing	m²	528,000	1,065	562,308,453	804	424,579,597	986,888,050	TS. 2.10
B2	CHANNEL EXCAVATION								
B2.1	Excavation (River Channel)	m³	166,200	6,744	1,120,932,089	4,581	761,350,625	1,882,282,714	TS. 2.10
B2.2	Excavation (Common)	m³	340,900	6,399	2,181,508,298	4,203	1,432,721,911	3,614,230,209	TS. 2.10
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m³	61,000	1,317	80,361,246	1,887	115,126,097	195,487,344	TS. 2.10
B3.2	Embankment	m³	338,000	3,022	1,021,270,247	2,286	772,749,499	1,794,019,745	TS. 2.10
B3.3	Gravel Pavement, 200 mm thick	m³	9,430	5,360	50,542,826	27,751	261,695,407	312,238,233	TS. 7.09
B3.4	Maintenance Marker Post	nos.	100	31,395	3,139,500	52,099	5,209,880	8,349,380	TS. 12.10
B6	FILLING ON RIVER BANK								
B6.1	Soil Filling	m³	8,800	1,334	11,739,550	3,402	29,935,662	41,675,212	TS. 2.10

MFC-2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS	L.S.	1						
C1.1	Confining and Dewatering			5,801,135	5,801,135	21,599,959	21,599,959	27,401,094	TS. 1.04
C2	SODDING AND DIKE	m ²	175,400	55	9,706,927	1,400	245,627,480	255,334,407	TS. 4.14
C3	REVETMENT - WET STONE MASONRY TYPE (Type-PA and PB)	m ³	7,220	6,399	353,399,334	46,202,669	613,137,262	966,536,796	TS. 2.10
C3.1	Excavation (Common)	m ³	110	2,931	322,445	4,203	30,343,949	76,546,618	TS. 2.10
C3.2	Backfill with Selected Soil	m ³	2,670	7,270	19,409,827	47,207	126,043,208	674,809	TS. 2.10
C3.3	Crusher Run Bedding	m ³	2,680	22,458	60,187,106	48,217	129,222,667	145,453,036	TS. 4.14
C3.4	Wet Stone Masonry (1:4) for Revetment	m ³	6,330	3,445	21,809,892	7,007	44,356,614	189,409,773	TS. 4.14
C3.5	Cement Mortar Plastering	m ²	650	79,200	51,480,000	118,800	77,220,000	66,166,506	TS. 4.14
C3.6	Concrete, Type C1	kg	39,100	1,954	76,418,973	427	16,684,454	128,700,000	TS. 3.24
C3.7	Reinforcing Steel Bar	m ³	4,200	4,300	18,060,879	34,861	146,415,262	93,103,427	TS. 3.24
C3.8	Formwork FW1	m ²	1,330	758	1,007,576	4,854	6,456,039	164,476,141	TS. 3.24
C3.9	Log Pile, Dia. 150 mm L=3.0m and 2.0m	m ³	420	9,056	3,803,625	24,444	10,266,440	7,463,615	TS. 5.07
C3.10	Elastic Joint Filler, 10 mm thick	m ³	390	138,840	54,147,627	60,683	23,666,334	14,070,065	TS. 3.24
C3.11	Gabion Cylinder	m ³	100	5,489	548,916	21,099	2,109,929	77,813,961	TS. 4.14
C3.12	Cobble Stone Filling	m ³	120	5,489	70,530,957	41,637,210	41,637,210	2,658,845	TS. 4.14
C4	GABION TYPE FOOT PROTECTION	m ³	820	85,210	69,872,258	47,689	39,105,295	112,168,167	TS. 4.14
C4.1	Cobble Stone Filling	m ³	340	6,399	2,175,749	4,203	1,428,939	3,190,614	TS. 4.14
C4.2	Gabion Mattress	m ³	3,010	138,840	417,908,606	60,683	182,655,556	108,977,553	TS. 4.14
C5	REVETMENT - GABION CYLINDER TYPE	m ³	140	5,489	768,482	21,099	2,953,901	764,249,138	TS. 2.10
C5.1	Excavation (Common)	m ³	2,280	758	1,727,273	4,854	11,067,496	3,604,688	TS. 4.14
C5.2	Gabion Cylinder	m ³	5,430	2,536	13,769,123	23,903	129,794,014	600,564,161	TS. 4.14
C5.3	Cobble Stone Filling	m ³						3,722,383	TS. 4.14
C5.4	Log Piles, Dia. 150 mm, L=2.0m	m ³						12,794,769	TS. 5.07
C5.5	Palm Fiber Filter	m ²						143,563,137	TS. 4.14

MFC2-2

MFC-2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D	RIPIRIAN STRUCTURES								
D1	PREPARATION WORKS FOR REPAIRIAN STRUCTURES								
D1.1	Confering and Dewatering	L.S.	1	28,310,895	28,896,633		24,138,365	53,034,998	TS. 1.04
D1.2	Clearing and Grubbing	m ²	550	1,065	585,738	23,696,095	23,696,095	52,006,990	TS. 2.10
D2	GROUND SILL (PESS+00)							1,028,008	TS. 2.10
D2.1	Excavation (Common)	m ³	450	6,399	2,879,668		44,359,659	122,690,634	
D2.2	Backfill with Selected Soil	m ³	80	2,931	234,506	4,203	1,891,243	4,770,911	TS. 2.10
D2.3	Supply and Driving of Steel Sheet Piles, Type II	m ²	130	337,228	43,839,663	3,203	256,265	490,770	TS. 2.10
D2.4	Supply and Driving of PC Piles, Dia. 300 mm, Type A	m	320	19,992	6,397,400	46,927	6,100,513	17,448,091	TS. 5.07
D2.5	Concrete, Type C1	m ³	100	79,200	7,920,000	34,533	11,050,691	19,800,000	TS. 5.07
D2.6	Concrete, Type E	m ³	18	66,800	1,202,400	118,800	11,880,000	3,006,000	TS. 3.24
D2.7	Formwork FW1	m ²	79	4,300	339,717	100,200	1,803,600	3,093,718	TS. 3.24
D2.8	Reinforcing Steel Bar	kg	92	1,954	179,809	34,861	2,754,001	219,067	TS. 3.24
D2.9	Gabion Mattress	m ³	180	85,210	15,337,813	47,689	8,584,089	23,921,902	TS. 4.14
D4	APPROACH STEPS, TYPE PA (24 places)							252,234,667	
D4.1	Excavation (Common)	m ³	1,810	6,399	11,582,664	4,203	7,607,001	19,189,665	TS. 2.10
D4.2	Backfill with Selected Soil	m ³	12	2,931	35,176	3,203	38,440	73,616	TS. 2.10
D4.3	Log Pile, Dia. 150mm, L=3.0m and 2.0m	m	1,150	758	871,212	4,854	5,582,290	6,453,502	TS. 5.07
D4.4	Concrete, Type C1	m ³	29	79,200	2,296,800	118,800	3,445,200	5,742,000	TS. 3.24
D4.5	Concrete, Type D	m ³	210	72,850	15,298,500	109,275	22,947,750	38,246,250	TS. 3.24
D4.6	Concrete, Type E	m ³	20	66,800	1,336,000	100,200	2,004,000	3,340,000	TS. 3.24
D4.7	Reinforcing Steel Bar	kg	1,090	1,954	2,130,350	427	465,117	2,595,466	TS. 3.24
D4.8	Formwork FW1	m ²	670	4,300	2,881,140	34,861	23,356,720	26,237,861	TS. 3.24
D4.9	Wet Stone Masonry (1:4) for Revetment	m ³	170	22,458	3,817,839	48,217	8,196,960	12,014,799	TS. 4.14
D4.10	Crusher Run Bedding	m ³	270	7,270	1,962,792	47,207	12,745,942	14,708,734	TS. 4.14
D4.11	Plastering	m ²	570	3,445	1,963,924	7,007	3,994,197	5,958,121	TS. 4.14
D4.12	Gabion Mattress	m ³	360	85,210	30,675,625	47,689	17,168,178	47,843,804	TS. 4.14
D4.13	Gabion Cylinder	m ³	330	138,840	45,817,223	60,683	20,025,360	65,842,582	TS. 4.14
D4.14	Cobble Stone Filling	m ³	150	5,489	823,374	21,099	3,164,894	3,988,267	TS. 4.14
D5	APPROACH STEPS, TYPE PB (26 places)							53,673,453	
D5.1	Excavation (Common)	m ³	290	6,399	1,855,786	4,203	39,937,360	3,074,587	TS. 2.10
D5.2	Backfill with Selected Soil	m ³	22	2,931	64,489	3,203	1,218,801	134,962	TS. 2.10
D5.3	Concrete, Type C1	m ³	15	79,200	1,188,000	118,800	70,473	2,970,000	TS. 3.24
D5.4	Concrete, Type D	m ³	100	72,850	7,285,000	109,275	1,782,000	18,212,500	TS. 3.24
D5.5	Formwork FW1	m ²	610	4,300	2,623,128	34,861	10,927,500	23,888,201	TS. 3.24
D5.6	Crusher Run Bedding	m ³	99	7,270	719,690	47,207	21,265,074	5,393,202	TS. 4.14

MFC-2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E	DRAINAGE CHANNEL AND OUTLET WORKS								
	PREPARATION WORKS FOR DRAINAGE WORKS								
	Confining and Dewatering	L.S.	1	1,701,675	1,999,869	6,557,641	6,782,797	8,782,666	TS. 1.04
	Clearing and Grubbing	m ²	280	1,065	1,701,675	298,194	6,557,641	8,259,316	TS. 2.10
	DRAINAGE OUTLET SL1, PIPE CULVERT WITH FLAP GATE								
	Excavation (Common)	m ³	1,300	6,399	35,238,715	804	225,156	93,742,227	
	Backfill with Selected Soil	m ³	220	2,931	8,319,040	4,203	5,463,592	13,782,632	TS. 2.10
	Crusher Run Bedding	m ³	150	7,270	644,890	3,203	704,728	1,349,618	TS. 2.10
	Log Pile, Dia. 150 mm, L=3.0 m	m ³	220	758	1,090,440	47,207	7,081,079	8,171,519	TS. 4.14
	Wet Stone Masonry (1:4) for Revetment	m ³	130	22,458	166,667	4,854	1,067,916	1,234,583	TS. 5.07
	Cement Mortar Plastering	m ²	510	3,445	2,919,524	48,217	6,268,264	9,187,787	TS. 4.14
	Weep Hole, Dia. 50 mm	nos.	74	2,798	1,757,195	7,007	3,573,756	5,330,951	TS. 4.14
	Dowel Bar, Dia. 19 mm, L=600 mm	kg	5	1,954	207,080	7,421	549,165	756,245	TS. 4.14
	Water Stop, 30 cm	m	2	17,116	9,772	427	2,134	11,906	TS. 3.24
	Concrete, Type C2	m ³	93	75,600	34,233	43,230	86,460	120,692	TS. 3.24
	Concrete, Type E	m ³	5	66,800	7,030,800	113,400	10,546,200	17,577,000	TS. 3.24
	Reinforcing Steel Bar	kg	3,600	1,954	334,000	101,200	501,000	835,000	TS. 3.24
E3	Formwork FW1	m ²	420	4,300	7,036,018	427	1,536,165	8,572,183	TS. 3.24
	Formwork FW2	m ²	1	5,417	1,806,088	34,861	14,641,526	16,447,614	TS. 3.24
	Elastic Joint Filler, 10 mm thick	m ²	30	9,056	271,688	47,635	47,635	53,052	TS. 3.24
	RC Pipe, D=600mm	m	22	49,696	1,093,322	24,444	733,317	1,005,005	TS. 3.24
	Supply and Installation of Flap Gate, Dia.600 mm	L.S.	1	2,512,542	2,512,542	77,129	1,696,843	2,790,166	TS. 12.10
	DRAINAGE OUTLET SL2, BOX CULVERT WITH SLUICE GATE								
	Excavation (Common)	m ³	540	6,399	70,902,370	4,003,732	4,003,732	6,516,274	TS. 6.09
	Backfill with Selected Soil	m ³	600	2,931	3,455,601	4,203	83,362,110	154,264,480	
	Crusher Run Bedding	m ³	42	7,270	1,758,791	3,203	2,269,492	5,725,093	TS. 2.10
	Wet Stone Masonry (1:4) for Revetment	m ³	100	22,458	305,323	47,207	1,921,985	3,680,776	TS. 2.10
	Cement Mortar Plastering	m ²	280	3,445	2,245,788	48,217	1,982,702	2,288,025	TS. 4.14
	Supply and Driving of Steel Sheet Piles, Type II	m ²	19	337,228	964,735	7,007	4,821,741	7,067,529	TS. 4.14
	Log Pile, Dia. 150 mm, L=3.0 m	m ³	100	758	6,407,335	46,927	1,962,062	2,926,796	TS. 4.14
	Concrete, Type C1	m ³	130	79,200	75,758	4,854	891,613	7,298,949	TS. 5.07
	Concrete, Type C2	m ³	57	75,600	10,296,000	118,800	485,417	561,174	TS. 5.07
	Concrete, Type E	m ³	35	66,800	4,309,200	113,400	15,444,000	25,740,000	TS. 3.24
	Reinforcing Steel Bar	kg	11,900	1,954	2,338,000	100,200	6,463,800	10,773,000	TS. 3.24
E3.13	Formwork FW1	m ²	460	4,300	23,257,948	427	5,077,877	5,845,000	TS. 3.24
	Formwork FW2	m ²	75	5,417	1,978,096	34,861	16,035,957	28,335,826	TS. 3.24
								18,014,054	TS. 3.24
								3,978,931	TS. 3.24

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MFC - 2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E3.14	Dowel Bar	kg	14	1,954	27,362	427	5,974	33,336	TS. 3.24
E3.15	Elastic Joint Filler, 10 mm thick	m ²	2	9,056	18,113	24,444	48,888	67,000	TS. 3.24
E3.16	Water Stop, 30 cm wide	m	6	17,116	102,698	43,230	259,379	362,077	TS. 3.24
E3.17	Handrail, Galvanized Steel Pipe	kg	300	3,376	1,012,778	454	136,114	1,148,892	TS. 6.09
E3.18	Galvanized Steel Ladder	kg	31	2,362	73,230	3,460	107,251	180,481	TS. 6.09
E3.19	Supply and Installation of Steel Slide Gates (H=1.5m, B=2.0m)	L.S.	1	11,869,339	11,869,339	18,368,200	18,368,200	30,237,539	TS. 9.09
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS				11,390,048		16,319,347	27,709,395	
E21.1	Excavation (Common)	m ³	600	6,399	3,839,557	4,203	2,521,658	6,361,215	TS. 2.10
E21.2	Crusher Run Bedding	m ³	41	7,270	298,054	47,207	1,935,495	2,233,548	TS. 4.14
E21.3	Wet Stone Masonry (1:4) for Revetment	m ³	41	22,458	920,773	48,217	1,976,914	2,897,687	TS. 4.14
E21.4	Cement Mortar Plastering	m ²	160	3,445	551,277	7,007	1,121,178	1,672,455	TS. 4.14
E21.5	Concrete, Type C2	m ³	45	75,600	3,402,000	113,400	5,103,000	8,505,000	TS. 3.24
E21.6	Concrete, Type E	m ³	5	66,800	334,000	100,200	501,000	835,000	TS. 3.24
E21.7	Reinforcing Steel Bar	kg	870	1,954	1,700,371	427	371,240	2,071,611	TS. 3.24
E21.8	Formwork FW1	m ²	80	4,300	344,017	34,861	2,788,862	3,132,879	TS. 3.24

MFC - 2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
F1	BANDAR SIDORAS INTAKE WEIR AND IRRIGATION FACILITIES								
F1.1	PREPARATION WORKS	m ²	4,290	1,065	23,590,178		39,074,806	62,664,984	
F1.2	Clearing and Grubbing				4,568,756	804	3,449,709	8,018,465	TS. 2.10
F1.3	Confering and Dewatering	L.S.	1	7,697,656	7,697,656	25,794,019	25,794,019	33,491,675	TS. 1.04
F2	Demolition and Removal of Existing Structure	L.S.	1	11,323,766	11,323,766	9,831,079	9,831,079	21,154,845	TS. 2.10
	INFLATABLE RUBBER-MADE DAM				2,066,857,530		640,927,609	2,707,785,139	
	EARTH WORKS				42,996,411		28,818,492	71,814,903	
F2.1	Excavation (Common)	m ³	6,511	6,399	41,665,993	4,203	27,364,190	69,029,783	TS. 2.10
F2.2	Backfill with Selected Soil	m ³	454	2,931	1,330,819	3,203	1,454,302	2,785,121	TS. 2.10
	CONCRETE WORKS				384,501,710		389,703,474	774,205,183	
F2.3	Concrete, Type C1 for Main Structure	m ³	2,240	79,200	177,408,000	118,800	266,112,000	443,520,000	TS. 3.24
F2.4	Concrete, Type E	m ³	150	66,800	10,020,000	100,200	15,030,000	25,050,000	TS. 3.24
F2.5	Formwork FW1	m ²	1,060	4,300	4,558,222	34,861	36,952,423	41,510,645	TS. 3.24
F2.6	Formwork FW2	m ²	490	5,417	2,654,328	47,635	23,341,357	25,995,685	TS. 3.24
F2.7	Reinforcing Steel Bar	kg	94,900	1,954	185,477,252	427	40,495,006	225,972,257	TS. 3.24
F2.8	Elastic Joint Filler, 10 mm thick	m ²	110	9,056	996,188	24,444	2,688,830	3,685,017	TS. 3.24
F2.9	Water Stop, 30 cm wide	m	110	17,116	1,882,794	43,230	4,755,290	6,638,084	TS. 3.24
F2.10	Dowel Bars, Dia. 19mm, 1.0 m long	kg	770	1,954	1,504,926	427	328,569	1,833,495	TS. 3.24
	PILE WORKS				201,330,512		221,886,490	423,217,003	
F2.11	PC Pile for Test Pile, Dia. 400 mm, Type AB	m	12	33,221	398,646	64,532	774,388	1,173,034	TS. 5.07
F2.12	Supply and Driving of PC Piles, Dia. 400 mm, Type AB	m	227	33,221	7,541,054	64,532	14,648,836	22,189,890	TS. 5.07
F2.13	PC Pile for Test Pile, Dia. 600 mm, Type AB	m	12	60,994	731,923	127,239	1,526,866	2,258,790	TS. 5.07
F2.14	Supply and Driving of PC Piles, Dia. 600 mm, Type AB	m	1,500	60,994	91,490,436	127,239	190,858,294	282,348,730	TS. 5.07
F2.15	Supply and Driving of Steel Sheet Piles, Type II	m ²	300	337,228	101,168,453	46,927	14,078,106	115,246,559	TS. 5.07
	INFLATABLE RUBBER-MADE DAM				1,438,028,897		519,153	1,438,548,049	
F2.16	Inflatable Rubber-made Dam including Anchoring materials, Operating and electric equipment	set	1	1,438,028,897	1,438,028,897	519,153	519,153	1,438,548,049	TS. 10.13
F3	IRRIGATION INTAKE FACILITIES				463,986,038		524,601,551	988,587,589	
	EARTH WORKS								
F3.1	Excavation (Common)	m ³	5,980	6,399	38,267,585	4,203	25,132,523	63,400,108	TS. 2.10
F3.2	Backfill with Selected Soil	m ³	16,800	2,931	49,246,156	3,203	53,815,583	103,061,739	TS. 2.10
	CONCRETE WORKS								
F3.3	Concrete, Type C1 for Irrigation Intake Facilities and Bridge Pier	m ³	970	79,200	76,824,000	118,800	115,236,000	192,060,000	TS. 3.24
F3.4	Concrete, Type C2 for Block-out Concrete for Gate Post	m ³	7	75,600	529,200	113,400	793,800	1,323,000	TS. 3.24
F3.5	Concrete, Type E	m ³	59	66,800	3,941,200	100,200	5,911,800	9,853,000	TS. 3.24
F3.6	Formwork FW1	m ²	1,790	4,300	7,697,375	34,861	62,400,790	70,098,165	TS. 3.24
F3.7	Formwork FW2	m ²	340	5,417	1,841,779	47,635	16,196,044	18,037,822	TS. 3.24

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MFC - 2

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
F3.8	Reinforcing Steel Bar	kg	62,700	1,954	122,543,980	427	26,754,867	149,298,846	TS. 3.24
F3.9	Elastic Joint Filler, 10 mm thick	m ²	92	9,056	833,175	24,444	2,248,839	3,082,014	TS. 3.24
F3.10	Water Stop, 30 cm wide	m	110	17,116	1,882,794	43,230	4,755,290	6,638,084	TS. 3.24
F3.11	Dowel Bars, Dia. 19mm, 1.0 m long	kg	470	1,954	918,591	427	201,555	1,119,146	TS. 3.24
PILE WORKS									
F3.12	Supply and Driving of PC Piles, Dia. 600 mm, Type AB	m	441	60,994	26,898,188	127,239	56,112,339	83,010,527	TS. 5.07
F3.13	Supply and Driving of Steel Sheet Piles, Type II	m ²	172	337,228	58,003,246	46,927	8,071,448	66,074,694	TS. 5.07
F3.14	Log Pile	m	381	758	288,636	4,854	1,849,437	2,138,073	TS. 5.07
CONTROL GATES									
F3.15	Supply and Installation of Steel Slide Gate (H=1.0m, B=1.25m x 2)	L.S.	1	7,354,303	7,354,303	11,397,423	11,397,423	18,751,726	TS. 9.09
F3.16	Supply and Installation of Steel Slide Gate (H=1.0m, B=1.0m x 2)	L.S.	1	6,419,215	6,419,215	9,994,791	9,994,791	16,414,006	TS. 9.09
IRRIGATION CHANNEL LINING									
F3.17	Wet Stone Masonry (1:4) for Revetment	m ³	454	3,594	1,631,869	7,457	3,385,358	5,017,227	TS. 4.14
F3.18	Crusher Run Bedding	m ³	440	7,270	3,198,623	47,207	20,771,165	23,969,789	TS. 4.14
F3.19	Concrete, Type C1 for Base Concrete	m ³	8	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
F3.20	Concrete, Type C2 for Top Concrete and Channel Bed Lining	m ³	200	75,600	15,120,000	113,400	22,680,000	37,800,000	TS. 3.24
F3.21	Cement Mortar Plastering	m ²	1,700	3,445	5,857,317	7,007	11,912,519	17,769,836	TS. 4.14
F3.22	Formwork FW1	m ²	860	4,300	3,698,180	34,861	29,980,268	33,678,448	TS. 3.24
F3.23	Reinforcing Steel Bar	kg	4,620	1,954	9,029,556	427	1,971,411	11,000,968	TS. 3.24
F3.24	PVC Pipe Drain, Dia. 50 mm	m	100	2,717	271,688	7,231	723,096	994,784	TS. 3.24
F3.25	Elastic Joint Filler, 10mm thick	m ²	100	210,558	21,055,781	313,558	31,355,806	52,411,587	TS. 3.24
CHANNEL PROTECTION WORKS									
F4	Excavation (Common)	m ³	200	6,399	1,279,852	4,203	840,553	2,120,405	TS. 2.10
F4.1	Concrete Block, Crib Type, t=200 mm	nos.	390	39,429	15,377,319	74,037	28,874,276	44,251,595	TS. 4.14
F4.2	Crusher Run Bedding	m ³	39	7,270	283,514	47,207	1,841,081	2,124,595	TS. 4.14
F5	MAINTENANCE FACILITIES				1,511,603,359		622,246,593	2,133,849,952	
INSPECTION BRIDGE (SUPER STRUCTURE)									
F5.1	Concrete, Type C2 for Substructures	m ³	43	75,600	3,250,800	113,400	4,876,200	8,127,000	TS. 3.24
F5.2	Concrete, Type E	m ³	4	66,800	267,200	100,200	400,800	668,000	TS. 3.24
F5.3	Formwork FW1	m ²	1,790	4,300	7,697,375	34,861	62,402,790	70,098,165	TS. 3.24
F5.4	Formwork FW2	m ²	340	5,417	1,841,779	47,635	16,196,044	18,037,822	TS. 3.24
F5.5	Reinforcing Steel Bar	kg	5,390	1,954	10,534,482	427	2,299,980	12,834,462	TS. 3.24
F5.6	Steel Girder	L.S.	1	124,170,626	124,170,626	257,077,739	257,077,739	381,248,365	TS. 8.07
F5.7	Supply and Driving of RC Piles, 400mm x 400mm, L=15m	m	360	3,765,716	1,355,657,594	749,728	269,902,022	1,625,559,615	TS. 5.07
CONTROL HOUSE									
F5.8	Control House	L.S.	1	8,183,504	8,183,504	9,093,020	9,093,020	17,276,524	TS. 10.13

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H1	BRIDGE WORKS								
H1-1	PREPARATION WORKS	L.S.	1		6,308,632		20,021,807	26,330,439	
H1-2	Coffering and Dewatering	m ²	3,030	3,081,748	3,081,748	17,385,299	17,385,299	20,667,047	TS. 1.04
	Clearing and Grubbing			1,065	3,226,884	804	2,436,508	5,663,392	TS. 2.10
H2	TTTT BESI BRIDGE (P1)				956,262,106		792,878,682	1,749,140,787	
H2-1	EARTH WORKS								
H2-1.1	Excavation (Common)	m ³	1,810	6,399	11,582,664	4,203	7,607,001	19,189,665	TS. 2.10
H2-1.2	Embankment	m ³	4,320	55	239,076	1,099	4,745,562	4,984,638	TS. 2.10
H2-1.3	Backfill with Selected Soil	m ³	900	2,931	2,638,187	3,203	2,882,978	5,521,165	TS. 2.10
H2-1.4	Solid Sodding	m ³	610	55	33,758	1,400	854,235	887,993	TS. 4.14
H2-1.5	Demolition and Removal of Existing Structure	L.S.	1	754,918	754,918	655,405	655,405	1,410,323	TS. 2.10
H2-2	PILE FOUNDATION WORKS FOR PIER AND ABUTMENT								
H2-2.1	SP Pile for Test Pile, Dia. 400 mm	m	19	267,379	5,080,193	35,331	671,293	5,751,485	TS. 5.07
H2-2.2	PC Pile for Test Pile, Dia. 400 mm, Type B	m	16	35,394	566,304	69,604	1,113,661	1,679,965	TS. 5.07
H2-2.3	Static Load Test for SP and PC Pile	L.S.	1	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H2-2.4	Supply and Driving of SP Piles, Dia. 400 mm	m	990	267,379	264,704,771	35,331	34,977,890	299,682,662	TS. 5.07
H2-2.5	Supply and Driving of PC Piles, Dia. 400 mm, Type B	m	900	35,394	31,854,603	69,604	62,643,434	94,498,036	TS. 5.07
H2-2.6	Reinforcing Steel Bar	kg	14,500	1,954	28,339,517	427	6,187,330	34,526,846	TS. 3.24
H2-2.7	Concrete, Type C1	m ³	51	79,200	4,039,200	118,800	6,058,800	10,098,000	TS. 3.24
H2-3	CONCRETE WORKS FOR PIER, ABUTMENT AND APPROACH SLAB								
H2-3.1	Concrete, Type C1	m ³	500	79,200	39,600,000	118,800	59,400,000	99,000,000	TS. 3.24
H2-3.2	Concrete, Type E	m ³	22	66,800	1,469,600	100,200	2,204,400	3,674,000	TS. 3.24
H2-3.3	Reinforcing Steel Bar	kg	74,900	1,954	146,388,263	427	31,960,758	178,349,021	TS. 3.24
H2-3.4	Formwork FW1	m ²	340	4,300	1,462,071	34,861	11,852,664	13,314,735	TS. 3.24
H2-3.5	Formwork FW2	m ²	460	5,417	2,491,818	47,635	21,912,294	24,404,112	TS. 3.24
H2-3.6	Rubble Stone Bedding	m ³	46	4,743	218,189	23,785	1,094,094	1,312,283	TS. 4.14
H2-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H2-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1	128,443,058	128,443,058	192,664,588	192,664,588	321,107,646	TS. 8.07
H2-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1	64,679,165	64,679,165	64,679,165	64,679,165	129,358,330	TS. 8.07
H2-4.3	Prestressed Concrete Panel for Slab	L.S.	1	11,537,260	11,537,260	11,537,260	11,537,260	23,074,520	TS. 8.07
H2-4.4	Concrete, Type B for Slab	m ³	190	185,172	35,182,770	152,511	28,977,018	64,159,787	TS. 3.24
H2-4.5	Reinforcing Steel Bar	kg	36,500	1,954	71,337,404	427	15,575,002	86,912,407	TS. 3.24
H2-4.6	Formwork FW2	m ²	360	5,417	1,950,119	47,635	17,148,752	19,098,871	TS. 3.24
H2-5	MISCELLANEOUS WORKS								
H2-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	32	28,015	896,494	10,680	341,767	1,238,261	TS. 6.09
H2-5.2	Elastomeric Bearing Pad for Abutment, 406mm x 280mm x 67 mm	nos.	10	210,558	2,105,578	313,558	3,135,581	5,241,159	TS. 8.07

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H2-5.3	Elastomeric Bearing Pad for Pier, 406mm x 280mm x 67 mm	nos.	20	210,558	4,211,156	313,558	6,271,161	10,482,317	TS. 8.07
H2-5.4	PVC Pipe Drain, Dia. 100 mm	m	66	7,499	494,906	18,707	1,234,665	1,729,571	TS. 8.07
H2-5.5	Handrail, Galvanized Steel Pipe	kg	4,170	3,376	14,077,611	454	1,891,983	15,969,594	TS. 6.09
H2-5.6	Concrete, Type C1 for Handrail Post, Curb and Footpass	m³	66	79,200	5,227,200	118,800	7,840,800	13,068,000	TS. 3.24
H2-5.7	Formwork FW1	m²	295	4,300	1,268,562	34,861	10,283,929	11,552,491	TS. 3.24
H2-5.8	Name Plate	nos.	2	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H2-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H2-6.1	Backfill with Gravel	m³	110	4,883	537,083	21,026	2,312,910	2,849,993	TS. 4.14
H2-6.2	Wet Stone Masonry (1-A) for Retement	m³	1,190	22,458	26,724,872	48,217	57,378,722	84,103,593	TS. 4.14
H2-6.3	Cement Mortar Plastering	m²	990	3,445	3,411,026	7,007	6,937,290	10,348,316	TS. 4.14
H2-6.4	Concrete, Type C1	m³	9	176,922	1,592,302	140,136	1,261,221	2,853,523	TS. 3.24
H2-6.5	Concrete, Type E	m³	4	105,889	423,556	108,734	434,937	858,493	TS. 3.24
H2-6.6	Reinforcing Steel Bar	kg	1,160	1,954	2,267,161	427	494,986	2,762,148	TS. 3.24
H2-6.7	Formwork FW1	m²	470	4,300	2,021,098	34,861	16,384,563	18,405,663	TS. 3.24
H2-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth L=1.5m	nos.	240	2,798	671,612	7,421	1,781,075	2,452,686	TS. 4.14
H2-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H2-7.1	Sub-Base Course (Class B)	m²	220	6,229	1,370,422	35,576	7,826,713	9,197,135	TS. 7.09
H2-7.2	Base Course (Class A)	m²	100	7,322	732,198	45,411	4,541,106	5,273,303	TS. 7.09
H2-7.3	Asphalt Treatment Base (A.T.B)	ton	150	156,585	23,487,682	388,149	58,272,360	81,710,042	TS. 7.09
H2-7.4	Bituminous Prime Coat	liter	1,550	769	1,192,425	1,114	1,736,263	2,918,688	TS. 7.09
H2-7.5	Bituminous Surface Course, 50 mm thick	ton	150	59,631	8,944,663	90,888	13,633,125	22,577,789	TS. 7.09
H3	PERKUBUNAN BRIDGE (P2)				1,092,310,896		1,118,664,180	2,210,975,076	
H3-1	EARTH WORKS								
H3-1.1	Excavation (Common)	m³	2,990	6,399	19,133,792	4,203	12,566,261	31,700,054	TS. 2.10
H3-1.2	Embankment	m³	4,720	3,022	14,261,525	2,286	10,791,058	25,052,583	TS. 2.10
H3-1.3	Backfill with Selected Soil	m³	830	2,931	2,432,995	3,203	2,638,746	5,091,741	TS. 2.10
H3-1.4	Solid Sodding	m²	640	55	35,419	1,400	896,246	931,665	TS. 4.14
H3-1.5	Demolition and Removal of Existing Structure	L.S.	1	3,774,589	3,774,589	3,277,026	3,277,026	7,051,615	TS. 2.10
H3-2	PILE FOUNDATION WORKS FOR PIER AND ABUTMENT								
H3-2.1	SP Pile for Test Pile, Dia. 400 mm	m	20	267,379	5,347,571	35,331	706,624	6,054,195	TS. 5.07
H3-2.2	PC Pile for Test Pile, Dia. 400 mm, Type B	m	20	33,221	664,410	64,532	1,290,646	1,955,056	TS. 5.07
H3-2.3	Static Load Test for SP and PC Pile	nos	1	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H3-2.4	Supply and Driving of SP Piles, Dia. 400 mm	m	480	267,379	128,341,707	35,331	16,958,977	145,300,684	TS. 5.07
H3-2.5	Supply and Driving of PC Piles, Dia. 400 mm, Type B	m	1,150	33,221	38,203,578	64,532	74,212,163	112,415,741	TS. 5.07
H3-2.6	Reinforcing Steel Bar	kg	9,820	1,954	19,192,693	427	4,190,316	23,383,009	TS. 3.24
H3-2.7	Concrete, Type C1	m³	30	176,922	5,307,674	140,136	4,204,069	9,511,743	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H3-3	CONCRETE WORKS FOR PIER, ABUTMENT AND APPROACH SLAB								
H3-3.1	Concrete, Type C1	m ³	480	176,922	84,922,787	140,136	67,265,097	152,187,884	TS. 3.24
H3-3.2	Concrete, Type E	m ³	22	105,889	2,329,558	108,734	2,392,153	4,721,711	TS. 3.24
H3-3.3	Reinforcing Steel Bar	kg	71,600	1,954	139,938,580	427	30,552,607	170,491,187	TS. 3.24
H3-3.4	Formwork FW1	m ²	350	4,300	1,505,073	34,861	12,201,272	13,706,345	TS. 3.24
H3-3.5	Formwork FW2	m ²	410	5,417	2,220,968	47,635	19,530,523	21,751,491	TS. 3.24
H3-3.6	Rubble Stone Bedding	m ³	46	4,743	218,189	23,785	1,094,094	1,312,283	TS. 4.14
H3-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H3-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1	266,398,696	266,398,696	399,598,044	399,598,044	665,996,740	TS. 8.07
H3-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1	4,957,917	4,957,917	4,957,917	4,957,917	9,915,834	TS. 8.07
H3-4.3	Prestressed Concrete Panel for Slab	L.S.	1	14,242,060	14,242,060	14,242,060	14,242,060	28,484,120	TS. 8.07
H3-4.4	Concrete, Type B for Slab	m ³	220	185,172	40,737,944	152,511	33,552,336	74,290,280	TS. 3.24
H3-4.5	Reinforcing Steel Bar	kg	45,500	1,954	88,927,449	427	19,415,414	108,342,863	TS. 3.24
H3-4.6	Formwork FW2	m ²	450	5,417	2,437,648	47,635	21,435,940	23,873,588	TS. 3.24
H3-5	MISCELLANEOUS WORKS								
H3-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	32	28,015	896,494	10,680	341,767	1,238,261	TS. 6.09
H3-5.2	Elastomeric Bearing Pad for Abutment, 406mm x 280mm x 67 mm	nos.	11	210,558	2,316,136	313,558	3,449,139	5,765,275	TS. 8.07
H3-5.3	Elastomeric Bearing Pad for Pier, 480mm x 300mm x 67 mm	nos.	24	245,424	5,890,185	398,367	9,560,810	15,450,995	TS. 8.07
H3-5.4	PVC Pipe Drain, Dia. 100 mm	m	81	7,499	607,385	18,707	1,515,270	2,122,655	TS. 8.07
H3-5.5	Handrail, Galvanized Steel Pipe	kg	5,220	3,376	17,622,333	454	2,368,382	19,990,715	TS. 6.09
H3-5.6	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	82	79,200	6,494,400	118,800	9,741,600	16,236,000	TS. 3.24
H3-5.7	Formwork FW1	m ²	355	4,300	1,526,574	34,861	12,375,576	13,902,150	TS. 3.24
H3-5.8	Name Plate	nos.	2	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H3-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H3-6.1	Backfill with Gravel	m ³	240	4,883	1,171,817	21,026	5,046,349	6,218,166	TS. 4.14
H3-6.2	Wet Stone Masonry (1-4) for Retainment	m ³	500	22,458	11,228,938	48,217	24,108,707	35,337,644	TS. 4.14
H3-6.3	Cement Mortar Plastering	m ²	760	3,445	2,618,565	7,007	5,325,597	7,944,162	TS. 4.14
H3-6.4	Concrete, Type C1	m ³	7	79,200	554,400	118,800	831,600	1,386,000	TS. 3.24
H3-6.5	Concrete, Type E	m ³	5	66,800	334,000	100,200	501,000	835,000	TS. 3.24
H3-6.6	Reinforcing Steel Bar	kg	910	1,954	1,778,549	427	388,308	2,166,857	TS. 3.24
H3-6.7	Formwork FW1	m ²	280	4,300	1,204,059	34,861	9,761,017	10,965,076	TS. 3.24
H3-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	190	2,798	531,692	7,421	1,410,017	1,941,710	TS. 4.14
H3-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H3-7.1	Sub-Base Course (Class B)	m ³	250	6,229	1,806,465	35,576	10,317,031	12,123,496	TS. 7.09
H3-7.2	Base Course (Class A)	m ³	140	7,322	1,025,077	45,411	6,357,548	7,382,625	TS. 7.09
H3-7.3	Asphalt Treatment Base (A.T.B)	ton	190	156,585	29,751,064	388,149	73,748,322	103,499,386	TS. 7.09

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ITEM NO.	BQ ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H3-7.4	Bituminous Prime Coat	liter	2,000	59,631	119,262,179	90,888	181,775,003	301,037,183	TS. 7.09
H3-7.5	Bituminous Surface Course, 50 mm thick	ton	190	769	146,168	1,114	211,606	357,775	TS. 7.09
H4	TITI GANTUNG BRIDGE (P3)				1,026,224,993		621,116,002	1,647,340,995	
H4-1	EARTH WORKS								
H4-1.1	Excavation (Common)	m³	2,940	6,399	18,813,829	4,203	12,356,123	31,169,953	TS. 2.10
H4-1.2	Embankment	m³	2,980	3,022	9,004,099	2,286	6,812,999	15,817,097	TS. 2.10
H4-1.3	Backfill with Selected Soil	m³	970	2,931	2,843,379	3,203	3,107,209	5,950,589	TS. 2.10
H4-1.4	Solid Sodding	m³	300	55	16,602	1,400	420,115	436,718	TS. 4.14
H4-1.5	Demolition and Removal of Existing Structure	L.S.	1	1,132,377	1,132,377	983,108	983,108	2,115,484	TS. 2.10
H4-2	PILE FOUNDATION WORKS FOR PIER AND ABUTMENT								
H4-2.1	SP Pile for Test Pile, Dia. 400 mm	m	28	267,379	7,486,600	35,331	989,274	8,475,873	TS. 3.07
H4-2.2	Static Load Test for SP and PC Pile	L.S.	1	0	0	1,380,000	1,380,000	1,380,000	TS. 3.07
H4-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	1,880	267,379	502,671,687	35,331	66,422,660	569,094,347	TS. 3.07
H4-2.4	Reinforcing Steel Bar	kg	20,900	1,954	40,847,993	427	8,918,289	49,766,282	TS. 3.24
H4-2.5	Concrete, Type C1	m³	82	79,200	6,494,400	118,800	9,741,600	16,236,000	TS. 3.24
H4-3	CONCRETE WORKS FOR PIER, ABUTMENT AND APPROACH SLAB								
H4-3.1	Concrete, Type C1	m³	360	79,200	28,512,000	118,800	42,768,000	71,280,000	TS. 3.24
H4-3.2	Concrete, Type E	m³	15	66,800	1,002,000	100,200	1,503,000	2,505,000	TS. 3.24
H4-3.3	Reinforcing Steel Bar	kg	52,100	1,954	101,826,816	427	22,231,715	124,058,531	TS. 3.24
H4-3.4	Formwork FW1	m²	250	4,300	1,075,052	34,861	8,715,194	9,790,246	TS. 3.24
H4-3.5	Formwork FW2	m²	330	5,417	1,787,609	47,635	15,719,689	17,507,298	TS. 3.24
H4-3.6	Rubble Stone Bedding	m³	20	4,743	94,863	23,785	475,693	570,558	TS. 4.14
H4-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H4-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1	151,256,206	151,256,206	226,884,310	226,884,310	378,140,516	TS. 8.07
H4-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1	2,223,456	2,223,456	2,223,456	2,223,456	4,446,912	TS. 8.07
H4-4.3	Prestressed Concrete Panel for Slab	L.S.	1	7,689,360	7,689,360	7,689,360	7,689,360	15,378,720	TS. 8.07
H4-4.4	Concrete, Type B for Slab	m³	120	185,172	22,220,697	152,511	18,301,274	40,521,971	TS. 3.24
H4-4.5	Reinforcing Steel Bar	kg	25,300	1,954	49,447,571	427	10,795,823	60,243,394	TS. 3.24
H4-4.6	Formwork FW2	m²	250	5,417	1,354,249	47,635	11,908,856	13,263,105	TS. 3.24
H4-5	MISCELLANEOUS WORKS								
H4-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	24	28,015	672,370	10,680	256,325	928,696	TS. 6.09
H4-5.2	Elastomeric Bearing Pad for Abutment, 400mm x 280mm x 67 mm	nos.	12	210,558	2,526,694	313,558	3,762,697	6,289,390	TS. 8.07
H4-5.3	Elastomeric Bearing Pad for Pier, 480mm x 300mm x 67 mm	nos.	12	210,558	2,526,694	313,558	3,762,697	6,289,390	TS. 8.07
H4-5.4	PVC Pipe Drain, Dia. 100 mm	m	46	7,499	344,934	18,707	860,524	1,205,458	TS. 8.07
H4-5.5	Handrail, Galvanized Steel Pipe	kg	2,890	3,376	9,756,426	454	1,311,231	11,067,656	TS. 6.09
H4-5.6	Concrete, Type C1 for Handrail Post, Curb and Footpass	m³	59	79,200	4,672,800	118,800	7,009,200	11,682,000	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H4-5.7	Formwork FW1	m ²	200	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
H4-5.8	Name Plate	nos.	2	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H4-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
	Backfill with Gravel	m ³	340	4,883	1,660,075	21,026	7,148,994	8,809,069	TS. 4.14
	Wet Stone Masonry (1:4) for Retement	m ³	460	22,458	10,330,623	48,217	22,181,010	32,510,633	TS. 4.14
	Cement Mortar Plastering	m ²	570	3,445	1,963,924	7,007	3,994,197	5,958,121	TS. 4.14
	Concrete, Type C1	m ³	5	79,200	396,000	118,800	594,000	990,000	TS. 3.24
	Concrete, Type E	m ³	4	66,800	267,200	100,200	400,800	668,000	TS. 3.24
	Reinforcing Steel Bar	kg	640	1,954	1,250,848	427	273,096	1,523,944	TS. 3.24
	Formwork FW1	m ²	250	4,300	1,075,052	34,861	8,715,194	9,790,246	TS. 3.24
	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	200	2,798	559,676	7,421	1,484,229	2,043,905	TS. 4.14
	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H4-7									
H4-7.1	Sub-Base Course (Class B)	m ³	170	6,229	1,058,962	35,576	6,047,915	7,106,877	TS. 7.09
H4-7.2	Base Course (Class A)	m ³	89	7,322	651,656	45,411	4,041,584	4,693,240	TS. 7.09
H4-7.3	Asphalt Treatment Base (A.T.B)	ton	130	156,585	20,355,991	388,149	50,459,378	70,815,370	TS. 7.09
H4-7.4	Bituminous Prime Coat	liter	1,200	769	923,168	1,114	1,336,462	2,259,629	TS. 7.09
H4-7.5	Bituminous Surface Course, 50 mm thick	ton	110	59,631	6,559,420	90,888	9,997,625	16,557,045	TS. 7.09
12	OTHER WORKS								
	DRAINAGE CHANNEL EXCAVATION (PE95+35m to 103L+10m)								
	Clearing and Grubbing	m ²	10,290	1,065	82,317,192		58,372,276	140,689,468	
	Excavation (River Channel)	m ³	9,130	6,744	10,958,625	804	8,274,477	19,233,102	TS. 2.10
14	RELOCATION OF EXISTING FARM ROAD (PE82 to PE97) CLASS IV								
	Stripping of Top Soil	m ³	980	1,317	61,577,076	4,581	41,823,894	103,400,970	TS. 2.10
	Embankment	m ³	2,810	3,022	1,291,050	1,887	1,849,567	3,140,616	TS. 2.10
	Clearing and Grubbing	m ²	14,000	1,065	8,490,442	2,286	6,424,338	14,914,780	TS. 2.10
H4.1									
H4.2	Clearing and Grubbing	m ²	3,280	1,317	42,406,774	804	82,226,317	124,633,091	
H4.3	Stripping of Top Soil	m ³	4,750	3,022	14,949,694	1,887	11,257,792	26,167,486	TS. 2.10
H4.4	Embankment	m ³	1,570	5,360	4,321,064	2,286	6,190,387	10,511,451	TS. 2.10
H4.5	Gravel Pavement, 200 mm thick	m ²	7,390	5,360	14,352,171	2,286	10,859,645	25,211,816	TS. 2.10
	Sodding	m ²		55	8,414,871	27,751	43,569,649	51,984,520	TS. 7.09
					408,975	1,400	10,348,843	10,757,818	TS. 4.14

MFC2-12

APPENDIX 3

CONSTRUCTION COST OF MFC-3

SUMMARY OF MFC - 3

ITEM NO.	BQ-ITEMS (DRAFT)	SECTION TOTAL IN FOREIGN CURRENCY (RP.)	SECTION TOTAL IN INDONESIA CURRENCY (RP.)	TOTAL (RP.)
A	GENERAL	959,000,000	1,409,000,000	2,368,000,000
B	CHANNEL AND DIKE WORKS			
B1	PREPARATION WORKS	354,000,000	268,000,000	622,000,000
B2	CHANNEL EXCAVATION	5,651,000,000	3,711,000,000	9,362,000,000
B3	EARTH DIKE WORKS	355,000,000	479,000,000	834,000,000
B6	FILLING ON RIVER BANK	37,000,000	94,000,000	131,000,000
	SUB-TOTAL OF B.	6,397,000,000	4,552,000,000	10,949,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS			
C1	PREPARATION WORKS	73,000,000	84,000,000	157,000,000
C2	SDDING AND DIKE	5,000,000	124,000,000	129,000,000
C3	REVTMENT - WET STONE MASONRY TYPE	1,347,000,000	2,443,000,000	3,790,000,000
C4	GABION TYPE FOOT PROTECTION	328,000,000	194,000,000	522,000,000
C8	PROTECTION WORKS FOR TITI RUNTUH BRIDGE (PE129+43m)	210,000,000	263,000,000	473,000,000
C9	PROTECTION WORKS FOR RAILWAY BRIDGE	264,000,000	386,000,000	650,000,000
	SUB-TOTAL OF C.	2,227,000,000	3,494,000,000	5,721,000,000
D	RIPARIAN STRUCTURES			
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES	9,000,000	44,000,000	53,000,000
D7	APPROACH STEPS, TYPE PD (28 places)	202,000,000	206,000,000	408,000,000
	SUB-TOTAL OF D.	211,000,000	250,000,000	461,000,000
E	DRAINAGE CHANNEL AND OUTLET WORKS			
E1	PREPARATION WORKS FOR DRAINAGE WORKS	16,000,000	42,000,000	58,000,000
E4	DRAINAGE OUTLET (SL3), BOX CULVERT WITH SLUICE GATE	51,000,000	56,000,000	107,000,000
E5	DRAINAGE OUTLET (SL4), BOX CULVERT WITH SLUICE GATE	45,000,000	44,000,000	89,000,000
E6	DRAINAGE OUTLET (SL5), BOX CULVERT	25,000,000	30,000,000	55,000,000
E7	DRAINAGE OUTLET (SL6), BOX CULVERT	20,000,000	23,000,000	43,000,000
E14	DRAINAGE OUTLET, PIPE CULVERT D=600 x 1 (3 places)	10,000,000	14,000,000	24,000,000
E15	DRAINAGE OUTLET, PIPE CULVERT D=800 x 1 (1 places)	8,000,000	10,000,000	18,000,000
E16	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 1 (1 places)	6,000,000	8,000,000	14,000,000
E17	DRAINAGE OUTLET, PIPE CULVERT D=800 x 2 (2 places)	20,000,000	26,000,000	46,000,000
E18	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 2 (1 places)	6,000,000	8,000,000	14,000,000
E20	DRAINAGE OUTLET, OPEN DITCH TYPE (2 places)	3,000,000	4,000,000	7,000,000
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS	16,000,000	23,000,000	39,000,000
	SUB-TOTAL OF E.	226,000,000	288,000,000	514,000,000

SUMMARY OF MFC - 3

ITEM NO.	BQ-ITEMS (DRAFT)	SECTION TOTAL IN		SECTION TOTAL IN		TOTAL (RP.)
		FOREIGN CURRENCY (RP.)		INDONESIA CURRENCY (RP.)		
H	BRIDGE WORKS					
H1	PREPARATION WORKS			79,000,000		98,000,000
H5	PAYUNG BRIDGE (P5)		19,000,000	813,000,000		1,312,000,000
H6	PEDESTRIAN BRIDGE (P6)		182,000,000	112,000,000		294,000,000
H7	MEDAN TEMBUNG BRIDGE WITH WATER PIPE (P7)		891,000,000	575,000,000		1,466,000,000
H8	MEDAN DENAI BRIDGE WITH WATER PIPES AND CABLE PIPES (P9)		1,690,000,000	991,000,000		2,681,000,000
	SUB-TOTAL OF H.		3,595,000,000	2,256,000,000		5,851,000,000
I	OTHER WORKS					
I5	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF UPPER PERCUT RIVER		370,000,000	695,000,000		1,065,000,000
I8	RELOCATION OF WATER LEVEL GAUGING STATION		15,000,000	4,000,000		19,000,000
	SUB-TOTAL OF I.		385,000,000	699,000,000		1,084,000,000
TOTAL A - I			14,000,000,000	12,948,000,000		26,948,000,000
VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE			1,400,000,000	1,294,800,000		2,694,800,000
TENDER PRICE			15,400,000,000	14,242,800,000		29,642,800,000

MFC-3

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL								
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	50,272,834	958,724,189	35,447,935	1,408,712,398	2,367,436,587	GS 6.03
A2	ESTABLISHMENT	L.S.	1.0	905,032,278	905,032,278	1,281,984,050	1,281,984,050	2,187,016,328	GS 7.05
A3	RELOCATION OF EXISTING FACILITIES	P.S.	1.0	3,419,078	3,419,078	3,280,412	3,280,412	6,699,490	GS 14.04
A4	GEOLOGICAL INVESTIGATION								
A.4.1	Hand Auger	m	150.0	0	0	220,000	33,000,000	33,000,000	GS 9.06
A.4.2	Mechanical Boring	m	300.0	0	0	110,000	33,000,000	33,000,000	GS 9.06
A.4.3	Exploratory Excavation	m ³	400.0	0	0	55,000	22,000,000	22,000,000	GS 9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
B1.1	Cleaning and Grubbing	m ²	332,400.0	1,065	353,998,731	804	267,292,155	621,290,886	TS 2.10
B2	CHANNEL EXCAVATION								
B2.1	Excavation (River Channel)	m ³	161,900.0	6,744	1,091,930,838	4,581	741,652,624	1,833,583,462	TS 2.10
B2.2	Excavation (Common)	m ³	626,300.0	7,279	4,558,955,409	4,740	2,968,736,882	7,527,692,290	TS 2.10
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m ³	16,300.0	1,317	21,473,579	1,887	30,763,203	52,236,782	TS 2.10
B3.2	Embankment	m ³	95,200.0	3,022	287,647,714	2,286	217,650,155	505,297,869	TS 2.10
B3.3	Gravel Pavement, 200 mm thick	m ²	8,230.0	5,360	44,111,077	27,751	228,393,765	272,504,842	TS 7.09
B3.4	Maintenance Marker Post	nos.	40.0	31,395	1,255,800	52,099	2,083,952	3,339,752	TS 12.10
B6	FILLING ON RIVER BANK								
B6.1	Soil Filling	m ³	27,500.0	1,334	36,686,095	3,402	93,548,944	130,235,039	TS 2.10

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS								
C1.1	Coffering and Dewatering	L.S.	1.0	72,585,651	72,585,651	83,743,736	83,743,736	156,329,387	TS. 1.04
C2	SODDING AND DIKE								
C2.1	Solid Sodding	m ²	88,500.0	55	4,897,737	1,400	123,934,048	128,831,785	TS. 4.14
C3	REVEITEMT - WET STONE MASONRY TYPE								
C3.1	Excavation (Common)	m ³	28,500.0	7,279	207,456,856	4,740	135,093,408	342,550,264	TS. 2.10
C3.2	Backfill with Selected Soil	m ³	220.0	2,931	644,890	3,203	704,728	1,349,618	TS. 2.10
C3.3	Crusher Run Bedding	m ³	11,300.0	7,270	82,146,460	47,207	533,441,294	615,587,754	TS. 4.14
C3.4	Wet Stone Masonry (1:4) for Revetment	m ³	10,200.0	22,458	229,070,328	48,217	491,817,613	720,887,941	TS. 4.14
C3.5	Cement Mortar Plastering	m ²	39,300.0	3,445	135,407,384	7,007	275,389,405	410,796,789	TS. 4.14
C3.6	Concrete, Type C1	m ³	1,960.0	79,200	155,232,000	118,800	232,848,000	388,080,000	TS. 3.24
C3.7	Reinforcing Steel Bar	kg	138,300.0	1,954	270,300,357	427	59,014,323	329,314,680	TS. 3.24
C3.8	Formwork FW1	m ²	13,700.0	4,300	58,912,868	34,861	477,592,639	536,505,507	TS. 3.24
C3.9	Weep Hole, Dia 50 mm, including Filter Cloth	nos.	4,700.0	2,798	13,152,392	7,421	34,879,377	48,031,769	TS. 4.14
C3.10	Log Pile, Dia. 150 mm L=2.0m	m	4,440.0	758	3,363,637	4,854	21,552,493	24,916,129	TS. 5.07
C3.11	Elastic Joint Filler, 10 mm thick	m ²	4,420.0	9,056	40,028,625	24,444	108,042,062	148,070,687	TS. 3.24
C3.12	Gabion Cylinder	m ³	1,070.0	138,840	148,558,873	60,683	64,930,712	213,489,586	TS. 4.14
C3.13	Cobble Stone Filling	m ³	360.0	5,489	1,976,097	21,099	7,595,745	9,571,842	TS. 4.14
C4	GABION TYPE FOOT PROTECTION								
C4.1	Cobble Stone Filling	m ³	590.0	5,489	3,236,603	21,099	12,448,582	15,687,185	TS. 4.14
C4.2	Gabion Mattress	m ²	3,800.0	85,210	323,798,267	47,689	181,219,660	505,017,927	TS. 4.14
C5	PROTECTION WORKS FOR TITI RUNTUH BRIDGE (PE129+43m)								
C5.1	Excavation (Common)	m ³	2,210.0	7,279	16,087,005	4,740	10,475,664	26,562,670	TS. 2.10
C5.2	Backfill with Selected Soil	m ³	89.0	2,931	260,887	3,203	285,094	545,982	TS. 2.10
C5.3	Crusher Run Bedding	m ³	1,220.0	7,270	8,868,910	47,207	57,592,777	66,461,687	TS. 4.14
C5.4	Log Pile, Dia. 150 mm, L=3.0 m	m	920.0	758	696,970	4,854	4,465,832	5,162,802	TS. 5.07
C5.5	Wet Stone Masonry (1:4) for Revetment	m ³	380.0	22,458	8,533,993	48,217	18,322,617	26,856,610	TS. 4.14
C5.6	Cement Mortar Plastering	m ²	1,530.0	3,445	5,271,585	7,007	10,721,267	15,992,852	TS. 4.14
C5.7	Concrete, Type C1	m ³	570.0	79,200	45,144,000	118,800	67,716,000	112,860,000	TS. 3.24
C5.8	Concrete, Type D	m ³	35.0	72,850	2,549,750	109,275	3,824,625	6,374,375	TS. 3.24
C5.9	Reinforcing Steel Bar	kg	39,900.0	1,954	77,982,533	427	17,025,824	95,008,357	TS. 3.24
C5.10	Formwork FW1	m ²	950.0	4,300	4,085,199	34,861	33,117,738	37,202,937	TS. 3.24
C5.11	Formwork FW2	m ²	320.0	5,417	1,733,439	47,635	15,243,335	16,976,774	TS. 3.24
C5.12	Elastic Joint Filler, 10 mm thick	m ²	118.0	9,056	1,068,638	24,444	2,884,381	3,953,018	TS. 3.24
C5.13	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	180.0	2,798	503,709	7,421	1,335,806	1,839,515	TS. 4.14
C5.14	Gabion Mattress	m ²	320.0	85,210	27,267,222	47,689	15,260,603	42,527,825	TS. 4.14
C5.15	Gabion Cylinder	m ³	65.0	138,840	9,024,604	60,683	3,944,389	12,968,994	TS. 4.14

MFC - 3

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C8.16	Cobble Stone Filling	m ³	240.0	5,489	131,740	21,099	506,383	638,123	TS. 4.14
C9	PROTECTION WORKS FOR RAILWAY BRIDGE							648,872,560	
C9.1	Excavation (Common)	m ³	1,780.0	7,279	12,956,955	4,740	8,437,413	21,394,367	TS. 2.10
C9.2	Backfill with Selected Soil	m ³	140.0	2,931	410,385	3,203	448,463	858,848	TS. 2.10
C9.3	Backfill with Gravel	m ³	68.0	4,883	332,015	21,026	1,429,799	1,761,814	TS. 4.14
C9.4	Log Pile, Dia. 150 mm, L=3.0 m	m	240.0	758	181,818	4,854	1,165,000	1,346,818	TS. 5.07
C9.5	Cement Mortar Plastering	m ²	1,350.0	3,445	4,651,399	7,007	9,459,941	14,111,340	TS. 4.14
C9.6	Concrete, Type C1	m ³	26.0	79,200	2,059,200	118,800	3,088,800	5,148,000	TS. 3.24
C9.7	Concrete, Type D	m ³	2,050.0	72,850	149,342,500	109,275	224,013,750	373,356,250	TS. 3.24
C9.8	Concrete, Type E	m ³	18.0	66,800	1,202,400	100,200	1,803,600	3,006,000	TS. 3.24
C9.9	Reinforcing Steel Bar	kg	1,690.0	1,954	3,303,020	427	721,144	4,024,163	TS. 3.24
C9.10	Formwork FW1	m ²	1,020.0	4,300	4,386,214	34,861	35,557,992	39,944,206	TS. 3.24
C9.11	Formwork FW2	m ²	360.0	5,417	1,950,119	47,635	17,148,752	19,098,871	TS. 3.24
C9.12	Elastic Joint Filler, 10 mm thick	m ²	40.0	9,056	362,250	24,444	977,756	1,340,006	TS. 3.24
C9.13	Weep Hole, 50 mm	nos.	160.0	2,798	447,741	7,421	1,187,383	1,635,124	TS. 4.14
C9.14	Cobble Stone Filling	m ³	12.0	5,489	65,870	21,099	253,192	319,061	TS. 4.14
C9.15	Gabion Mattress	m ³	770.0	85,210	65,611,754	47,689	36,720,826	102,332,580	TS. 4.14
C9.16	Gabion Cylinder	m ³	37.0	138,840	5,137,083	60,683	2,245,268	7,382,350	TS. 4.14
C9.17	Crusher Run Bedding	m ³	510.0	7,270	3,707,495	47,207	24,075,669	27,783,164	TS. 4.14
C9.18	Wet Stone Masonry (1:4) for Retention	m ³	340.0	22,458	7,635,678	48,217	16,393,920	24,029,598	TS. 4.14

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D	RIPARIAN STRUCTURES								
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES	L.S.							
D1.1	Coffering and Dewatering	m ²	1.0	7,735,399	8,321,137	42,653,276	43,095,546	51,416,682	TS. 1.04
D1.2	Clearing and Grubbing	m ²	550.0	1,065	7,735,399	804	42,653,276	50,388,674	TS. 2.10
D7	APPROACH STEPS, TYPE PD (28 place)	m ³			201,823,289		205,444,482	407,267,771	
D7.1	Excavation (Common)	m ³	2,190.0	7,279	15,941,422	4,740	10,380,862	26,322,283	TS. 2.10
D7.2	Backfill with Selected Soil	m ³	77.0	2,931	225,712	3,203	246,655	472,366	TS. 2.10
D7.3	Log Pile, Dia. 150mm, L=3.0m	m	1,230.0	758	931,818	4,854	5,970,623	6,902,441	TS. 5.07
D7.4	Concrete, Type C1	m ³	100.0	79,200	7,920,000	118,800	11,880,000	19,800,000	TS. 3.24
D7.5	Concrete, Type D	m ³	380.0	72,850	27,683,000	109,275	41,524,500	69,207,500	TS. 3.24
D7.6	Reinforcing Steel Bar	kg	4,120.0	1,954	8,052,332	427	1,758,055	9,810,387	TS. 3.24
D7.7	Formwork FW1	m ²	1,580.0	4,300	6,794,331	34,861	55,080,027	61,874,358	TS. 3.24
D7.8	Crusher Run Bedding	m ³	280.0	7,270	2,035,488	47,207	13,218,014	15,253,502	TS. 4.14
D7.9	Elastic Joint Filler, 10 mm thick	m ³	99.0	9,056	896,569	24,444	2,419,947	3,316,515	TS. 3.24
D7.10	Gabion Cylinder	m ³	810.0	138,840	112,460,455	60,683	49,153,156	161,613,611	TS. 4.14
D7.11	Cobble Stone Filling	m ³	180.0	5,489	988,048	21,099	3,797,873	4,785,921	TS. 4.14
D7.12	Gabion Mattress	m ³	210.0	85,210	17,894,115	47,689	10,014,771	27,908,885	TS. 4.14

MFC - 3

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.	
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)			
E1	DRAINAGE CHANNEL AND OUTLET WORKS PREPARATION WORKS FOR DRAINAGE WORKS Coffering and Dewatering Clearing and Grubbing DRAINAGE OUTLET SL3, BOX CULVERT WITH SLUICE GATE Excavation (Common) Backfill with Selected Soil Crusher Run Bedding Wet Stone Masonry (1:4) for Revetment Cement Mortar Plastering Supply and Driving of Steel Sheet Piles, Type II Concrete, Type C1 Concrete, Type C2 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2 Elastic Joint Filler, 10 mm thick Water Stop, 30 cm wide Dowel Bar Handrail, Galvanized Steel Pipe Galvanized Steel Ladder Supply and Installation of Steel Slide Gates (H=1.5m, B=1.5m x 1) DRAINAGE OUTLET SL4, BOX CULVERT WITH SLUICE GATE Excavation (Common) Backfill with Selected Soil Crusher Run Bedding Wet Stone Masonry (1:4) for Revetment Cement Mortar Plastering Supply and Driving of Steel Sheet Piles, Type II Concrete, Type C1 Concrete, Type C2 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2 Elastic Joint Filler, 10 mm thick Water Stop, 30 cm wide	L.S.	1.0	8,431,177	15,673,028	36,268,313	41,736,384	57,409,412	TS. 1.04	
		m ²	6,800.0	1,065	7,241,851	50,650,865	804	55,803,264	12,709,922	TS. 2.10
		m ³	190.0	7,279	1,383,046	4,740	900,623	2,283,668	TS. 2.10	
		m ³	80.0	2,931	234,506	3,203	256,265	490,770	TS. 2.10	
		m ³	7.0	7,270	50,887	47,207	330,450	381,338	TS. 4.14	
		m ³	9.0	22,458	202,121	48,217	433,957	636,078	TS. 4.14	
		m ²	34.0	3,445	117,146	7,007	238,250	355,397	TS. 4.14	
		m ³	27.0	337,228	9,105,161	46,927	1,267,030	10,372,190	TS. 5.07	
		m ³	250.0	79,200	19,800,000	118,800	29,700,000	49,500,000	TS. 3.24	
		m ³	10.0	75,600	756,000	113,400	1,134,000	1,890,000	TS. 3.24	
		m ³	18.0	66,800	1,202,400	100,200	1,803,600	3,006,000	TS. 3.24	
		kg	5,680.0	1,954	11,101,273	427	2,423,726	13,524,999	TS. 3.24	
		m ²	220.0	4,300	946,046	34,861	7,669,371	8,615,417	TS. 3.24	
		m ²	39.0	5,417	211,263	47,635	1,857,781	2,069,044	TS. 3.24	
		m ²	1.0	9,056	9,056	24,444	24,444	33,500	TS. 3.24	
		m	3.0	17,116	51,349	43,230	129,690	181,039	TS. 3.24	
		kg	85.0	1,954	166,128	427	36,271	202,399	TS. 3.24	
		kg	160.0	3,376	540,148	454	72,594	612,742	TS. 6.09	
kg	27.0	2,362	63,781	3,460	93,412	157,193	TS. 6.09			
E5	DRAINAGE OUTLET SL4, BOX CULVERT WITH SLUICE GATE Excavation (Common) Backfill with Selected Soil Crusher Run Bedding Wet Stone Masonry (1:4) for Revetment Cement Mortar Plastering Supply and Driving of Steel Sheet Piles, Type II Concrete, Type C1 Concrete, Type C2 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2 Elastic Joint Filler, 10 mm thick Water Stop, 30 cm wide	L.S.	1.0	4,710,554	4,710,554	7,431,800	7,431,800	12,142,354	TS. 9.09	
		m ³	670.0	7,279	4,877,056	4,740	43,559,739	87,954,847	TS. 2.10	
		m ³	210.0	2,931	615,577	3,203	3,175,880	8,052,936	TS. 2.10	
		m ³	7.0	7,270	50,887	47,207	330,450	1,288,272	TS. 2.10	
		m ³	12.0	22,458	269,495	48,217	578,609	381,338	TS. 4.14	
		m ²	47.0	3,445	161,938	7,007	329,346	848,103	TS. 4.14	
		m ³	29.0	337,228	9,779,617	46,927	1,360,884	491,284	TS. 4.14	
		m ³	110.0	79,200	8,712,000	118,800	13,068,000	11,140,501	TS. 5.07	
		m ³	5.0	75,600	378,000	113,400	1,360,884	21,780,000	TS. 3.24	
		m ³	18.0	66,800	1,202,400	100,200	1,803,600	945,000	TS. 3.24	
		kg	5,170.0	1,954	10,104,504	427	2,206,103	3,006,000	TS. 3.24	
		m ²	220.0	4,300	946,046	34,861	2,206,103	12,310,607	TS. 3.24	
		m ²	36.0	5,417	195,012	47,635	7,669,371	8,615,417	TS. 3.24	
		m ²	1.0	9,056	9,056	24,444	1,714,875	1,909,887	TS. 3.24	
		m	4.0	17,116	68,465	43,230	24,444	33,500	TS. 3.24	
							172,920	241,385	TS. 3.24	

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E5.15	Dowel Bar	m ²	19.0	1,954	37,135	427	8,108	45,242	TS. 3.24
E5.16	Handrail, Galvanized Steel Pipe	kg	210.0	3,376	708,944	454	95,280	804,224	TS. 6.09
E5.17	Galvanized Steel Ladder	kg	27.0	2,362	63,781	3,460	93,412	157,193	TS. 6.09
E5.18	Supply and Installation of Steel Slide Gate (H=1.5m, B=2.0m x 1)	L.S.	1.0	6,215.196	6,215.196	9,688.763	9,688.763	15,903.958	TS. 9.09
E6	DRAINAGE OUTLET SL6, BOX CULVERT				24,832,149		29,846,499	54,678,647	
E6.1	Excavation (Common)	m ³	250.0	7,279	1,819,797	4,740	1,185,030	3,004,827	TS. 2.10
E6.2	Backfill with Selected Soil	m ³	450.0	2,931	1,319,093	3,203	1,441,489	2,760,582	TS. 2.10
E6.3	Crusher Run Bedding	m ³	6.0	7,270	43,618	47,207	283,243	326,861	TS. 4.14
E6.4	Wet Stone Masonry (1:4) for Revetment	m ³	6.0	22,458	134,747	48,217	289,304	424,052	TS. 4.14
E6.5	Cement Mortar Plastering	m ²	23.0	3,445	79,246	7,007	161,169	240,415	TS. 4.14
E6.6	Concrete, Type C1	m ³	73.0	79,200	5,781,600	118,800	8,672,400	14,454,000	TS. 3.24
E6.7	Concrete, Type C2	m ³	3.0	75,600	226,800	113,400	340,200	567,000	TS. 3.24
E6.8	Concrete, Type E	m ³	79.0	66,800	5,277,200	100,200	7,915,800	13,193,000	TS. 3.24
E6.9	Reinforcing Steel Bar	kg	4,720.0	1,954	9,225,001	427	2,014,082	11,239,084	TS. 3.24
E6.10	Formwork FW1	m ²	200.0	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
E6.11	Formwork FW2	m ²	12.0	5,417	65,004	47,635	571,625	636,629	TS. 3.24
E7	DRAINAGE OUTLET SL6, BOX CULVERT				19,514,833		22,287,343	41,802,176	
E7.1	Excavation (Common)	m ³	130.0	7,279	946,294	4,740	616,216	1,562,510	TS. 2.10
E7.2	Backfill with Selected Soil	m ³	450.0	2,931	1,319,093	3,203	1,441,489	2,760,582	TS. 2.10
E7.3	Crusher Run Bedding	m ³	6.0	7,270	43,618	47,207	283,243	326,861	TS. 4.14
E7.4	Wet Stone Masonry (1:4) for Revetment	m ³	6.0	22,458	134,747	48,217	289,304	424,052	TS. 4.14
E7.5	Cement Mortar Plastering	m ²	23.0	3,445	79,246	7,007	161,169	240,415	TS. 4.14
E7.6	Concrete, Type C1	m ³	67.0	79,200	5,306,400	118,800	7,959,600	13,266,000	TS. 3.24
E7.7	Concrete, Type C2	m ³	3.0	75,600	226,800	113,400	340,200	567,000	TS. 3.24
E7.8	Concrete, Type E	m ³	12.0	66,800	801,600	100,200	1,202,400	2,004,000	TS. 3.24
E7.9	Reinforcing Steel Bar	kg	4,960.0	1,954	9,694,069	427	2,116,493	11,810,563	TS. 3.24
E7.10	Formwork FW1	m ²	200.0	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
E7.11	Formwork FW2	m ²	19.0	5,417	102,923	47,635	905,073	1,007,996	TS. 3.24
E14	DRAINAGE OUTLET, PIPE CULVERT D=600 x 1 (3 places)				9,888,477		13,663,901	23,552,377	
E14.1	Excavation (Common)	m ³	310.0	7,279	2,256,548	4,740	1,469,437	3,725,985	TS. 2.10
E14.2	Backfill with Selected Soil	m ³	300.0	2,931	879,396	3,203	960,993	1,840,388	TS. 2.10
E14.3	Concrete, Type C1	m ³	39.0	79,200	3,088,800	118,800	4,633,200	7,722,000	TS. 3.24
E14.4	Concrete, Type E	m ³	8.0	66,800	534,400	100,200	801,600	1,336,000	TS. 3.24
E14.5	Reinforcing Steel Bar	kg	720.0	1,954	1,407,204	427	307,233	1,714,437	TS. 3.24
E14.6	Formwork FW1	m ²	100.0	4,300	430,021	34,861	3,486,078	3,916,099	TS. 3.24
E14.7	RC, Pipe D=600mm	m	26.0	49,696	1,292,108	77,129	2,005,360	3,297,469	TS. 12.10
E15	DRAINAGE OUTLET, PIPE CULVERT D=800 x 1 (1 place)				7,398,309		9,725,593	17,123,902	
E15.1	Excavation (Common)	m ³	290.0	7,279	2,110,965	4,740	1,374,635	3,485,599	TS. 2.10

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E15.2	Backfill with Selected Soil	m ³	260.0	2,931	762,143	3,203	832,860	1,595,003	TS. 2.10
E15.3	Concrete, Type C1	m ³	27.0	79,200	2,138,400	118,800	3,207,600	5,346,000	TS. 3.24
E15.4	Concrete, Type E	m ³	5.0	66,800	334,000	100,200	501,000	835,000	TS. 3.24
E15.5	Reinforcing Steel Bar	kg	390.0	1,954	762,235	427	166,418	928,653	TS. 3.24
E15.6	Formwork FW1	m ²	59.0	4,300	253,712	34,861	2,056,786	2,310,498	TS. 3.24
E15.7	RC Pipe D=800mm	m	12.0	86,404	1,036,854	132,191	1,586,295	2,623,149	TS. 12.10
E16	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 1 (1 place)				5,435,045		7,892,340	13,327,385	
E16.1	Excavation (Common)	m ³	110.0	7,279	800,711	4,740	521,413	1,322,124	TS. 2.10
E16.2	Backfill with Selected Soil	m ³	83.0	2,931	243,299	3,203	263,875	509,174	TS. 2.10
E16.3	Concrete, Type C1	m ³	27.0	79,200	2,138,400	118,800	3,207,600	5,346,000	TS. 3.24
E16.4	Concrete, Type E	m ³	5.0	66,800	334,000	100,200	501,000	835,000	TS. 3.24
E16.5	Reinforcing Steel Bar	kg	390.0	1,954	762,235	427	166,418	928,653	TS. 3.24
E16.6	Formwork FW1	m ²	52.0	4,300	223,611	34,861	1,812,760	2,036,371	TS. 3.24
E16.7	RC Pipe, D=1000mm	m	7.0	133,255	932,788	202,468	1,417,274	2,350,063	TS. 12.10
E17	DRAINAGE OUTLET, PIPE CULVERT D=800 x 2 (2 places)				19,585,523		25,337,756	44,923,279	
E17.1	Excavation (Common)	m ³	810.0	7,279	5,896,142	4,740	3,839,497	9,735,639	TS. 2.10
E17.2	Backfill with Selected Soil	m ³	840.0	2,931	2,462,308	3,203	2,690,779	5,153,087	TS. 2.10
E17.3	Concrete, Type C1	m ³	63.0	79,200	4,989,600	118,800	7,484,400	12,474,000	TS. 3.24
E17.4	Concrete, Type E	m ³	11.0	66,800	734,800	100,200	1,102,200	1,837,000	TS. 3.24
E17.5	Reinforcing Steel Bar	kg	1,090.0	1,954	2,130,350	427	465,117	2,595,466	TS. 3.24
E17.6	Formwork FW1	m ²	150.0	4,300	645,031	34,861	5,229,116	5,874,148	TS. 3.24
E17.7	Formwork FW2	m ²	9.0	5,417	48,753	47,635	428,719	477,472	TS. 3.24
E17.8	RC Pipe, D=800mm	m	31.0	86,404	2,678,539	132,191	4,097,929	6,776,467	TS. 12.10
E18	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 2 (1 place)				5,206,873		7,601,486	12,808,359	
E18.1	Excavation (Common)	m ³	110.0	7,279	800,711	4,740	521,413	1,322,124	TS. 2.10
E18.2	Backfill with Selected Soil	m ³	75.0	2,931	219,849	3,203	240,248	460,097	TS. 2.10
E18.3	Concrete, Type C1	m ³	24.0	79,200	1,900,800	118,800	2,851,200	4,752,000	TS. 3.24
E18.4	Wet Stone Masonry (1-4) for Retention	m ³	4.0	66,800	267,200	100,200	400,800	668,000	TS. 4.14
E18.5	Reinforcing Steel Bar	kg	430.0	1,954	840,413	427	183,486	1,023,900	TS. 3.24
E18.6	Formwork FW1	m ²	57.0	4,300	245,112	34,861	1,987,064	2,232,176	TS. 3.24
E18.7	RC Pipe D=1000mm	m	7.0	133,255	932,788	202,468	1,417,274	2,350,063	TS. 12.10
E20	DRAINAGE OUTLET, OPEN DITCH TYPE (2 places)				2,421,208		3,608,327	6,029,535	
E20.1	Excavation (Common)	m ³	48.0	7,279	349,401	4,740	227,526	576,927	TS. 2.10
E20.2	Backfill with Selected Soil	m ³	31.0	2,931	90,871	3,203	99,303	190,173	TS. 2.10
E20.3	Concrete, Type C1	m ³	8.0	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
E20.4	Concrete, Type E	m ³	2.0	66,800	133,600	100,200	200,400	334,000	TS. 3.24
E20.5	Reinforcing Steel Bar	kg	500.0	1,954	977,225	427	213,356	1,190,581	TS. 3.24
E20.6	Formwork FW1	m ²	55.0	4,300	236,512	34,861	1,917,343	2,153,854	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS								
E21.1	Excavation (Common)	m ³	500.0	7,279	15,599,892	4,740	22,415,464	38,015,356	TS. 2.10
E21.2	Backfill with Gravel	m ³	64.0	4,883	3,639,594	21,026	2,370,060	6,009,654	TS. 4.14
E21.3	Wet Stone Masonry (1:4) for Revetment	m ³	64.0	22,458	312,485	48,217	1,345,693	1,658,178	TS. 4.14
E21.4	Cement Mortar Plastering	m ²	260.0	3,445	1,437,304	7,007	3,085,914	4,523,218	TS. 4.14
E21.5	Concrete, Type C2	m ³	55.0	72,850	895,825	109,275	1,821,915	2,717,740	TS. 3.24
E21.6	Concrete, Type E	m ³	10.0	66,800	4,006,750	100,200	6,010,125	10,016,875	TS. 3.24
E21.7	Formwork FW1	m ²	170.0	4,300	668,000	34,861	1,002,000	1,670,000	TS. 3.24
E21.8	Reinforcing Steel Bar	kg	2,000.0	1,954	731,036	427	5,926,332	6,657,368	TS. 3.24
					3,908,899		853,425	4,762,324	TS. 3.24

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MFC - 3

ITEM NO.	BQ ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H	BRIDGE WORK								
HI	PREPARATION WORKS								
HI-1	Coffering and Dewatering	L.S.	1.0	16,090,730	16,090,730	76,270,381	76,270,381	96,940,422	TS. 1.04
HI-2	Clearing and Grubbing	m ²	2,450.0	1,065	2,609,196	804	1,970,114	4,579,310	TS. 2.10
HS	PAYUNG BRIDGE (P5)				812,831,717		498,216,052	1,311,047,769	
HS-1	EARTH WORKS								
HS-1.1	Excavation (Common)	m ³	1,720.0	7,279	12,520,203	4,740	8,153,006	20,673,209	TS. 2.10
HS-1.2	Embankment	m ³	860.0	3,022	2,598,498	2,286	1,966,167	4,564,666	TS. 2.10
HS-1.3	Backfill with Selected Soil	m ³	570.0	2,931	1,670,852	3,203	1,823,886	3,496,738	TS. 2.10
HS-1.4	Solid Sodding	m ²	290.0	55	16,049	1,400	406,112	422,161	TS. 4.14
HS-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	78,375	78,375	117,563	117,563	195,938	TS. 2.10
HS-2	PILE FOUNDATION WORKS FOR ABUTMENT								
HS-2.1	SP Pile for Test Pile, Dia. 400 mm	m	24.0	267,379	6,417,085	35,331	847,949	7,265,034	TS. 5.07
HS-2.2	Static Load Test for SP and PC Pile	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
HS-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	1,540.0	267,379	411,762,977	35,331	54,410,052	466,173,029	TS. 5.07
HS-2.4	Reinforcing Steel Bar	kg	16,600.0	1,954	32,443,861	427	7,083,426	39,527,286	TS. 3.24
HS-2.5	Concrete, Type C1	m ³	61.0	79,200	4,831,200	118,800	7,246,800	12,078,000	TS. 3.24
HS-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
HS-3.1	Concrete, Type C1	m ³	270.0	79,200	21,384,000	118,800	32,076,000	53,460,000	TS. 3.24
HS-3.2	Concrete, Type E	m ³	11.0	66,800	734,800	100,200	1,102,200	1,837,000	TS. 3.24
HS-3.3	Reinforcing Steel Bar	kg	35,500.0	1,954	69,382,955	427	15,148,290	84,531,245	TS. 3.24
HS-3.4	Formwork FW1	m ²	210.0	4,300	903,044	34,861	7,320,763	8,223,807	TS. 3.24
HS-3.5	Formwork FW2	m ²	260.0	5,417	1,408,419	47,635	12,385,210	13,793,629	TS. 3.24
HS-3.6	Rubble Stone Bedding	m ³	23.0	4,743	109,095	23,785	547,047	656,141	TS. 4.14
HS-4	CONCRETE WORKS FOR SUPER STRUCTURE								
HS-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	139,249,286	139,249,286	208,873,930	208,873,930	348,123,216	TS. 8.07
HS-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	1,314,570	1,314,570	1,314,570	1,314,570	2,629,139	TS. 8.07
HS-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	5,409,600	5,409,600	5,409,600	5,409,600	10,819,200	TS. 8.07
HS-4.4	Concrete, Type B for Slab	m ³	100.0	185,172	18,517,247	152,511	15,251,062	33,768,309	TS. 3.24
HS-4.5	Reinforcing Steel Bar	kg	17,700.0	1,954	34,593,755	427	7,552,809	42,146,564	TS. 3.24
HS-4.6	Formwork FW2	m ²	180.0	5,417	975,059	47,635	8,574,376	9,549,435	TS. 3.24
HS-5	MISCELLANEOUS WORKS								
HS-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	16.0	28,015	448,247	10,680	170,884	619,131	TS. 6.09
HS-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos.	13.0	245,424	3,190,517	398,367	5,178,772	8,369,289	TS. 8.07
HS-5.3	PVC Pipe Drain, Dia. 100 mm	m	32.0	7,499	239,954	18,707	598,625	838,580	TS. 8.07
HS-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
HS-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	32.0	79,200	2,534,400	118,800	3,801,600	6,336,000	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H5-5.6	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	5,482,538	TS. 3.24
H5-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H5-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H5-6.1	Backfill with Gravel	m ³	300.0	4,883	1,464,772	21,026	6,307,936	7,772,708	TS. 4.14
H5-6.2	Wet Stone Masonry (1:4) for Revetment	m ³	280.0	22,458	6,288,205	48,217	13,500,876	19,789,081	TS. 4.14
H5-6.3	Cement Mortar Plastering	m ²	280.0	3,445	964,735	7,007	1,962,062	2,926,796	TS. 4.14
H5-6.4	Concrete, Type C1	m ³	3.0	79,200	237,600	118,800	356,400	594,000	TS. 3.24
H5-6.5	Concrete, Type E	m ³	3.0	66,800	200,400	100,200	300,600	501,000	TS. 3.24
H5-6.6	Reinforcing Steel Bar	kg	460.0	1,954	899,047	427	196,288	1,095,334	TS. 3.24
H5-6.7	Formwork FW1	m ²	250.0	4,300	1,075,052	34,861	8,715,194	9,790,246	TS. 3.24
H5-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	180.0	2,798	503,709	7,421	1,335,806	1,839,515	TS. 4.14
H5-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H5-7.1	Sub-Base Course (Class B)	m ²	130.0	6,229	809,795	35,576	4,624,876	5,434,671	TS. 7.09
H5-7.2	Base Course (Class A)	m ²	65.0	7,322	475,929	45,411	2,951,719	3,427,647	TS. 7.09
H5-7.3	Asphalt Treatment Base (A.T.B)	ton	90.0	156,585	14,092,609	388,149	34,933,416	49,026,025	TS. 7.09
H5-7.4	Bituminous Prime Coat	liter	850.0	769	653,910	1,114	946,660	1,600,571	TS. 7.09
H5-7.5	Bituminous Surface Course, 50 mm thick	ton	81.0	59,631	4,830,118	90,888	7,361,888	12,192,006	TS. 7.09
H6	PEDESTRIAN BRIDGE (P6)				181,988,574		111,761,279	293,749,853	
H6-1	EARTH WORKS								
H6-1.1	Excavation (Common)	m ³	460.0	7,279	3,348,426	4,740	2,180,455	5,528,881	TS. 2.10
H6-1.2	Embankment	m ³	810.0	3,022	2,447,423	2,286	1,851,855	4,299,278	TS. 2.10
H6-1.3	Backfill with Selected Soil	m ³	320.0	2,931	938,022	3,203	1,025,059	1,963,081	TS. 2.10
H6-1.4	Solid Sodding	m ²	150.0	55	8,301	1,400	210,058	218,359	TS. 4.14
H6-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	612,713	612,713	656,760	656,760	1,269,473	TS. 2.10
H6-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H6-2.1	SP Pile for Test Pile, Dia. 400 mm	m	24.0	267,379	6,417,085	35,331	847,949	7,265,034	TS. 5.07
H6-2.2	Static Load Test for SP and PC Pile	L.S.	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H6-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	288.0	267,379	77,005,024	35,331	10,175,386	87,180,411	TS. 5.07
H6-2.4	Reinforcing Steel Bar	kg	3,100.0	1,954	6,058,793	427	1,322,808	7,381,602	TS. 3.24
H6-2.5	Concrete, Type C1	m ³	12.0	79,200	950,400	118,800	1,425,600	2,376,000	TS. 3.24
H6-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H6-3.1	Concrete, Type C1	m ³	97.0	79,200	7,682,400	118,800	11,523,600	19,206,000	TS. 3.24
H6-3.2	Concrete, Type E	m ³	1.0	66,800	66,800	100,200	100,200	167,000	TS. 3.24
H6-3.3	Reinforcing Steel Bar	kg	13,800.0	1,954	26,971,402	427	5,888,631	32,860,033	TS. 3.24
H6-3.4	Formwork FW1	m ²	110.0	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24
H6-3.5	Formwork FW2	m ²	170.0	5,417	920,889	47,635	8,098,022	9,018,911	TS. 3.24
H6-3.6	Rubble Stone Bedding	m ³	3.0	4,743	14,230	23,785	71,354	85,584	TS. 4.14

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ITEM NO.	BQ ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H6-4	CONCRETE WORKS FOR SUPER STRUCTURE	L.S.							
H6-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	m ³	1.0	21,208.214	21,208.214	34,812.322	34,812.322	58,020.536	TS. 8.07
H6-4.2	Concrete, Type B for Slab	kg	20.0	185,172	3,703,449	152,511	3,050,212	6,753,662	TS. 3.24
H6-4.3	Reinforcing Steel Bar	m ²	3,950.0	1,954	7,720,075	427	1,683,514	9,405,589	TS. 3.24
H6-4.4	Formwork FW2	m ²	99.0	5,417	536,283	47,635	4,715,907	5,252,189	TS. 3.24
H6-5	MISCELLANEOUS WORKS								
H6-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	7.0	28,015	196,108	10,680	74,762	270,870	TS. 6.09
H6-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos.	2.0	245,424	490,849	398,367	796,734	1,287,583	TS. 8.07
H6-5.3	PVC Pipe Drain, Dia.100 mm	m	32.0	7,499	239,954	18,707	598,625	838,580	TS. 8.07
H6-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
H6-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	5.0	79,200	396,000	118,800	594,000	990,000	TS. 3.24
H6-5.6	Formwork FW1	m ²	100.0	4,300	430,021	34,861	3,486,078	3,916,099	TS. 3.24
H6-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H6-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H6-6.1	Backfill with Gravel	m ³	27.0	4,883	131,829	21,026	567,714	699,544	TS. 4.14
H6-6.2	Wet Stone Masonry (1:4) for Revetment	m ³	48.0	22,458	1,077,978	48,217	2,314,436	3,392,414	TS. 4.14
H6-6.3	Cement Mortar Plastering	m ²	110.0	3,445	379,003	7,007	770,810	1,149,813	TS. 4.14
H6-6.4	Concrete, Type C1	m ³	4.0	79,200	316,800	118,800	475,200	792,000	TS. 3.24
H6-6.5	Concrete, Type E	m ³	3.0	66,800	200,400	100,200	300,600	501,000	TS. 3.24
H6-6.6	Reinforcing Steel Bar	kg	550.0	1,954	1,074,947	427	234,692	1,309,639	TS. 3.24
H6-6.7	Formwork FW1	m ²	91.0	4,300	391,319	34,861	3,172,331	3,563,650	TS. 3.24
H6-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	83.0	2,798	232,266	7,421	615,955	848,221	TS. 4.14
H6-7	PAVEMENT (APPROACH ROAD)								
H6-7.1	Gravel Pavement, 200 mm thick	m ³	65.0	5,360	348,386	27,751	1,803,839	2,152,225	TS. 7.09
H7	MEDAN TEMBUNG BRIDGE WITH WATER PIPE (P7)				890,007,984		574,416,354	1,464,424,338	
H7-1	EARTH WORKS								
H7-1.1	Excavation (Common)	m ³	2,740.0	7,279	19,944,975	4,740	12,987,928	32,932,903	TS. 2.10
H7-1.2	Embankment	m ³	830.0	3,022	2,507,853	2,286	1,897,580	4,405,433	TS. 2.10
H7-1.3	Backfill with Selected Soil	m ³	1,090.0	2,931	3,195,138	3,203	3,491,606	6,686,744	TS. 2.10
H7-1.4	Solid Sodding	m ²	110.0	55	6,088	1,099	120,836	126,924	TS. 4.14
H7-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	2,830,941	2,830,941	2,457,770	2,457,770	5,288,711	TS. 2.10
H7-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H7-2.1	SP Pile for Test Pile, Dia.400 mm	m	24.0	267,379	6,417,085	35,331	847,949	7,265,034	TS. 5.07
H7-2.2	Static Load Test for SP and PC Pile	nos.	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H7-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	1,476.0	267,379	394,650,750	35,331	52,148,855	446,799,604	TS. 5.07
H7-2.4	Reinforcing Steel Bar	kg	18,600.0	1,954	36,352,760	427	7,936,850	44,289,610	TS. 3.24
H7-2.5	Concrete, Type C1	m ³	71.0	79,200	5,623,200	118,800	8,434,800	14,058,000	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H7-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H7-3.1	Concrete, Type C1	m ³	310.0	79,200	24,552,000	118,800	36,828,000	61,380,000	TS. 3.24
H7-3.2	Concrete, Type E	m ³	13.0	66,800	868,400	100,200	1,302,600	2,171,000	TS. 3.24
H7-3.3	Reinforcing Steel Bar	kg	47,900.0	1,954	93,618,128	427	20,439,523	114,057,651	TS. 3.24
H7-3.4	Formwork FW1	m ²	230.0	4,300	989,048	34,861	8,017,979	9,007,027	TS. 3.24
H7-3.5	Formwork FW2	m ²	290.0	5,417	1,570,929	47,635	13,814,272	15,385,201	TS. 3.24
H7-3.6	Rubble Stone Bedding	m ³	27.0	4,743	128,067	23,785	642,185	770,253	TS. 4.14
H7-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H7-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	162,457,501	162,457,501	243,686,251	243,686,251	406,143,752	TS. 8.07
H7-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	1,685,146	1,685,146	1,685,146	1,685,146	3,370,291	TS. 8.07
H7-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	7,032,480	7,032,480	7,032,480	7,032,480	14,064,960	TS. 8.07
H7-4.4	Concrete, Type B for Slab	m ³	100.0	185,172	18,517,247	152,511	15,251,062	33,768,309	TS. 3.24
H7-4.5	Reinforcing Steel Bar	kg	21,600.0	1,954	42,216,108	427	9,216,988	51,433,095	TS. 3.24
H7-4.6	Formwork FW2	m ²	180.0	5,417	975,059	47,635	8,574,376	9,549,435	TS. 3.24
H7-5	MISCELLANEOUS WORKS								
H7-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	20.0	28,015	560,309	10,680	213,605	773,913	TS. 6.09
H7-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos.	15.0	245,424	3,681,366	398,367	5,975,506	9,656,872	TS. 8.07
H7-5.3	PVC Pipe Drain, Dia.100 mm	m	32.0	7,499	239,954	18,707	598,625	838,580	TS. 8.07
H7-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
H7-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	32.0	79,200	2,534,400	118,800	3,801,600	6,336,000	TS. 3.24
H7-5.6	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	5,482,538	TS. 3.24
H7-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H7-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H7-6.1	Backfill with Gravel	m ³	310.0	4,883	1,513,598	21,026	6,518,201	8,031,798	TS. 4.14
H7-6.2	Wet Stone Masonry (1:4) for Retement	m ³	280.0	22,458	6,288,205	48,217	13,500,876	19,789,081	TS. 4.14
H7-6.3	Cement Mortar Plastering	m ²	250.0	3,445	861,370	7,007	1,751,841	2,613,211	TS. 4.14
H7-6.4	Concrete, Type C1	m ³	3.0	79,200	237,600	118,800	356,400	594,000	TS. 3.24
H7-6.5	Concrete, Type E	m ³	2.0	66,800	133,600	100,200	200,400	334,000	TS. 3.24
H7-6.6	Reinforcing Steel Bar	kg	400.0	1,954	781,780	427	170,685	952,465	TS. 3.24
H7-6.7	Formwork FW1	m ²	200.0	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
H7-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	160.0	2,798	447,741	7,421	1,187,383	1,635,124	TS. 4.14
H7-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H7-7.1	Sub-Base Course (Class B)	m ³	160.0	6,229	996,671	35,576	5,692,155	6,688,826	TS. 7.09
H7-7.2	Base Course (Class A)	m ³	78.0	7,322	571,114	45,411	3,542,062	4,113,177	TS. 7.09
H7-7.3	Asphalt Treatment Base (A.T.B)	ton	120.0	156,585	18,790,146	388,149	46,577,888	65,368,033	TS. 7.09
H7-7.4	Bituminous Prime Coat	liter	1,090.0	769	838,544	1,114	1,213,953	2,052,497	TS. 7.09
H7-7.5	Bituminous Surface Course, 50 mm thick	ton	100.0	59,631	5,963,109	90,888	9,088,750	15,051,859	TS. 7.09

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H7-8	PIPE WORKS	L.S.	1.0	10,967,747	10,967,747	2,879,598	2,879,598	13,847,344	TS.11.06
	Supply and Installation of Water Pipe, Dia.100 mm, including Joint and Pipe Support							2,679,287,983	
H8	MEDIAN DENAI BRIDGE WITH WATER PIPES AND CABLE PIPES (P9)				1,689,047,369		990,240,613		
H8-1	EARTH WORKS								
H8-1.1	Excavation (Common)	m ³	3,580.0	7,279	26,059,493	4,740	16,969,628	43,029,121	TS. 2.10
H8-1.2	Embankment	m ³	1,630.0	3,022	4,925,061	2,286	3,726,573	8,651,634	TS. 2.10
H8-1.3	Backfill with Selected Soil	m ³	1,430.0	2,931	4,191,786	3,203	4,580,731	8,772,517	TS. 2.10
H8-1.4	Solid Sodding	m ²	350.0	55	19,370	1,400	490,135	509,504	TS. 4.14
H8-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	2,830,941	2,830,941	2,457,770	2,457,770	5,288,711	TS. 2.10
H8-2	PILE FOUNDATION WORKS ABUTMENT								
H8-2.1	SP Pile for Test Pile, Dia.400 mm	m	27.0	267,379	7,219,221	35,331	953,942	8,173,163	TS. 5.07
H8-2.2	Static Load Test for SP and PC Pile	L.S.	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H8-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	3,132.0	267,379	837,429,640	35,331	110,657,326	948,086,965	TS. 5.07
H8-2.4	Reinforcing Steel Bar	kg	31,900.0	1,954	62,346,937	427	13,612,125	75,959,062	TS. 3.24
H8-2.5	Concrete, Type C1	m ³	120.0	79,200	9,504,000	118,800	14,256,000	23,760,000	TS. 3.24
H8-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H8-3.1	Concrete, Type C1	m ³	590.0	79,200	46,728,000	118,800	70,092,000	116,820,000	TS. 3.24
H8-3.2	Concrete, Type E	m ³	25.0	66,800	1,670,000	100,200	2,505,000	4,175,000	TS. 3.24
H8-3.3	Reinforcing Steel Bar	kg	91,500.0	1,954	178,832,124	427	39,044,183	217,876,307	TS. 3.24
H8-3.4	Formwork FW1	m ²	420.0	4,300	1,806,088	34,861	14,641,526	16,447,614	TS. 3.24
H8-3.5	Formwork FW2	m ²	510.0	5,417	2,762,668	47,635	24,294,065	27,056,733	TS. 3.24
H8-3.6	Rubble Stone Bedding	m ³	51.0	4,743	241,905	23,785	1,213,017	1,454,922	TS. 4.14
H8-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H8-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	278,498,573	278,498,573	417,747,859	417,747,859	696,246,432	TS. 8.07
H8-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	3,089,434	3,089,434	3,089,434	3,089,434	6,178,867	TS. 8.07
H8-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	12,892,880	12,892,880	12,892,880	12,892,880	25,785,760	TS. 8.07
H8-4.4	Concrete, Type B for Slab	m ³	200.0	185,172	37,034,494	152,511	30,502,124	67,536,618	TS. 3.24
H8-4.5	Reinforcing Steel Bar	kg	45,100.0	1,954	88,145,670	427	19,244,729	107,390,398	TS. 3.24
H8-4.6	Formwork FW2	m ²	200.0	5,417	1,083,399	47,635	9,527,084	10,610,484	TS. 3.24
H8-5	MISCELLANEOUS WORKS								
H8-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	43.0	28,015	1,204,664	10,680	459,250	1,663,914	TS. 6.09
H8-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos.	26.0	245,424	6,381,034	398,367	10,357,544	16,738,578	TS. 8.07
H8-5.3	PVC Pipe Drain, Dia.100 mm	m	34.0	7,499	254,952	18,707	636,039	890,991	TS. 8.07
H8-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
H8-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	35.0	79,200	2,772,000	118,800	4,158,000	6,930,000	TS. 3.24
H8-5.6	Formwork FW1	m ²	160.0	4,300	688,034	34,861	5,577,724	6,265,758	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H8-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H8-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H8-6.1	Backfill with Gravel	m ³	510.0	4,883	2,490,112	21,026	10,723,492	13,213,604	TS. 4.14
H8-6.2	Wet Stone Masonry (1:4) for Revetment	m ²	370.0	22,458	8,309,414	48,217	17,840,443	26,149,857	TS. 4.14
H8-6.3	Cement Mortar Plastering	m ²	340.0	3,445	1,171,463	7,007	2,382,504	3,553,967	TS. 4.14
H8-6.4	Concrete, Type C1	m ³	8.0	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
H8-6.5	Concrete, Type E	m ³	1.0	66,800	66,800	100,200	100,200	167,000	TS. 3.24
H8-6.6	Reinforcing Steel Bar	kg	1,010.0	1,954	1,973,994	427	430,980	2,404,973	TS. 3.24
H8-6.7	Formwork FW1	m ²	260.0	4,300	1,118,054	34,861	9,063,802	10,181,856	TS. 3.24
H8-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	130.0	2,798	363,790	7,421	964,749	1,328,538	TS. 4.14
H8-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H8-7.1	Sub-Base Course (Class B)	m ³	260.0	6,229	1,619,590	35,576	9,249,752	10,869,341	TS. 7.09
H8-7.2	Base Course (Class A)	m ³	130.0	7,322	951,857	45,411	5,903,437	6,855,294	TS. 7.09
H8-7.3	Asphalt Treatment Base (A.T.B)	ton	190.0	156,585	29,751,064	388,149	73,748,322	103,499,386	TS. 7.09
H8-7.4	Bituminous Prime Coat	liter	2,080.0	769	1,600,157	1,114	2,316,534	3,916,691	TS. 7.09
H8-7.5	Bituminous Surface Course, 50 mm thick	ton	220.0	59,631	13,118,840	90,888	19,995,250	33,114,090	TS. 7.09
H8-8	PIPE WORKS								
H8-8.1	Supply and Installation of Water Pipe, Dia.100 mm, including Joint and Pipe Support	L.S.	1.0	133,255	133,255	202,468	202,468	335,723	TS.11.06
H8-8.2	Supply and Installation of Water Pipe, Dia.150 mm, including Joint and Pipe Support	L.S.	1.0	133,255	133,255	202,468	202,468	335,723	TS.11.06
I5	OTHER WORKS								
I5	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF UPPER PERCUT RIVER								
I5.1	WALKWAY ON FLOOD CHANNEL				369,096,877		694,434,850	1,063,531,736	
I5.2	Gravel Pavement, 200 mm thick	m ³	1,320.0	5,360	7,074,924	27,751	36,631,807	43,706,730	TS. 7.09
I5.3	Solid Sodding	m ²	4,400.0	55	243,503	1,400	6,161,693	6,405,196	TS. 4.14
I5.4	Boulder Pitching (300mm - 500mm)	m ³	4,400.0	4,209	18,517,541	22,782	100,241,049	118,758,589	TS.12.10
I5.5	DRAINAGE SIDE DITCH AND OUTLET								
I5.5.4	Excavation (Common)	m ³	8,730.0	7,279	63,547,311	4,740	41,381,244	104,928,555	TS. 2.10
I5.5.5	Backfill with Gravel	m ³	1,790.0	4,883	8,739,805	21,026	37,637,353	46,377,158	TS. 2.10
I5.6	Wet Stone Masonry (1:4) for Revetment	m ²	3,300.0	22,458	74,110,988	48,217	159,117,463	233,228,451	TS. 4.14
I5.7	Cement Mortar Plastering	m ²	20,600.0	3,445	70,976,898	7,007	144,351,698	215,328,597	TS. 4.14
I5.8	Sand Bedding	m ³	960.0	3,569	3,426,203	18,192	17,463,872	20,890,075	TS. 4.14
I5.9	DRAINAGE OUTLET								
I5.9	Excavation (Common)	m ³	830.0	7,279	6,041,726	4,740	3,934,299	9,976,025	TS. 2.10

MFC-3

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
I5.10	Crusher Run Bedding	m ³	61.0	7,270	443,445	47,207	2,879,639	3,323,084	TS. 4.14
I5.11	Concrete, Type-C2	m ³	170.0	75,600	12,852,000	113,400	19,278,000	32,130,000	TS. 3.24
I5.12	Formwork (FW1)	m ²	920.0	4,300	3,956,193	34,861	32,071,914	36,028,107	TS. 3.24
I5.13	Reinforcing Steel Bar	kg	14,500.0	1,954	28,339,517	427	6,187,330	34,526,846	TS. 3.24
I5.14	Wet Stone Masonry (1:3) for Revetment	m ³	320.0	25,600	8,192,004	52,811	16,899,545	25,091,549	TS. 4.14
I5.15	Cement Mortar Plastering	m ²	250.0	3,445	861,370	7,007	1,751,841	2,613,211	TS. 4.14
I5.16	Backfill with Selected Soil	m ³	380.0	2,931	1,113,901	3,203	1,217,257	2,331,158	TS. 2.10
PLANTING ALONGSIDE INSPECTION ROAD									
I5.17	Clearing and Grubbing	m ²	55,100.0	1,065	58,680,295	804	44,307,454	102,987,749	TS. 2.10
I5.18	Palem Hijau	tree	340.0	1,434	487,642	21,777	7,404,039	7,891,681	TS. 12.10
I5.19	Fillisium	tree	340.0	1,434	487,642	16,343	5,556,564	6,044,206	TS. 12.10
I5.20	Acacia Petandra	tree	350.0	1,434	501,984	12,117	4,240,805	4,742,789	TS. 12.10
I5.21	Tanjung	tree	350.0	1,434	501,984	16,343	5,719,993	6,221,977	TS. 12.10
RELOCATION OF WATER LEVEL GAUGING STATION									
I8.1	Excavation (Commons)	m ³	230.0	7,279	1,674,213	4,740	1,090,227	2,764,441	TS. 2.10
I8.2	Backfill with Selected Soil	m ³	230.0	2,931	674,203	3,203	736,761	1,410,964	TS. 2.10
I8.3	Steel Pipe Pile	m	15.0	397,989	5,969,834	48,573	728,595	6,698,428	TS. 5.07
I8.4	Concrete Type C1	m ³	0.1	79,200	7,920	118,800	11,880	19,800	TS. 3.24
I8.5	Wet Stone Masonry for Slop	m ³	2.0	22,458	44,916	48,217	96,435	141,351	TS. 4.14
I8.6	Steel Pipe for Inlet, Dia. 200 mm	m	7.0	306,880	2,148,161	55,100	385,700	2,533,860	TS. 5.07
I8.7	Observation House	L.S.	1.0	3,765,716	3,765,716	749,728	749,728	4,515,443	TS. 6.09

APPENDIX 4

CONSTRUCTION COST OF MFC-4

SUMMARY OF MFC - 4

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)		SECTION TOTAL IN INDONESIA CURRENCY (Rp.)		TOTAL (Rp.)
A	GENERAL		973,000,000		1,444,000,000	2,417,000,000
B	CHANNEL AND DIKE WORKS					
B1	PREPARATION WORKS		244,000,000		184,000,000	428,000,000
B2	CHANNEL EXCAVATION		2,866,000,000		1,897,000,000	4,763,000,000
B3	EARTH DIKE WORKS		228,000,000		342,000,000	570,000,000
B6	FILLING ON RIVER BANK		5,000,000		12,000,000	17,000,000
	SUB-TOTAL OF B.		3,343,000,000		2,435,000,000	5,778,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS					
C1	PREPARATION WORKS		73,000,000		84,000,000	157,000,000
C2	SODDING AND DIKE		4,000,000		92,000,000	96,000,000
C3	REVTMENT - WET STONE MASONRY TYPE PC		757,000,000		1,373,000,000	2,130,000,000
C4	GABION TYPE FOOT PROTECTION		198,000,000		118,000,000	316,000,000
C10	PROTECTION WORKS FOR NATIONAL ROAD BRIDGE		170,000,000		262,000,000	432,000,000
	SUB-TOTAL OF C.		1,202,000,000		1,929,000,000	3,131,000,000
D	RIPARIAN STRUCTURES					
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES		7,000,000		36,000,000	43,000,000
D7	APPROACH STEPS, TYPE PD(26 places)		187,000,000		193,000,000	380,000,000
	SUB-TOTAL OF D.		194,000,000		229,000,000	423,000,000
E	DRAINAGE CHANNEL AND OUTLET WORKS					
E1	PREPARATION WORKS FOR DRAINAGE WORKS		17,000,000		54,000,000	71,000,000
E8	DRAINAGE OUTLET (SL13), BOX CULVERT		21,000,000		25,000,000	46,000,000
E9	DRAINAGE OUTLET (SL14), CONNECTING WORKS		12,000,000		14,000,000	26,000,000
E10	DRAINAGE OUTLET (SL16), BOX CULVERT		22,000,000		27,000,000	49,000,000
E11	DRAINAGE OUTLET SR10, BOX CULVERT		53,000,000		64,000,000	117,000,000
E14	DRAINAGE OUTLET, PIPE CULVERT D=600 x 1 (6 places)		21,000,000		29,000,000	50,000,000
E15	DRAINAGE OUTLET, PIPE CULVERT D=800 x 1 (4 places)		22,000,000		31,000,000	53,000,000
E16	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 1 (1 place)		16,000,000		21,000,000	37,000,000
E18	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 2 (1 place)		12,000,000		16,000,000	28,000,000
E20	DRAINAGE OUTLET, OPEN DITCH TYPE (3 places)		4,000,000		6,000,000	10,000,000
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS		49,000,000		57,000,000	106,000,000
	SUB-TOTAL OF E.		249,000,000		344,000,000	593,000,000

SUMMARY OF MFC - 4

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
H	BRIDGE WORK			
H1	PREPARATION WORKS	15,000,000	56,000,000	71,000,000
H9	BINJEL BRIDGE WITH WATER PIPES (P11)	1,589,000,000	937,000,000	2,526,000,000
H10	AMPLAS BRIDGE WITH WATER PIPES AND CABLE PIPES (P13)	1,588,000,000	957,000,000	2,545,000,000
H11	WATER PIPE BRIDGE (WB1)	246,000,000	244,000,000	490,000,000
	SUB-TOTAL OF H.	3,438,000,000	2,194,000,000	5,632,000,000
I	OTHER WORK			
I5	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF UPPER PERCUT RIVER	308,000,000	550,000,000	858,000,000
	SUB-TOTAL OF I.	308,000,000	550,000,000	858,000,000
TOTAL A - I.				
		9,707,000,000	9,125,000,000	18,832,000,000
VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE				
		970,700,000	912,500,000	1,883,200,000
TENDER PRICE				
		10,677,700,000	10,037,500,000	20,715,200,000

MFC - 4

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL								
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	45,099,551	972,597,400	31,725,517	1,443,477,911	2,416,075,312	GS 6.03
A2	ESTABLISHMENT	L.S.	1.0	923,466,058	45,099,551	1,341,815,222	31,725,517	76,825,068	GS 7.05
A3	RELOCATION OF EXISTING FACILITIES	P.S.	1.0	4,031,791	923,466,058	3,937,172	1,341,815,222	2,265,281,281	GS 14.04
A4	GEOLOGICAL INVESTIGATION				4,031,791		3,937,172	7,968,963	GS 14.04
	Hand Auger	m	125.0	0	0	220,000	27,500,000	27,500,000	GS 9.06
	Mechanical Boring	m	150.0	0	0	110,000	16,500,000	16,500,000	GS 9.06
	Exploratory Excavation	m³	400.0	0	0	55,000	22,000,000	22,000,000	GS 9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
B1.1	Clearing and Grubbing	m³	228,700.0	1,065	243,560,499	804	183,904,079	427,464,578	TS 2.09
					243,560,499		183,904,079	427,464,578	TS 2.09
B2	CHANNEL EXCAVATION								
B2.1	Excavation (River Channel)	m³	99,500.0	6,744	2,865,382,200	4,581	1,896,930,007	4,762,312,297	TS 2.09
B2.2	Excavation (Common)	m³	342,900.0	6,399	671,075,469	4,203	455,802,570	1,126,878,039	TS 2.09
					2,194,306,821		1,441,127,437	3,635,434,258	TS 2.09
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m³	8,750.0	1,317	227,731,606		341,282,174	569,013,781	TS 2.09
B3.2	Embankment	nos	59,200.0	3,022	11,527,228	1,887	16,513,989	28,041,217	TS 2.09
B3.3	Gravel Pavement, 200 mm thick	m³	6,760.0	5,360	178,873,369	2,286	135,345,474	314,218,843	TS 2.09
B3.4	Maintenance Marker Post	nos.	35.0	31,395	36,232,185	27,751	187,599,253	223,831,437	TS 7.08
B6	FILLING ON RIVER BANK								
B6.1	Soil Filling	m³	3,300.0	1,334	1,098,825	52,099	1,823,458	2,922,283	TS 12.10
					4,402,331		11,225,873	15,628,205	TS 2.09
					4,402,331		11,225,873	15,628,205	TS 2.09

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS	L.S.	1.0	72,585,651	72,585,651	83,743,736	83,743,736	156,329,387	TS. 1.04
C1.1	Coffering and Dewatering							95,350,078	
C2	SODDING AND DIKE	m ²	65,500.0	55	3,624,879	1,400	91,725,199	95,350,078	TS. 4.14
C2.1	Solid Sodding							2,129,160,752	
C3	REVIEWMENT - WET STONE MASONRY (TYPE-PC)							174,933,407	TS. 2.10
C3.1	Excavation (Common)	m ³	16,500.0	6,399	105,587,817	4,203	69,345,590	1,349,618	TS. 2.10
C3.2	Backfill with Selected Soil	m ³	220.0	2,931	644,890	3,203	704,728	360,091,598	TS. 4.14
C3.3	Crusher Run Bedding	m ³	6,610.0	7,270	48,052,044	47,207	312,039,553	415,570,695	TS. 4.14
C3.4	Wet Stone Masonry (1:4) for Retention	m ³	5,880.0	22,458	132,052,307	48,217	283,518,389	210,102,174	TS. 4.14
C3.5	Cement Mortar Plastering	m ²	20,100.0	3,445	69,254,158	7,007	140,848,016	229,680,000	TS. 3.24
C3.6	Concrete, Type C1	m ³	1,160.0	79,200	91,872,000	118,800	137,808,000	188,588,017	TS. 3.24
C3.7	Reinforcing Steel Bar	kg	79,200.0	1,954	154,792,395	427	33,795,621	287,050,027	TS. 3.24
C3.8	Formwork FW1	m ²	7,330.0	4,300	31,520,535	34,861	255,529,492	31,884,919	TS. 4.14
C3.9	Weep Hole, Dia. 50mm, including Filter Cloth	nos.	3,120.0	2,798	8,730,950	7,421	23,153,969	15,768,992	TS. 5.07
C3.10	Log Pile, Dia. 150 mm L=2.0m	m	2,810.0	758	2,128,788	4,854	13,640,204	80,065,372	TS. 3.24
C3.11	Elastic Joint Filler, 10 mm thick	m ³	2,390.0	9,056	21,644,438	24,444	58,420,934	127,694,705	TS. 4.14
C3.12	Gabion Cylinder	m ³	640.0	138,840	88,857,644	60,683	38,837,062	6,381,228	TS. 4.14
C3.13	Cobble Stone Filling	m ³	240.0	5,489	1,317,398	21,099	5,063,830	315,240,587	TS. 4.14
C4	GABION TYPE FOOT PROTECTION							9,571,842	TS. 4.14
C4.1	Cobble Stone Filling	m ³	360.0	5,489	1,976,097	21,099	7,595,745	305,668,745	TS. 4.14
C4.2	Gabion Mattress	m ²	2,300.0	83,210	195,983,162	47,689	109,685,584	431,558,577	TS. 4.14
C10	PROTECTION WORKS FOR NATIONAL ROAD BRIDGE							5,937,134	TS. 2.10
C10.1	Excavation (Common)	m ³	560.0	6,399	3,583,587	4,203	2,353,547	3,067,314	TS. 4.14
C10.2	Crusher Run Bedding	m ³	500.0	2,931	1,465,659	3,203	1,601,654	7,254,528	TS. 4.14
C10.3	Backfill with Gravel	m ³	280.0	4,883	1,367,120	21,026	5,887,407	2,581,401	TS. 5.07
C10.4	Log Pile, Dia. 150 mm, L=3.0 m	m	460.0	758	348,485	4,854	2,232,916	35,337,644	TS. 4.14
C10.5	Wet Stone Masonry (1:4) for retention	m ³	500.0	22,458	11,228,938	48,217	24,108,707	20,905,689	TS. 4.14
C10.6	Cement Mortar Plastering	m ²	2,000.0	3,445	6,890,961	7,007	14,014,728	93,060,000	TS. 3.24
C10.7	Concrete, Type C1	m ³	470.0	79,200	37,224,000	118,800	55,836,000	58,120,310	TS. 3.24
C10.8	Concrete Block 980mm x 980mm x 400mm	nos.	320.0	45,028	14,408,822	136,598	43,711,488	75,482,830	TS. 3.24
C10.9	Reinforcing Steel Bar	kg	31,700.0	1,954	61,956,047	427	13,526,783	61,091,138	TS. 3.24
C10.10	Formwork FW1	m ²	1,560.0	4,300	6,708,327	34,861	54,382,811	31,300,927	TS. 3.24
C10.11	Formwork FW2	m ²	590.0	5,417	3,196,028	47,635	28,104,899	4,355,020	TS. 3.24
C10.12	Elastic Joint Filler, 10 mm thick	m ³	130.0	9,056	1,177,313	24,444	3,079,775	4,241,103	TS. 4.14
C10.13	Weep Hole, Dia. 50mm, including Filter Cloth	nos.	415.0	2,798	1,161,328	7,421	3,079,775	15,947,935	TS. 4.14
C10.14	Gabion Mattress	m ²	120.0	85,210	10,225,208	47,689	5,722,726	12,370,425	TS. 4.14
C10.15	Gabion Cylinder	m ³	62.0	138,840	8,608,084	60,683	3,762,340		

MFC-4

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D	C10.16	m ³	19.0	5,489	104,294	21,099	400,887	505,181	TS. 4.14
D1	Cobble Stone Filling								
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES								
D1.1	Coffering and Dewatering	L.S.	1.0	6,312,101	6,312,101	35,204,049	35,204,049	41,516,150	TS. 1.04
D7	APPROACH STEPS, TYPE PD (26 places)								
D7.1	Excavation (Common)	m ³	2,030.0	6,399	12,990,501	4,203	8,531,609	379,079,889	TS. 2.10
D7.2	Backfill with Selected Soil	m ³	110.0	2,931	322,445	3,203	352,364	674,809	TS. 2.10
D7.3	Log Pile, Dia. 150mm, L=3.0m	m	1,140.0	758	863,636	4,854	5,533,748	6,397,385	TS. 5.07
D7.4	Concrete, Type C1	m ³	96.0	79,200	7,603,200	118,800	11,404,800	19,008,000	TS. 3.24
D7.5	Concrete, Type D	m ³	350.0	72,850	25,497,500	109,275	38,246,250	63,743,750	TS. 3.24
D7.6	Reinforcing Steel Bar	kg	3,830.0	1,954	7,485,541	427	1,634,308	9,119,850	TS. 3.24
D7.7	Formwork FW1	m ²	1,470.0	4,300	6,321,308	34,861	51,245,342	57,566,649	TS. 3.24
D7.8	Crusher Run Bedding	m ³	260.0	7,270	1,890,096	47,207	12,273,870	14,163,966	TS. 4.14
D7.9	Elastic Joint Filler, 10 mm thick	m ³	92.0	9,056	833,175	24,444	2,248,839	3,082,014	TS. 3.24
D7.10	Gabion Mattress	m ³	190.0	85,210	16,189,913	47,689	9,060,983	25,250,896	TS. 4.14
D7.11	Gabion Cylinder	m ³	760.0	138,840	105,518,452	60,683	46,119,011	151,637,463	TS. 4.14
D7.12	Cobble Stone Filling	m ³	260.0	5,489	1,427,181	21,099	5,485,816	6,912,997	TS. 4.14

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E1	DRAINAGE CHANNEL AND OUTLET WORKS								
E1.1	Preparation Works for Drainage Works	L.S.	1.0	11,447,873	11,440,021	50,160,131	51,899,326	70,299,348	TS. 1.04
E1.2	Coffering and Dewatering	m ²	4,650.0	1,065	4,952,148	804	3,739,195	8,691,344	TS. 2.10
E8	DRAINAGE OUTLET SL13, BOX CULVERT								
E8.1	Excavation (Common)	m ³	930.0	6,399	20,809,382	4,203	24,102,474	44,911,855	
E8.2	Backfill with Selected Soil	m ³	85.0	2,931	5,951,313	3,203	3,908,570	9,859,883	TS. 2.10
E8.3	Crusher Run Bedding	m ³	13.0	7,270	249,162	47,207	272,281	521,443	TS. 2.10
E8.4	Wet Stone Masonry (1:4) for Retention	m ³	20.0	22,458	94,505	48,217	613,694	708,198	TS. 4.14
E8.5	Cement Mortar Plastering	m ²	74.0	3,445	449,158	7,007	964,348	1,413,506	TS. 4.14
E8.6	Concrete, Type C1	m ³	64.0	79,200	234,966	118,800	518,545	773,510	TS. 4.14
E8.7	Concrete, Type C2	m ³	18.0	75,600	302,400	113,400	760,200	12,672,000	TS. 3.24
E8.8	Concrete, Type E	m ³	3,290.0	66,800	1,202,400	100,200	453,600	756,000	TS. 3.24
E8.9	Reinforcing Steel Bar	kg	180.0	1,954	6,430,139	427	1,803,600	3,006,000	TS. 3.24
E8.10	Formwork FW1	m ²	180.0	4,300	774,038	34,861	1,403,884	7,834,022	TS. 3.24
E8.11	Formwork FW2	m ²	6.0	5,417	32,502	47,635	6,274,940	7,048,977	TS. 3.24
E9	DRAINAGE OUTLET SL14, CONNECTING WORKS								
E9.1	Excavation (Common)	m ³	20.0	6,399	11,585,376	4,203	11,769,375	23,354,701	
E9.2	Backfill with Selected Soil	m ³	140.0	2,931	127,985	3,203	84,055	212,040	TS. 2.10
E9.3	Concrete, Type C1	m ³	52.0	79,200	410,385	118,800	448,463	858,848	TS. 2.10
E9.4	Concrete, Type E	m ³	14.0	66,800	4,118,400	100,200	6,177,600	10,296,000	TS. 3.24
E9.5	Reinforcing Steel Bar	kg	2,510.0	1,954	935,200	427	1,402,800	2,338,000	TS. 3.24
E9.6	Formwork FW1	m ²	84.0	4,300	4,905,668	34,861	1,071,048	5,976,716	TS. 3.24
E9.7	Formwork FW2	m ²	21.0	5,417	361,218	47,635	2,928,305	3,289,523	TS. 3.24
E9.8	Demolition & Removal Gabion	m ³	17.0	15,318	113,757	16,419	1,000,344	1,114,101	TS. 3.24
E9.9	Demolition & Removal Stone Massart	m ³	23.0	15,318	260,403	16,419	279,123	539,526	TS. 3.24
E10	DRAINAGE OUTLET SL16, BOX CULVERT								
E10.1	Excavation (Common)	m ³	360.0	6,399	21,534,722	4,203	26,937,440	48,472,162	
E10.2	Backfill with Selected Soil	m ³	120.0	2,931	2,303,734	3,203	1,512,995	3,816,729	TS. 2.10
E10.3	Crusher Run Bedding	m ³	8.0	7,270	351,758	47,207	384,397	736,155	TS. 2.10
E10.4	Wet Stone Masonry (1:4) for Retention	m ³	8.0	22,458	58,157	48,217	377,658	435,814	TS. 4.14
E10.5	Cement Mortar Plastering	m ²	22.0	3,445	179,663	7,007	385,739	565,402	TS. 4.14
E10.6	Concrete, Type C1	m ³	83.0	79,200	75,801	118,800	154,162	229,963	TS. 4.14
E10.7	Concrete, Type E	m ³	21.0	66,800	6,573,600	100,200	9,860,400	16,434,000	TS. 3.24
E10.8	Reinforcing Steel Bar	kg	4,790.0	1,954	1,402,800	427	2,104,200	3,507,000	TS. 3.24
					9,361,813		2,043,952	11,405,763	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	P.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E10.9	Formwork FW1	m ²	230.0	4,300	989,048	34,861	8,017,979	9,007,027	TS. 3.24
E10.10	Formwork FW2	m ²	44.0	5,417	238,348	47,635	2,095,959	2,334,306	TS. 3.24
E11	DRAINAGE OUTLET SR10, BOX CULVERT							115,881,949	
E11.1	Excavation (Common)	m ³	1,060.0	7,279	7,715,939	4,740	63,382,447	12,740,466	TS. 2.10
E11.2	Backfill with Selected Soil	m ³	220.0	2,931	644,890	3,203	704,728	1,349,618	TS. 2.10
E11.3	Crusher Run Bedding	m ³	14.0	7,270	101,774	47,207	660,901	762,675	TS. 4.14
E11.4	Wet Stone Masonry (1:4) for Retement	m ³	17.0	22,458	381,784	48,217	819,696	1,201,480	TS. 4.14
E11.5	Cement Mortar Plastering	m ²	38.0	3,445	130,928	7,007	266,280	397,208	TS. 4.14
E11.6	Concrete, Type C1	m ³	180.0	79,200	14,256,000	118,800	21,384,000	35,640,000	TS. 3.24
E11.7	Concrete, Type C2	m ³	1.0	75,600	75,600	113,400	113,400	189,000	TS. 3.24
E11.8	Concrete, Type E	m ³	180.0	66,800	12,024,000	100,200	18,036,000	30,060,000	TS. 3.24
E11.9	Reinforcing Steel Bar	kg	7,980.0	1,954	15,596,507	427	3,403,165	19,001,671	TS. 3.24
E11.10	Formwork FW1	m ²	290.0	4,300	1,247,061	34,861	10,109,625	11,356,686	TS. 3.24
E11.11	Formwork FW2	m ²	60.0	5,417	325,020	47,635	2,838,125	3,163,145	TS. 3.24
E14	DRAINAGE OUTLET, PIPE CULVERT D=600 x 1 (6 places)							48,077,258	
E14.1	Excavation (Common)	m ³	690.0	6,399	20,041,706	4,203	28,035,552	7,315,397	TS. 2.10
E14.2	Backfill with Selected Soil	m ³	660.0	2,931	1,934,670	3,203	2,114,184	4,048,854	TS. 2.10
E14.3	Concrete, Type C1	m ³	79.0	79,200	6,256,800	118,800	9,385,200	15,642,000	TS. 3.24
E14.4	Concrete, Type E	m ³	16.0	66,800	1,068,800	100,200	1,603,200	2,672,000	TS. 3.24
E14.5	Reinforcing Steel Bar	kg	1,490.0	1,954	2,912,130	427	635,801	3,547,931	TS. 3.24
E14.6	Formwork FW1	m ²	210.0	4,300	903,044	34,861	7,320,763	8,223,807	TS. 3.24
E14.7	Formwork FW2	m ²	3.0	5,417	16,251	47,635	142,906	159,157	TS. 3.24
E14.8	RC, Pipe D=600mm	m	51.0	49,696	2,534,520	77,129	3,933,591	6,468,112	TS. 12.10
E15	DRAINAGE OUTLET, PIPE CULVERT D=800 x 1 (4 places)							32,034,905	
E15.1	Excavation (Common)	m ³	680.0	6,399	21,530,628	4,203	30,504,277	7,209,377	TS. 2.10
E15.2	Backfill with Selected Soil	m ³	640.0	2,931	1,876,044	3,203	2,050,117	3,926,161	TS. 2.10
E15.3	Concrete, Type C1	m ³	90.0	79,200	7,128,000	118,800	10,692,000	17,820,000	TS. 3.24
E15.4	Concrete, Type E	m ³	16.0	66,800	1,068,800	100,200	1,603,200	2,672,000	TS. 3.24
E15.5	Reinforcing Steel Bar	kg	1,400.0	1,954	2,736,229	427	597,397	3,333,627	TS. 3.24
E15.6	Formwork FW1	m ²	210.0	4,300	903,044	34,861	7,320,763	8,223,807	TS. 3.24
E15.7	Formwork FW2	m ²	2.0	5,417	10,834	47,635	95,271	106,105	TS. 3.24
E15.8	RC Pipe D=800mm	m	40.0	86,404	3,456,179	132,191	5,287,650	8,743,829	TS. 12.10
E16	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 1 (2 places)							31,957,789	
E16.1	Excavation (Common)	m ³	520.0	6,399	15,068,134	4,203	20,889,653	5,513,053	TS. 2.10

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	P.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E16.2	Backfill with Selected Soil	m ³	480.0	2,931	1,407,033	3,203	1,537,588	2,944,621	TS. 2.10
E16.3	Concrete, Type C1	m ³	64.0	79,200	5,068,800	118,800	7,603,200	12,672,000	TS. 3.24
E16.4	Concrete, Type E	m ³	9.0	66,800	601,200	100,200	901,800	1,503,000	TS. 3.24
E16.5	Reinforcing Steel Bar	kg	810.0	1,954	1,583,104	427	345,637	1,928,741	TS. 3.24
E16.6	Formwork FW1	m ²	120.0	4,300	516,025	34,861	4,183,293	4,699,318	TS. 3.24
E16.7	Formwork FW2	m ²	6.0	5,417	32,502	47,635	285,813	318,315	TS. 3.24
E16.8	RC Pipe, D=1000mm	m	19.0	133,255	2,531,854	202,468	3,846,887	6,378,741	TS. 12.10
E18	DRAINAGE OUTLET, PIPE CULVERT D=1000 x 2 (1 place)				11,597,894		15,291,240	26,889,133	
E18.1	Excavation (Common)	m ³	490.0	6,399	3,135,638	4,203	2,059,354	5,194,992	TS. 2.10
E18.2	Backfill with Selected Soil	m ³	450.0	2,931	1,319,093	3,203	1,441,489	2,760,582	TS. 2.10
E18.3	Concrete, Type C1	m ³	41.0	79,200	3,247,200	118,800	4,870,800	8,118,000	TS. 3.24
E18.4	Concrete, Type E	m ³	6.0	66,800	400,800	100,200	601,200	1,002,000	TS. 3.24
E18.5	Reinforcing Steel Bar	kg	690.0	1,954	1,348,570	427	294,432	1,643,002	TS. 3.24
E18.6	Formwork FW1	m ²	85.0	4,300	365,518	34,861	2,963,166	3,328,684	TS. 3.24
E18.7	Formwork FW2	m ²	9.0	5,417	48,753	47,635	428,719	477,472	TS. 3.24
E18.8	RC Pipe, D=1000mm	m	13.0	133,255	1,732,321	202,468	2,632,081	4,364,402	TS. 12.10
E20	DRAINAGE OUTLET, OPEN DITCH TYPE (3 places)				3,442,657		5,828,520	9,271,177	
E20.1	Excavation (Common)	m ³	68.0	6,399	435,150	4,203	285,788	720,938	TS. 2.10
E20.2	Backfill with Selected Soil	m ³	47.0	2,931	137,772	3,203	150,555	288,327	TS. 2.10
E20.3	Concrete, Type C1	m ³	11.0	79,200	871,200	118,800	1,306,800	2,178,000	TS. 3.24
E20.4	Concrete, Type E	m ³	3.0	66,800	200,400	100,200	300,600	501,000	TS. 3.24
E20.5	Reinforcing Steel Bar	kg	700.0	1,954	1,368,115	427	298,699	1,666,813	TS. 3.24
E20.6	Formwork FW1	m ²	100.0	4,300	430,021	34,861	3,486,078	3,916,099	TS. 3.24
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS				48,994,969		56,613,639	105,608,609	
E21.1	Excavation (Common)	m ³	1,670.0	6,399	10,686,767	4,203	7,018,614	17,705,381	TS. 2.10
E21.2	Crusher Run Bedding	m ³	170.0	22,458	3,817,839	48,217	8,196,960	12,014,799	TS. 4.14
E21.3	Wet Stone Masonry (1:4) for Retement	m ³	170.0	22,458	3,817,839	48,217	8,196,960	12,014,799	TS. 4.14
E21.4	Cement Mortar Plastering	m ²	660.0	3,445	2,274,017	7,007	4,624,860	6,898,877	TS. 4.14
E21.5	Concrete, Type C2	m ³	110.0	173,322	19,065,472	134,736	14,820,918	33,886,390	TS. 3.24
E21.6	Concrete, Type E	m ³	18.0	66,800	1,202,400	100,200	1,803,600	3,006,000	TS. 3.24
E21.7	Formwork FW1	m ²	300.0	4,300	1,290,063	34,861	10,458,233	11,748,296	TS. 3.24
E21.8	Reinforcing Steel Bar	kg	3,500.0	1,954	6,840,573	427	1,493,493	8,334,066	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H.	BRIDGE WORK								
H1	PREPARATION WORKS	L.S.	1.0		14,813,379		55,339,343	70,152,722	
H1-1	Coffering and Dewatering	m ²	1,160.0	13,578,005	15,780,005	54,406,554	54,406,554	67,984,559	TS. 1.04
H1-2	Clearing and Grubbing			1,065	1,235,375	804	932,789	2,168,163	TS. 2.10
H9	BINJEI BRIDGE WITH WATER PIPES (P11)								
H9-1	EARTH WORKS				1,588,937,849		936,034,091	2,524,971,940	
H9-1.1	Excavation (Common)	m ³	3,980.0	6,399	25,469,061	4,203	16,726,997	42,196,058	TS. 2.10
H9-1.2	Embankment	m ³	2,060.0	3,022	6,224,310	2,286	4,709,657	10,933,966	TS. 2.10
H9-1.3	Backfill with Selected Soil	m ³	1,590.0	2,931	4,660,797	3,203	5,093,261	9,754,057	TS. 2.10
H9-1.4	Solid Sodding	m ²	270.0	55	14,942	1,400	378,104	393,046	TS. 4.14
H9-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	3,019,671	3,019,671	2,621,621	2,621,621	5,641,292	TS. 2.10
H9-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H9-2.1	SP Pile for Test Pile, Dia. 400 mm	m	27.0	267,379	7,219,221	35,331	953,942	8,173,163	TS. 5.07
H9-2.2	Static Load Test for SP and PC Pile	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H9-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	2,810.0	267,379	751,333,744	35,331	99,280,679	850,614,423	TS. 5.07
H9-2.4	Reinforcing Steel Bar	kg	27,000.0	1,954	52,770,135	427	11,521,234	64,291,369	TS. 3.24
H9-2.5	Concrete, Type C1	m ³	110.0	79,200	8,712,000	118,800	13,068,000	21,780,000	TS. 3.24
H9-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H9-3.1	Concrete, Type C1	m ³	480.0	79,200	38,016,000	118,800	57,024,000	95,040,000	TS. 3.24
H9-3.2	Concrete, Type E	m ³	22.0	66,800	1,469,600	100,200	2,204,400	3,674,000	TS. 3.24
H9-3.3	Reinforcing Steel Bar	kg	74,300.0	1,954	145,215,593	427	31,704,730	176,920,324	TS. 3.24
H9-3.4	Formwork FW1	m ²	340.0	4,300	1,462,071	34,861	11,852,664	13,314,735	TS. 3.24
H9-3.5	Formwork FW2	m ²	410.0	5,417	2,220,968	47,635	19,530,523	21,751,491	TS. 3.24
H9-3.6	Rubble Stone Bedding	m ³	46.0	4,743	218,189	23,785	1,094,094	1,312,283	TS. 4.14
H9-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H9-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	278,498,573	278,498,573	417,747,859	417,747,859	696,246,432	TS. 8.07
H9-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	3,089,434	3,089,434	3,089,434	3,089,434	6,178,867	TS. 8.07
H9-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	12,892,880	12,892,880	12,892,880	12,892,880	25,785,760	TS. 8.07
H9-4.4	Concrete, Type B for Slab	m ³	180.0	183,172	33,331,045	152,511	27,451,911	60,782,956	TS. 3.24
H9-4.5	Reinforcing Steel Bar	kg	40,600.0	1,954	79,350,647	427	17,324,523	96,675,170	TS. 3.24
H9-4.6	Formwork FW2	m ²	190.0	5,417	1,029,229	47,635	9,050,730	10,079,959	TS. 3.24
H9-5	MISCELLANEOUS WORKS								
H9-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	38.0	28,015	1,064,587	10,680	403,849	1,470,435	TS. 6.09
H9-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos	26.0	245,424	6,381,034	398,367	10,357,544	16,738,578	TS. 8.07
H9-5.3	PVC Pipe Drain, Dia. 100 mm	m	34.0	7,499	254,952	18,707	636,039	890,991	TS. 8.07
H9-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
H9-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	35.0	79,200	2,772,000	118,800	4,158,000	6,930,000	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H9-5.6	Formwork FW1	m ²	160.0	4,300	688,034	34,861	5,577,724	6,265,758	TS. 3.24
H9-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H9-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H9-6.1	Backfill with Gravel	m ³	510.0	4,883	2,490,112	21,026	10,723,492	13,213,604	TS. 4.14
H9-6.2	Wet Stone Masonry (1:4) for Retement	m ³	310.0	22,458	6,961,941	48,217	14,947,398	21,909,339	TS. 4.14
H9-6.3	Cement Mortar Plastering	m ²	190.0	3,445	654,641	7,007	1,331,399	1,986,040	TS. 4.14
H9-6.4	Concrete, Type C1	m ³	8.0	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
H9-6.5	Concrete, Type E	m ³	1.0	66,800	66,800	100,200	100,200	167,000	TS. 3.24
H9-6.6	Reinforcing Steel Bar	kg	190.0	1,954	371,345	427	81,075	452,421	TS. 3.24
H9-6.7	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	5,482,538	TS. 3.24
H9-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	130.0	2,798	363,790	7,421	964,749	1,328,538	TS. 4.14
H9-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H9-7.1	Sub-Base Course (Class B)	m ²	300.0	6,229	1,868,737	35,576	10,672,791	12,541,548	TS. 7.09
H9-7.2	Base Course (Class A)	m ²	140.0	7,322	1,025,077	45,411	6,357,548	7,382,625	TS. 7.09
H9-7.3	Asphalt Treatment Base (A.T.B)	ton	170.0	156,585	26,619,373	388,149	65,985,341	92,604,714	TS. 7.09
H9-7.4	Bituminous Prime Coat	liter	1,720.0	769	1,323,207	1,114	1,915,595	3,238,802	TS. 7.09
H9-7.5	Bituminous Surface Course, 50 mm thick	ton	170.0	59,631	10,137,285	90,888	15,450,875	25,588,161	TS. 7.09
H9-8	PIPE WORKS								
H9-8.1	Supply and Installation of Water Pipe, Dia. 400 mm, including Air Valve, Joints and Pipe Supports	L.S.	1.0	43,269,120	43,269,120	8,699,724	8,699,724	51,968,844	TS. 11.06
H9-8.2	Supply and Installation of Water Pipe, Dia. 150 mm, including Joints and Pipe Supports	L.S.	1.0	18,172,295	18,172,295	4,037,469	4,037,469	22,209,763	TS. 11.06
H10	AMPLAS BRIDGE WITH WATER PIPES AND CABLE PIPES (P13)				1,587,241,769		956,412,949	2,543,654,719	
H10-1	EARTH WORKS								
H10-1.1	Excavation (Common)	m ³	1,810.0	6,399	11,582,664	4,203	7,607,001	19,189,665	TS. 2.10
H10-1.2	Embankment	m ³	930.0	3,022	2,810,004	2,286	2,126,204	4,936,208	TS. 2.10
H10-1.3	Backfill with Selected Soil	m ³	720.0	2,931	2,110,550	3,203	2,306,382	4,416,932	TS. 2.10
H10-1.4	Solid Sodding	m ²	300.0	55	16,602	1,400	420,115	436,718	TS. 4.14
H10-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	3,963,318	3,963,318	3,440,877	3,440,877	7,404,196	TS. 2.10
H10-2	PILE FOUNDATION WORKS ABUTMENT								
H10-2.1	SP Pile for Test Pile, Dia. 400 mm	m	25.0	267,379	6,684,464	35,331	883,280	7,567,744	TS. 5.07
H10-2.2	Static Load Test for SP and PC Pile	nos.	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H10-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	2,600.0	267,379	695,184,248	35,331	91,861,126	787,045,374	TS. 5.07
H10-2.4	Reinforcing Steel Bar	kg	28,600.0	1,954	55,897,254	427	12,203,974	68,101,228	TS. 3.24
H10-2.5	Concrete, Type C1	m ³	110.0	79,200	8,712,000	118,800	13,068,000	21,780,000	TS. 3.24
H10-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H10-3.1	Concrete, Type C1	m ³	500.0	79,200	39,600,000	118,800	59,400,000	99,000,000	TS. 3.24
H10-3.2	Concrete, Type E	m ³	23.0	66,800	1,536,400	100,200	2,304,600	3,841,000	TS. 3.24
H10-3.3	Reinforcing Steel Bar	kg	77,700.0	1,954	151,860,721	427	33,155,553	185,016,274	TS. 3.24
H10-3.4	Formwork FW1	m ²	350.0	4,300	1,505,073	34,861	12,201,272	13,706,345	TS. 3.24
H10-3.5	Formwork FW2	m ²	429.0	5,417	2,323,891	47,635	20,435,596	22,759,487	TS. 3.24
H10-3.6	Rubble Stone Bedding	m ³	48.0	4,743	227,676	23,785	1,141,663	1,369,339	TS. 4.14
H10-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H10-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	278,498,573	278,498,573	417,747,859	417,747,859	696,246,432	TS. 8.07
H10-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	3,089,434	3,089,434	3,089,434	3,089,434	6,178,867	TS. 8.07
H10-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	12,892,880	12,892,880	12,892,880	12,892,880	25,785,760	TS. 8.07
H10-4.4	Concrete, Type B for Slab	m ³	190.0	185,172	35,182,770	152,511	28,977,018	64,159,787	TS. 3.24
H10-4.5	Reinforcing Steel Bar	kg	38,500.0	1,954	75,246,303	427	16,428,427	91,674,730	TS. 3.24
H10-4.6	Formwork FW2	m ²	190.0	5,417	1,029,229	47,635	9,050,730	10,079,959	TS. 3.24
H10-5	MISCELLANEOUS WORKS								
H10-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	38.0	28,015	1,064,587	10,680	405,849	1,470,435	TS. 6.09
H10-5.2	Elastomeric Bearing Pad for Abutment, 480mm x 300mm x 67 mm	nos.	26.0	245,424	6,381,034	398,367	10,357,544	16,738,578	TS. 8.07
H10-5.3	PVC Pipe Drain, Dia. 100 mm	m	34.0	7,499	254,952	18,707	636,039	890,991	TS. 8.07
H10-5.4	Handrail, Galvanized Steel Pipe	kg	2,070.0	3,376	6,988,167	454	939,186	7,927,352	TS. 6.09
H10-5.5	Concrete, Type C1 for Handrail Post, Qurb and Footpass	m ³	36.0	79,200	2,851,200	118,800	4,276,800	7,128,000	TS. 3.24
H10-5.6	Formwork FW1	m ²	160.0	4,300	688,034	34,861	5,577,724	6,265,758	TS. 3.24
H10-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H10-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H10-6.1	Backfill with Gravel	m ³	720.0	4,883	3,515,452	21,026	15,139,047	18,654,499	TS. 4.14
H10-6.2	Wet Stone Masonry (1:4) for Retement	m ³	310.0	22,458	6,961,941	48,217	14,947,398	21,909,339	TS. 4.14
H10-6.3	Cement Mortar Plastering	m ²	190.0	3,445	654,641	7,007	1,331,399	1,986,040	TS. 4.14
H10-6.4	Concrete, Type C1	m ³	8.0	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
H10-6.5	Concrete, Type E	m ³	1.0	66,800	66,800	100,200	100,200	167,000	TS. 3.24
H10-6.6	Reinforcing Steel Bar	kg	1,030.0	1,954	2,013,083	427	439,514	2,452,597	TS. 3.24
H10-6.7	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	5,482,538	TS. 3.24
H10-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	150.0	2,798	419,757	7,421	1,113,172	1,532,929	TS. 4.14
H10-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H10-7.1	Sub-Base Course (Class B)	m ³	290.0	6,229	1,806,465	35,576	10,317,031	12,123,496	TS. 7.09
H10-7.2	Base Course, (Class A)	m ³	140.0	7,322	1,025,077	45,411	6,357,548	7,382,625	TS. 7.09
H10-7.3	Asphalt Treatment Base (A.T.B)	ton	210.0	156,585	32,882,755	388,149	81,511,304	114,394,058	TS. 7.09
H10-7.4	Bituminous Prime Coat	liter	1,820.0	769	1,400,137	1,114	2,026,967	3,427,105	TS. 7.09
H10-7.5	Bituminous Surface Course, 50 mm thick	ton	210.0	59,631	12,522,529	90,888	19,086,375	31,608,904	TS. 7.09
H10-8	PIPE WORKS								

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H10-8.1	Supply and Installation of Water Pipe, Dia 300 mm, including Air Valve, Joint and Pipe Support	L.S.	1.0	33,914,304	33,914,304	5,807,351	5,807,351	39,721,654	TS.11.06
H10-8.2	Supply and Installation of Water Pipe, Dia 150 mm, including, Joint and Pipe Support	L.S.	1.0	18,172,295	18,172,295	4,037,469	4,037,469	22,209,765	TS.11.06
H10-8.3	Supply and Installation of Water Pipe, Dia 125 mm, including, Joint and Pipe Support	L.S.	1.0	62,457,285	62,457,285	13,892,191	13,892,191	76,349,476	TS.11.06
H11	WATER PIPE BRIDGE (WB1)				245,783,655		243,863,267	489,651,922	
H11-1	ABUTMENT, PIER AND CONNECTING CHANNEL WORKS								
H11-1.1	Excavation (Common)	m ³	860.0	6,399	5,503,365	4,203	3,614,376	9,117,741	TS. 2.10
H11-1.2	Backfill with Gravel	m ³	5.0	4,883	24,413	21,026	105,132	129,545	TS. 4.14
H11-1.3	Backfill with Selected Soil	m ³	350.0	2,931	1,025,962	3,203	1,121,158	2,147,120	TS. 2.10
H11-1.4	Supply and Driving of PC Piles, Dia. 400 mm Type AB	m	384.0	33,221	12,756,673	64,532	24,780,409	37,537,082	TS. 5.07
H11-1.5	Concrete, Type C1	m ³	26.0	79,200	2,059,200	118,800	3,088,800	5,148,000	TS. 3.24
H11-1.6	Concrete, Type E	m ³	2.0	66,800	133,600	100,200	200,400	334,000	TS. 3.24
H11-1.7	Reinforcing Steel Bar	kg	5,790.0	1,954	11,316,262	427	2,470,665	13,786,927	TS. 3.24
H11-1.8	Formwork FW1	m ²	65.0	4,300	279,514	34,861	2,265,950	2,545,464	TS. 3.24
H11-2	METAL WORKS								
H11-2.1	Supply and Installation of Water Pipe, Dia.600 mm, including Air Valve, Joint and Pipe Support	L.S.	1.0	121,870,548	121,870,548	17,824,982	17,824,982	139,695,530	TS.11.06
H11-2.2	Steel Truss Girder	L.S.	1.0	90,814,118	90,814,118	188,396,394	188,396,394	279,210,513	TS. 8.07
I	OTHER WORK								
I5	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF UPPER PERCUT RIVER				307,352,684		349,448,314	856,800,998	
I5.1	WALKWAY ON FLOOD CHANNEL								
I5.2	Gravel Pavement, 200 mm thick	m ²	330.0	5,360	1,768,731	27,751	9,157,952	10,926,683	TS. 7.09
I5.3	Solid Sodding	m ²	2,750.0	55	152,190	1,400	3,851,058	4,003,248	TS. 4.14
I5.4	Boulder Pitching (300mm - 500mm)	m ²	2,750.0	4,209	11,573,463	22,782	62,650,655	74,224,118	TS.12.10
I5.5	PLANTING ALONGSIDE INSPECTION ROAD								
I5.6	Clearing and Grubbing	m ²	52,700.0	1,065	56,124,348	804	42,377,547	98,501,894	TS.12.10
I5.7	Palern Hijau	tree	330.0	1,434	473,299	21,777	7,186,273	7,659,573	TS.12.10
I5.8	Filiusium	tree	330.0	1,434	473,299	16,343	5,393,136	5,866,435	TS.12.10
I5.9	Acasia Pelandra	tree	330.0	1,434	473,299	12,117	3,998,473	4,471,773	TS.12.10
I5.10	Tanjung	tree	330.0	1,434	473,299	16,343	5,393,136	5,866,435	TS.12.10
I5.11	DRINAGE SIDE DITCH								
I5.12	Excavation (Common)	m ³	8,300.0	6,399	53,113,872	4,203	34,882,933	87,996,805	TS. 2.10
I5.13	Backfill with Gravel	m ³	1,710.0	4,883	8,349,199	21,026	35,955,237	44,304,436	TS. 2.10

MFC-4

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL (RP.)	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
15.11	Wet Stone Masonry (1:4) for Revetment	m ³	3,160.0	22,438	70,966,886	48,217	152,367,025	223,333,911	TS. 4.14
15.12	Cement Mortar Plastering	m ²	19,800.0	3,445	68,220,514	7,007	138,743,807	206,966,321	TS. 4.14
15.13	Sand Bedding	m ²	860.0	1,065	915,881	804	691,550	1,607,431	TS. 4.14
	DRAINAGE OUTLET								
15.14	Excavation (Common)	m ³	470.0	6,399	3,007,653	4,203	1,975,299	4,982,952	TS. 2.10
15.15	Crusher Run Bedding	m ³	34.0	7,270	247,166	47,207	1,603,045	1,852,211	TS. 4.14
15.16	Concrete, Type-C2	m ³	95.0	75,600	7,182,000	113,400	10,773,000	17,955,000	TS. 3.24
15.17	Formwork FW1	m ²	510.0	4,300	2,193,107	34,861	17,778,996	19,972,103	TS. 3.24
15.18	Reinforcing Steel Bar	kg	8,140.0	1,954	15,909,218	427	3,473,439	19,382,657	TS. 3.24
15.19	Wet Stone Masonry (1:3) for Revetment	m ³	180.0	25,600	4,608,002	52,811	9,503,994	14,113,996	TS. 4.14
15.20	Cement Mortar Plastering	m ²	140.0	3,445	482,367	7,007	981,031	1,463,398	TS. 4.14
15.21	Backfill with Selected Soil	m ³	220.0	2,931	644,890	3,203	704,728	1,349,618	TS. 2.10

APPENDIX 5

CONSTRUCTION COST OF MFC-5

SUMMARY OF MFC - 5

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
A	GENERAL	593,000,000	808,000,000	1,401,000,000
B	CHANNEL AND DIKE WORKS			
B1	PREPARATION WORKS	166,000,000	126,000,000	292,000,000
B2	CHANNEL EXCAVATION	3,870,000,000	2,392,000,000	6,262,000,000
B3	EARTH DIKE WORKS	54,000,000	45,000,000	99,000,000
	SUB-TOTAL OF B.	4,090,000,000	2,563,000,000	6,653,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS			
C1	PREPARATION WORKS	2,000,000	5,000,000	7,000,000
C2	SODDING AND DIKE	24,000,000	58,000,000	82,000,000
C3	REVTMENT - WET STONE MASONRY TYPE	2,311,000,000	4,771,000,000	7,082,000,000
C12	CHANNEL BED LINING FOR FLOODWAY	182,000,000	384,000,000	566,000,000
	SUB-TOTAL OF C.	2,519,000,000	5,218,000,000	7,737,000,000
D	RIPARIAN STRUCTURES			
D1	PREPARATION WORKS FOR RIPARIAN STRUCTURES	1,000,000	4,000,000	5,000,000
D3	GROUND SILL	4,000,000	7,000,000	11,000,000
D8	MAINTENANCE STEPS (3 places)	5,000,000	10,000,000	15,000,000
	SUB-TOTAL OF D.	10,000,000	21,000,000	31,000,000
E	DRAINAGE CHANNEL AND OUTLET WORKS			
E1	PREPARATION WORKS FOR DRAINAGE WORKS	6,000,000	9,000,000	15,000,000
E12	DRAINAGE OUTLET (SF2), FALLING WORKS	36,000,000	39,000,000	75,000,000
E15	DRAINAGE OUTLET(SL25), PIPE CULVERT D=800 x 1 (1 place)	4,000,000	6,000,000	10,000,000
E19	DRAINAGE OUTLET(SF1,SF3,SF4), PIPE CULVERT D=1000 x 1, (3 places)	15,000,000	24,000,000	39,000,000
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS	4,000,000	7,000,000	11,000,000
E23	DRAINAGE SIDE DITCH ALONG EARTH DIKE (WET MASONRY TYPE)	41,000,000	77,000,000	118,000,000
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)	303,000,000	596,000,000	899,000,000
	SUB-TOTAL OF E.	409,000,000	758,000,000	1,167,000,000

SUMMARY OF MFC - 5

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
H	BRIDGE WORKS			
H1	PREPARATION WORKS	5,000,000	5,000,000	10,000,000
H12	JALAN BAJAK BRIDGE(F1)	575,000,000	373,000,000	948,000,000
H13	JALAN PTP-IX BRIDGE(F2)	753,000,000	409,000,000	1,162,000,000
H14	WATE PIPE BRIDGE(WB2)	168,000,000	178,000,000	346,000,000
	SUB-TOTAL OF H.	1,501,000,000	965,000,000	2,466,000,000
I	OTHER WORKS			
I6	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY	2,156,000,000	1,041,000,000	3,197,000,000
TOTAL A.-I.		11,278,000,000	11,374,000,000	22,652,000,000
VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE		1,127,800,000	1,137,400,000	2,265,200,000
TENDER PRICE		12,405,800,000	12,511,400,000	24,917,200,000

MFC-5

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL				592,048,812		807,000,628	1,399,049,440	
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	48,201,716	48,201,716	33,972,590	33,972,590	82,124,305	GS 6.03
A2	ESTABLISHMENT	L.S.	1.0	541,153,446	541,153,446	712,612,594	712,612,594	1,253,766,040	GS 7.05
A3	RELOCATION OF EXISTING FACILITIES	P.S.	1.0	2,693,650	2,693,650	6,565,444	6,565,444	9,259,095	GS 14.04
A4	GEOLOGICAL INVESTIGATION								
A4.1	Hand Auger	m	75.0	0	0	220,000	16,500,000	16,500,000	GS 9.06
A4.2	Mechanical Boring	m	180.0	0	0	110,000	19,800,000	19,800,000	GS 9.06
A4.3	Exploratory Excavation	m ³	320.0	0	0	55,000	17,600,000	17,600,000	GS 9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS				165,504,985		125,592,163	291,097,148	
B1.1	Coffering and Dewatering	L.S.	1.0	2,669,829	2,669,829	2,640,988	2,640,988	5,310,817	TS 1.04
B1.2	Clearing and Grubbing	m ²	152,900.0	1,065	162,835,156	804	122,951,175	285,786,331	TS 2.10
B2	CHANNEL EXCAVATION								
B2.1	Excavation (Floodway Channel)	m ³	646,300.0	5,988	3,869,786,141	3,700	2,391,036,444	6,260,822,585	TS 2.10
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m ²	4,210.0	1,317	5,546,243	1,887	44,068,198	97,354,293	TS 2.10
B3.2	Embankment	m ³	15,800.0	3,022	47,739,852	2,286	36,122,610	83,862,461	TS 2.10

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
	PREPARATION WORKS								
	Coffering and Dewatering	L.S.	1	1,005,565	1,005,565	4,630,606	4,630,606	5,636,171	TS. 1.04
	SODDING AND DIKE								
	Solid Sodding	m ²	18,400	55	1,018,286	1,400	25,767,079	26,785,365	TS. 4.14
	Sprigging	m ²	16,800	1,317	22,132,278	1,887	31,706,860	53,839,137	TS. 4.14
	REVETMENT - WET STONE MASONRY TYPE								
	Excavation (Common)	m ³	48,500	5,988	290,398,620	3,700	179,429,472	7,080,503,156	
	Backfill with Selected Soil	m ³	1,100	2,931	3,224,451	3,203	3,523,639	469,828,091	TS. 2.10
	Crusher Run Bedding	m ³	28,500	7,270	207,183,549	47,207	1,345,405,033	6,748,090	TS. 4.14
	Wet Stone Masonry (1:4) for Revetment	m ³	19,100	22,458	428,945,418	48,217	920,952,590	1,552,588,583	TS. 4.14
	Cement Mortar Plastering	m ²	76,300	3,445	262,890,162	7,007	534,661,873	1,349,898,007	TS. 4.14
	Concrete, Type C1	m ³	4,000	79,200	316,800,000	118,800	475,200,000	797,552,035	TS. 4.14
	Reinforcing Steel Bar	kg	247,500	1,954	483,726,236	427	105,611,316	792,000,000	TS. 3.24
	Formwork FW1	m ²	25,500	4,300	109,655,339	34,861	888,949,802	589,337,552	TS. 3.24
	Weep Hole, Dia. 50 mm	nos	14,200	2,798	39,737,014	7,421	105,380,246	998,605,141	TS. 3.24
	Elastic Joint Filler, 10 mm thick	m ²	5,960	9,056	53,975,250	24,444	145,685,677	145,117,259	TS. 4.14
	Gabion Mattress	m ²	1,160	85,210	98,843,682	47,689	55,319,686	199,660,927	TS. 3.24
	Gabion Cylinder	m ²	100	138,840	13,884,007	60,683	6,068,291	154,163,367	TS. 4.14
	Cobble Stone Filling	m ³	190	5,489	1,042,940	21,099	4,008,866	19,952,298	TS. 4.14
D	CHANNEL BED LINING FOR FLOODWAY								
	Excavation (Common)	m ³	4,900	5,988	29,339,242	3,700	18,127,926	501,805	TS. 4.14
	Crusher Run Bedding	m ³	3,430	7,270	24,934,722	47,207	161,920,676	364,807,656	TS. 2.10
	Concrete, Type C2	m ³	1,550	75,600	117,180,000	113,400	175,770,000	47,467,168	TS. 4.14
	Elastic Joint Filler, 10 mm thick	m ²	370	9,056	3,350,813	24,444	9,044,245	186,855,398	TS. 4.14
	Weep Hole, Dia. 50mm	nos	2,460	2,798	6,884,018	7,421	18,256,014	292,950,000	TS. 3.24
	RIPRAP STRUCTURES								
	PREPARATION WORKS FOR RIPRAP STRUCTURES								
	Coffering and Dewatering	L.S.	1	850,838	850,838	3,278,821	3,278,821	4,129,658	TS. 1.04
	GROUND SILL								
	Excavation (Common)	m ³	65	5,988	399,194	3,700	240,472	9,780,554	TS. 2.10
	Backfill with Selected Soil	m ³	30	2,931	87,940	3,203	96,099	629,667	TS. 2.10
	Log Piles, Dia. 150 mm, L=4.0m	m	190	758	143,939	4,854	922,291	184,039	TS. 2.10
	Concrete, Type D	m ³	28	79,200	2,217,600	118,800	3,326,400	1,066,231	TS. 5.07
	Concrete, Type E	m ³	5	66,800	334,000	100,200	501,000	5,544,000	TS. 3.24
	Formwork FW1	m ²	38	4,300	163,408	34,861	1,324,710	835,000	TS. 3.24
								1,488,117	TS. 3.24

MFC - 5

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D3.7	Elastic Joint Filler, 10 mm thick	m ³	1	9,056	9,056	24,444	24,444	33,500	TS. 3.24
D8	MAINTENANCE STEPS, (3 places)								
D8.1	Excavation (Common)	m ³	78	5,988	4,694,609	3,700	9,551,386	13,645,995	TS. 2.10
D8.2	Backfill with Selected Soil	m ³	18	2,931	52,764	3,203	288,567	755,600	TS. 2.10
D8.3	Concrete, Type C2	m ³	37	79,200	2,930,400	118,800	57,660	110,423	TS. 3.24
D8.4	Formwork FW1	m ²	100	4,300	430,021	34,861	4,395,600	7,326,000	TS. 3.24
D8.5	Crusher Run Bedding	m ³	27	7,270	196,279	47,207	3,486,078	3,916,099	TS. 3.24
D8.6	Elastic Joint Filler, 10 mm thick	m ³	2	9,056	18,113	24,444	1,274,594	1,470,873	TS. 4.14
							48,888	67,000	TS. 3.24

MFC-5

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E1	DRAINAGE CHANNEL AND OUTLET WORKS PREPARATION WORKS FOR DRAINAGE WORKS Coffering and Dewatering Clearing and Grubbing	L.S.	1	2,165,693	5,328,678	8,494,259	14,173,937		
		m ²	2,970	1,065	3,162,985	6,456,999	8,622,692	TS. 1.04	
E12	DRAINAGE OUTLET (SF2), FALLING WORKS Excavation (Common) Backfill with Selected Soil Concrete, Type C1 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2	m ³	640	5,988	3,832,064	3,700	2,367,729	6,199,793	TS. 2.10
		m ³	320	2,931	938,022	3,203	1,025,059	1,963,081	TS. 2.10
		m ³	160	79,200	12,672,000	118,800	19,008,000	31,680,000	TS. 3.24
		m ³	15	66,800	1,002,000	100,200	1,503,000	2,505,000	TS. 3.24
		kg	7,870	1,954	15,381,517	427	3,358,226	18,739,744	TS. 3.24
		m ²	270	4,300	1,161,057	34,861	9,412,410	10,573,466	TS. 3.24
		m ²	30	5,417	162,510	47,635	1,429,063	1,591,573	TS. 3.24
					3,235,858	5,004,140	8,239,997		
E15	DRAINAGE OUTLET(SL25), PIPE CUL VERT D=800 x 1 (1 place) Excavation (Common) Backfill with Selected Soil Concrete, Type C1 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2 RC Pipe, D=800mm	m ³	60	5,988	359,256	3,700	221,975	581,231	TS. 2.10
		m ³	50	2,931	146,566	3,203	160,165	306,731	TS. 2.10
		m ³	16	79,200	1,267,200	118,800	1,900,800	3,168,000	TS. 4.14
		m ³	3	66,800	200,400	100,200	300,600	501,000	TS. 3.24
		kg	250	1,954	488,612	427	106,678	595,290	TS. 3.24
		m ²	33	4,300	141,907	34,861	1,150,406	1,292,313	TS. 3.24
		m ²	5	5,417	27,085	47,635	238,177	265,262	TS. 3.24
		m	7	86,404	604,831	132,191	925,339	1,530,170	TS. 12.10
E19	DRAINAGE OUTLET(SF1,SF3,SF4), PIPE CUL VERT D=1000 x 1 (3 places) Excavation (Common) Backfill with Selected Soil Concrete, Type C1 Concrete, Type E Reinforcing Steel Bar Formwork FW1 Formwork FW2 RC Pipe, D=1000mm	m ³	390	5,988	2,335,164	3,700	1,442,835	3,777,999	TS. 2.10
		m ³	300	2,931	879,396	3,203	960,993	1,840,388	TS. 2.10
		m ³	77	79,200	6,098,400	118,800	9,147,600	15,246,000	TS. 3.24
		m ³	11	66,800	734,800	100,200	1,102,200	1,837,000	TS. 3.24
		kg	230	1,954	449,523	427	98,144	547,667	TS. 3.24
		m ²	170	4,300	731,036	34,861	5,926,332	6,657,368	TS. 3.24
		m ²	7	5,417	37,919	47,635	333,448	371,367	TS. 3.24
		m	21	133,255	2,798,365	202,468	4,251,823	7,050,188	TS. 12.10
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS Excavation (Common) Backfill with Gravel Wet Stone Masonry (1:4) for Retement	m ³	160	5,988	958,016	3,700	6,866,738	10,586,412	
		m ³	20	4,883	97,651	21,026	591,932	1,549,948	TS. 2.10
		m ³	20	22,458	449,158	48,217	420,529	518,181	TS. 2.10
							964,348	1,413,506	TS. 4.14

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E21.4	Cement Mortar Plastering	m ²	80	3,445	275,638	7,007	560,589	836,228	TS. 4.14
E21.5	Concrete, Type C2	m ³	20	72,850	1,457,000	109,275	2,185,500	3,642,500	TS. 3.24
E21.6	Concrete, Type E	m ³	4	66,800	267,200	100,200	400,800	668,000	TS. 3.24
E21.7	Formwork FW1	m ²	50	4,300	215,010	34,861	1,743,039	1,958,049	TS. 3.24
E23	DRAINAGE SIDE DITCH (WET MASONRY TYPE)				40,014,051		76,600,958	117,515,009	
E23.1	Excavation (Common)	m ³	1,560	5,988	9,340,657	3,700	5,771,340	15,111,996	TS. 2.10
E23.2	Sand Bedding	m ³	150	3,569	535,344	18,192	2,728,790	3,264,074	TS. 4.14
E23.3	Backfill with Selected Soil	m ³	690	4,883	3,368,975	21,026	14,508,253	17,877,229	TS. 4.14
E23.4	Wet Stone Masonry (1:4) for Revetment	m ³	520	22,458	11,678,095	48,217	25,073,055	36,751,150	TS. 4.14
E23.5	Cement Mortar Plastering	m ²	2,720	3,445	9,371,707	7,007	19,060,030	28,431,737	TS. 4.14
E23.6	Crusher Run Bedding	m ³	10	7,270	72,696	47,207	472,072	544,768	TS. 4.14
E23.7	Concrete, Type C2	m ³	20	75,600	1,512,000	113,400	2,268,000	3,780,000	TS. 3.24
E23.8	Reinforcing Steel Bar	kg	1,810	1,954	3,537,553	427	772,349	4,309,903	TS. 3.24
E23.9	Formwork FW1	m ²	110	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24
E23.10	Wet Stone Masonry (1:3) for Revetment	m ³	40	25,600	1,024,001	52,811	2,112,443	3,136,444	TS. 4.14
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)				302,204,148		595,590,190	897,794,338	
E24.1	Excavation (Common)	m ³	5,990	5,988	35,865,726	3,700	22,160,465	58,026,191	TS. 2.10
E24.2	Backfill with Selected Soil	m ³	3,320	2,931	9,731,978	3,203	10,634,984	20,366,963	TS. 2.10
E24.3	Concrete, Type C2	m ³	1,520	75,600	114,912,000	113,400	172,368,000	287,280,000	TS. 3.24
E24.4	Reinforcing Steel Bar	kg	48,900	1,954	95,572,577	427	20,866,236	116,438,813	TS. 3.24
E24.5	Formwork FW1	m ²	10,100	4,300	43,432,115	34,861	352,093,843	395,525,958	TS. 3.24
E24.6	Crusher Run Bedding	m ³	370	7,270	2,689,751	47,207	17,466,662	20,156,413	TS. 4.14

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
HL	BRIDGE WORKS								
H1	PREPARATION WORKS								
H1-1	Coffering and Dewatering	L.S.	1	4,331,055	4,437,533		4,437,533	9,119,965	
H1-2	Cleaning and Grubbing	m ²	100	1,065	4,331,055	4,601,999	4,601,999	8,933,054	TS. 1.04
H12	JALAN BAJAK BRIDGE (F1)							186,911	TS. 2.10
H12-1	EARTH WORKS				374,414,402	804	372,517,508	948,931,911	
H12-1.1	Excavation (Common)	m ³	1,800	5,988	10,777,681	3,700	6,659,238	17,436,919	TS. 2.10
H12-1.2	Embankment	m ³	560	3,022	1,692,045	2,286	1,280,295	2,972,340	TS. 2.10
H12-1.3	Backfill with Selected Soil	m ³	720	2,931	2,110,550	3,203	2,306,382	4,416,932	TS. 2.10
H12-1.4	Solid Sodding	m ²	200	55	11,068	1,400	280,077	291,145	TS. 4.14
H12-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H12-2.1	SP Pile for Test Pile, Dia. 400 mm	m	17	267,379	4,545,435	35,331	600,630	5,146,066	TS. 5.07
H12-2.2	Static Load Test for SP and PC Pile	nos	1	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H12-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	950	267,379	254,009,629	35,331	33,564,642	287,574,271	TS. 5.07
H12-2.4	Reinforcing Steel Bar	kg	10,200	1,954	19,935,384	427	4,352,466	24,287,851	TS. 3.24
H12-2.5	Concrete, Type C1	m ³	38	79,200	3,009,600	118,800	4,514,400	7,524,000	TS. 3.24
H12-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H12-3.1	Concrete, Type C1	m ³	250	79,200	19,800,000	118,800	29,700,000	49,500,000	TS. 3.24
H12-3.2	Concrete, Type B	m ³	11	66,800	734,800	100,200	1,102,200	1,837,000	TS. 3.24
H12-3.3	Reinforcing Steel Bar	kg	38,200	1,954	74,659,969	427	16,300,413	90,960,382	TS. 3.24
H12-3.4	Formwork FW1	m ²	200	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
H12-3.5	Formwork FW2	m ²	250	5,417	1,354,249	47,635	11,908,856	13,263,105	TS. 3.24
H12-3.6	Rubble Stone Bedding	m ³	23	4,743	109,095	23,785	547,047	656,141	TS. 4.14
H12-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H12-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1	63,582,451	63,582,451	95,373,677	95,373,677	158,956,128	TS. 8.07
H12-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1	1,872,384	1,872,384	1,872,384	1,872,384	3,744,768	TS. 8.07
H12-4.3	Prestressed Concrete Panel for Slab	L.S.	1	4,388,860	4,388,860	4,388,860	4,388,860	8,777,720	TS. 8.07
H12-4.4	Concrete, Type B for Slab	m ³	53	185,172	9,814,141	152,511	8,083,063	17,897,204	TS. 3.24
H12-4.5	Reinforcing Steel Bar	kg	14,000	1,954	27,362,292	427	5,973,973	33,336,266	TS. 3.24
H12-4.6	Formwork FW2	m ²	140	5,417	758,379	47,635	6,668,959	7,427,339	TS. 3.24
H12-5	MISCELLANEOUS WORKS								
H12-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	16	28,015	448,247	10,680	170,884	619,131	TS. 6.09
H12-5.2	Elastomeric Bearing Pad for Abutment, 406mm x 280mm x 67 mm	nos.	11	210,558	2,316,136	313,558	3,449,139	5,765,275	TS. 8.07
H12-5.3	Galvanized Pipe Drain, Dia. 100 mm	m	26	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H12-5.4	Handrail, Galvanized Steel Pipe	kg	1,590	3,376	5,367,722	454	721,404	6,089,126	TS. 6.09
H12-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	25	79,200	1,980,000	118,800	2,970,000	4,950,000	TS. 3.24
H12-5.6	Formwork FW1	m ²	110	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H12-5.7	Name Plate	nos.	2	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H12-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H12-6.1	Backfill with Gravel	m ³	200	4,883	976,515	21,026	4,205,291	5,181,805	TS. 4.14
H12-6.2	Wet Stone Masonry (1:4) for Retement	m ²	140	22,458	3,144,103	48,217	6,750,438	9,894,540	TS. 4.14
H12-6.3	Cement Mortar Plastering	m ²	220	3,445	758,006	7,007	1,541,620	2,299,626	TS. 4.14
H12-6.4	Concrete, Type C1	m ³	8	79,200	633,600	118,800	950,400	1,584,000	TS. 3.24
H12-6.5	Concrete, Type E	m ³	5	66,800	334,000	100,200	501,000	835,000	TS. 3.24
H12-6.6	Reinforcing Steel Bar	kg	1,050	1,954	2,052,172	427	448,048	2,500,220	TS. 3.24
H12-6.7	Formwork FW1	m ²	120	4,300	516,025	34,861	4,183,293	4,699,318	TS. 3.24
H12-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	88	2,798	246,258	7,421	653,061	899,318	TS. 4.14
H12-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H12-7.1	Sub-Base Course (Class B)	m ²	110	6,229	685,211	35,576	3,913,357	4,598,568	TS. 7.09
H12-7.2	Base Course (Class A)	m ²	52	7,322	380,743	45,411	2,361,375	2,742,118	TS. 7.09
H12-7.3	Asphalt Treatment Base (A.T.B)	ton	76	156,585	11,900,426	388,149	29,499,329	41,399,754	TS. 7.09
H12-7.4	Bituminous Prime Coat	liter	680	59,631	40,549,141	90,888	61,803,501	102,352,642	TS. 7.09
H12-7.5	Bituminous Surface Course, 50 mm thick	ton	76	769	58,467	1,114	84,643	143,110	TS. 7.09
H13	PTP-IX BRIDGE (F2)				752,956,132		408,250,291	1,161,206,422	
H13-1	EARTH WORKS								
H13-1.1	Excavation (Common)	m ³	5,340	5,988	31,973,786	3,700	19,755,740	51,729,526	TS. 2.10
H13-1.2	Embankment	m ³	420	3,022	1,269,034	2,286	960,221	2,229,255	TS. 2.10
H13-1.3	Backfill with Selected Soil	m ³	2,130	2,931	6,243,709	3,203	6,823,047	13,066,756	TS. 2.10
H13-1.4	Solid Sodding	m ²	100	55	5,534	1,400	140,038	145,573	TS. 4.14
H13-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H13-2.1	SP Pile for Test Pile, Dia. 400 mm	m	21	267,379	5,614,950	35,331	741,955	6,356,905	TS. 5.07
H13-2.2	Static Load Test for SP and PC Pile	nos	1	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H13-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	1,340	267,379	358,287,266	35,331	47,343,811	405,631,077	TS. 5.07
H13-2.4	Reinforcing Steel Bar	kg	14,600	1,954	28,534,962	427	6,230,001	34,764,963	TS. 3.24
H13-2.5	Concrete, Type C1	m ³	55	79,200	4,356,000	118,800	6,534,000	10,890,000	TS. 3.24
H13-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H13-3.1	Concrete, Type C1	m ³	360	79,200	28,512,000	118,800	42,768,000	71,280,000	TS. 3.24
H13-3.2	Concrete, Type E	m ³	13	66,800	868,400	100,200	1,302,600	2,171,000	TS. 3.24
H13-3.3	Reinforcing Steel Bar	kg	55,300	1,954	108,081,054	427	23,597,195	131,678,249	TS. 3.24
H13-3.4	Formwork FW1	m ²	290	4,300	1,247,061	34,861	10,109,625	11,356,686	TS. 3.24
H13-3.5	Formwork FW2	m ²	350	5,417	1,895,949	47,635	16,672,398	18,568,346	TS. 3.24
H13-3.6	Rubble Stone Bedding	m ³	27	4,743	128,067	23,785	642,185	770,253	TS. 4.14
H13-4	CONCRETE WORKS FOR SUPER STRUCTURE								

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H13-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1	76,302,040	76,302,040	114,453,060	114,453,060	190,755,100	TS. 8.07
H13-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1	2,438,000	2,438,000	2,438,000	2,438,000	4,876,000	TS. 8.07
H13-4.3	Prestressed Concrete Panel for Slab	L.S.	1	5,660,760	5,660,760	5,660,760	5,660,760	11,321,520	TS. 8.07
H13-4.4	Concrete, Type B for Slab	m ³	80	185,172	14,813,798	152,511	12,200,850	27,014,647	TS. 3.24
H13-4.5	Reinforcing Steel Bar	kg	20,000	1,954	39,088,989	427	8,534,248	47,623,237	TS. 3.24
H13-4.6	Formwork FW2	m ²	140	5,417	758,379	47,635	6,668,959	7,427,339	TS. 3.24
H13-5	MISCELLANEOUS WORKS								
H13-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m ³	20	28,015	560,309	10,680	213,605	773,913	TS. 6.09
H13-5.2	Elastomeric Bearing Pad, 406mm x 280mm x 67 mm	nos.	13	210,558	2,737,252	313,558	4,076,255	6,813,506	TS. 8.07
H13-5.3	Galvanized Pipe Drain, Dia. 100 mm	m	26	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H13-5.4	Handrail, Galvanized Steel Pipe	kg	1,590	3,376	5,367,722	454	721,404	6,089,126	TS. 6.09
H13-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	25	79,200	1,980,000	118,800	2,970,000	4,950,000	TS. 3.24
H13-5.6	Formwork FW1	m ²	110	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24
H13-5.7	Name Plate	L.S.	1	5,796	5,796	79,970	79,970	85,766	TS. 8.07
H13-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H13-6.1	Backfill with Gravel	m ³	220	4,883	1,074,166	21,026	4,625,820	5,699,986	TS. 4.14
H13-6.2	Wet Stone Masonry (1:4) for Retement	m ³	98	22,458	2,200,872	48,217	4,725,306	6,926,178	TS. 4.14
H13-6.3	Cement Mortar Plastering	m ²	180	3,445	620,186	7,007	1,261,326	1,881,512	TS. 4.14
H13-6.4	Concrete, Type C1	m ³	7	79,200	554,400	118,800	831,600	1,386,000	TS. 3.24
H13-6.5	Concrete, Type B	m ³	4	66,800	267,200	100,200	400,800	668,000	TS. 3.24
H13-6.6	Reinforcing Steel Bar	kg	850	1,954	1,661,282	427	362,706	2,023,988	TS. 3.24
H13-6.7	Formwork FW1	m ²	97	4,300	417,120	34,861	3,381,495	3,798,616	TS. 3.24
H13-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos	88	2,798	246,258	7,421	653,061	899,318	TS. 4.14
H13-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H13-7.1	Sub-Base Course (Class B)	m ³	110	6,229	685,211	35,576	3,913,357	4,598,568	TS. 7.09
H13-7.2	Base Course (Class A)	m ³	53	7,322	388,065	45,411	2,406,786	2,794,851	TS. 7.09
H13-7.3	Asphalt Treatment Base (A.T.B)	ton	79	156,585	12,370,179	388,149	30,663,776	43,033,955	TS. 7.09
H13-7.4	Bituminous Prime Coat	liter	780	769	600,059	1,114	868,700	1,468,759	TS. 7.09
H13-7.5	Bituminous Surface Course, 50 mm thick	ton	75	59,631	4,472,332	90,888	6,816,563	11,288,894	TS. 7.09
H14	WATE PIPE BRIDGE (WB2)				167,278,002		177,300,420	344,578,422	
H14-1	ABUTMENT, PIER AND CONNECTING CHANNEL WORKS								
H14-1.1	Excavation (Common)	m ³	700	5,988	4,191,320	3,700	2,589,704	6,781,024	TS. 2.10
H14-1.2	Backfill with Gravel	m ³	5	4,883	24,413	21,026	105,132	129,545	TS. 4.14
H14-1.3	Backfill with Selected Soil	m ³	280	2,931	820,769	3,203	896,926	1,717,696	TS. 2.10
H14-1.4	Supply and Driving of RC Piles, 400 mm x 400 mm	m	140	43,896	6,145,372	52,966	7,415,178	13,560,549	TS. 5.07
H14-1.5	Concrete, Type C1	m ³	21	79,200	1,663,200	118,800	2,494,800	4,158,000	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H14-1.6	Concrete, Type E	m ³	2	66,800	133,600	100,200	200,400	334,000	TS. 3.24
H14-1.7	Reinforcing Steel Bar	kg	3,890	1,954	7,602,808	427	1,659,911	9,262,719	TS. 3.24
H14-1.8	Formwork FW1	m ²	37	4,300	159,108	34,861	1,289,849	1,448,956	TS. 3.24
H14-2	METAL WORKS								
H14-2.1	Supply and Installation of Water Pipe, Dia 800 mm, including Air Valve, Joint and Pipe Support	L.S.	1	77,848,262	77,848,262	18,150,983	18,150,983	95,999,245	TS. 11.06
H14-2.2	Steel Truss Girder	L.S.	1	68,689,150	68,689,150	142,497,537	142,497,537	211,186,687	TS. 8.07
16	OTHER WORKS								
	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY								
	INSPECTION ROAD								
16.1	Excavation (Common)	m ³	4,040	5,988	2,155,555,757			3,196,255,344	
16.2	Gravel Pavement, 200 mm thick	m ²	2,660	5,360	14,257,043	3,700	14,946,290	39,136,196	TS. 2.10
16.3	Maintenance marker Post	nos.	46	31,395	1,444,170	27,751	73,818,641	88,075,684	TS. 7.09
16.4	KABUPATEN ROAD (CLASS III)					52,099	2,396,545	3,840,715	TS. 12.10
16.5	Excavation (Common)	m ³	590	5,988	3,532,684	3,700	2,182,750	5,715,435	TS. 2.10
16.6	Sub-Base Course, (Class C)	m ³	280	5,903	1,652,886	32,642	9,139,688	10,792,575	TS. 7.09
16.7	Base Course, (Class B)	m ³	190	6,447	1,224,843	37,532	7,131,103	8,355,945	TS. 7.09
	Asphalt Treatment Base (A.T.B)	ton	240	156,585	37,580,291	388,149	93,155,775	130,736,067	TS. 7.09
	PLANTING ALONGSIDE INSPECTION ROAD								
16.8	Excavation (Common)	m ³	1,150	5,988	6,885,740	3,700	4,254,513	11,140,254	TS. 2.10
16.9	Sand Bedding	m ³	230	3,569	820,861	18,192	4,184,053	5,004,914	TS. 4.14
16.10	Concrete, Type D	m ³	400	72,850	29,140,000	109,275	43,710,000	72,850,000	TS. 3.24
16.11	Formwork FW1	m ²	3,910	4,300	16,813,819	34,861	136,305,636	153,119,455	TS. 3.24
16.12	Boulder Paving (200mm - 300mm)	m ³	4,600	3,675	16,906,135	21,756	100,078,388	116,984,522	TS. 4.14
16.13	Palen Hiju	tree	120	1,434	172,109	21,777	2,613,190	2,785,299	TS. 12.10
16.14	Fillistum	tree	120	1,434	172,109	16,343	1,961,140	2,133,249	TS. 12.10
16.15	Acacia Petandra	tree	120	1,434	172,109	12,117	1,453,990	1,626,099	TS. 12.10
16.16	Tanjung	tree	120	1,434	172,109	16,343	1,961,140	2,133,249	TS. 12.10
16.17	Cemara Kipes	tree	230	1,434	329,875	45,927	10,563,115	10,892,990	TS. 12.10
16.18	Cemara Lilin	tree	230	1,434	329,875	45,927	10,563,115	10,892,990	TS. 12.10
16.19	Soka	tree	230	7	1,583	427	98,283	99,866	TS. 12.10
16.20	Bougainvillea	tree	230	1,434	329,875	9,702	2,231,365	2,561,240	TS. 12.10
	FENCE								
16.21	Excavation (Common)	m ³	560	5,988	3,353,056	3,700	2,071,763	5,424,819	TS. 2.10
16.22	Backfill with Selected Soil	m ³	420	2,931	1,231,154	3,203	1,345,390	2,576,543	TS. 2.10
16.23	Crusher Run Bedding	m ³	58	7,270	421,637	47,207	2,738,017	3,159,654	TS. 4.14

MFC - 5

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
16.24	Concrete, Type D	m ³	85	72,850	6,192,250	109,275	9,288,375	15,480,625	TS. 3.24
16.25	Formwork FW1	m ²	1,110	4,300	4,773,232	34,861	38,695,462	43,468,694	TS. 3.24
16.26	Galvanized Steel Fence, H=1.20 m	m	4,600	431,186	1,983,456,405	100,829	463,811,859	2,447,268,264	TS. 6.09

MFC5-10

APPENDIX 6

CONSTRUCTION COST OF MFC-6

SUMMARY OF MFC - 6

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN		SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
		FOREIGN CURRENCY (Rp.)	INDONESIA CURRENCY (Rp.)		
A	GENERAL	778,000,000	1,018,000,000	1,796,000,000	
B	CHANNEL AND DIKE WORKS				
B1	PREPARATION WORKS	68,000,000	51,000,000	119,000,000	
B2	CHANNEL EXCAVATION	1,738,000,000	1,074,000,000	2,812,000,000	
B3	EARTH DIKE WORKS	17,000,000	15,000,000	32,000,000	
	SUB-TOTAL OF B.	1,823,000,000	1,140,000,000	2,963,000,000	
C	SLOPE AND RIVERBED PROTECTION WORKS				
C1	PREPARATION WORKS	10,000,000	58,000,000	68,000,000	
C2	SDDING AND DIKE	4,000,000	10,000,000	14,000,000	
C3	REVTMENT - WET STONE MASONRY TYPE	382,000,000	807,000,000	1,189,000,000	
C11	LEANING WALL FOR FLOODWAY(FW28+50m to FW34)	2,847,000,000	5,632,000,000	8,479,000,000	
C12	CHANNEL BED LINING FOR FLOODWAY	131,000,000	271,000,000	402,000,000	
	SUB-TOTAL OF C.	3,374,000,000	6,778,000,000	10,152,000,000	
D	RIPARIAN STRUCTURES				
D8	MAINTENANCE STEPS, (1 place)	2,000,000	5,000,000	7,000,000	
	SUB-TOTAL OF D.	2,000,000	5,000,000	7,000,000	
E	DRAINAGE CHANNEL AND OUTLET WORKS				
E1	PREPARATION WORKS FOR DRAINAGE WORKS	3,000,000	5,000,000	8,000,000	
E13	DRAINAGE OUTLET (SF5), BOX CULVERT (BATUAN RIVER)	70,000,000	86,000,000	156,000,000	
E19	DRAINAGE OUTLET(SF6), PIPE CULVERT D=1000 x 1, (1 places)	6,000,000	9,000,000	15,000,000	
E21	DRAINAGE SIDE DITCH (WET MASONRY TYPE)	24,000,000	36,000,000	60,000,000	
E23	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS	21,000,000	38,000,000	59,000,000	
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)	148,000,000	290,000,000	438,000,000	

SUMMARY OF MFC - 6

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN		SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
		FOREIGN CURRENCY (Rp.)	INDONESIA CURRENCY (Rp.)		
	SUB-TOTAL OF E.	272,000,000	464,000,000	736,000,000	
H	BRIDGE WORKS				
H1	PREPARATION WORKS	6,000,000	7,000,000	13,000,000	
H15	PIPE BRIDGE FOR IRRIGATION CHANNEL (WB3)	36,000,000	18,000,000	54,000,000	
H16	JALAN STM UJUNG BRIDGE (F3)	414,000,000	233,000,000	647,000,000	
H17	RAILWAY BRIDGE (F4)	435,000,000	376,000,000	811,000,000	
H18	WATER PIPE BRIDGE (WB4)	184,000,000	190,000,000	374,000,000	
H19	JALAN DELI TUA BRIDGE WITH WATER PIPE (F5)	1,194,000,000	677,000,000	1,871,000,000	
	SUB-TOTAL OF H.	2,269,000,000	1,501,000,000	3,770,000,000	
I	OTHER WORKS				
I6	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY	1,153,000,000	770,000,000	1,923,000,000	
I10	APPROACH ROAD FOR MAINTENANCE	30,000,000	46,000,000	76,000,000	
	SUB-TOTAL OF I.	1,183,000,000	816,000,000	1,999,000,000	
	TOTAL A - I.	9,701,000,000	11,722,000,000	21,423,000,000	
	VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE	970,100,000	1,172,200,000	2,142,300,000	
	TENDER PRICE	10,671,100,000	12,894,200,000	23,565,300,000	

MFC6-2

MFC - 6

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL				777,611,521		1,017,902,338	1,795,513,859	
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	48,201,716		33,922,590	33,922,590	82,124,305	GS.6.03
A2	ESTABLISHMENT	L.S.	1.0	726,716,155		926,814,304	926,814,304	1,653,530,459	GS.7.05
A3	RELOCATION OF EXISTING FACILITIES	L.S.	1.0	2,693,650		6,565,444	6,565,444	9,259,095	GS.14.04
A4	GEOLOGICAL INVESTIGATION								
A4.1	Hand Auger	m	60.0	0	0	220,000	13,200,000	13,200,000	GS.9.06
A4.2	Mechanical Boring	m	240.0	0	0	110,000	26,400,000	26,400,000	GS.9.06
A4.3	Exploratory Excavation	m³	200.0	0	0	55,000	11,000,000	11,000,000	GS.9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
B1.1	Clearing and Grubbing	m²	63,300.0	1,065	67,306,618	804	50,820,891	118,127,509	TS. 2.10
B2	CHANNEL EXCAVATION								
B2.1	Excavation (Floodway Channel)	m³	290,200.0	5,988	1,737,601,637	3,700	1,073,617,169	2,811,218,806	TS. 2.10
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m³	2,270.0	1,317	16,949,867	1,887	14,846,635	31,796,501	TS. 2.10
B3.2	Embankment	m³	4,620.0	3,022	2,990,492	2,286	4,284,201	7,274,693	TS. 2.10
					13,959,374		10,562,434	24,521,808	TS. 2.10

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS	L.S.	1.0	9,437,405	9,437,405	57,522,915	57,522,915	66,960,320	TS. 1.04
	Cofigering and Dewatering							66,960,320	
C2	SODDING AND DIKE	m ²	3,360.0	55	3,342,310	9,083,859	12,326,169	12,326,169	TS. 4.14
	Solid Sodding	m ²	2,320.0	1,317	3,056,362	4,705,293	7,434,928	7,434,928	TS. 4.14
	Sprigging								
C3	REVETMENT - WET STONE MASONRY TYPE	m ³	7,900.0	6,399	50,554,167	4,203	806,072,021	1,187,459,779	TS. 2.10
	Excavation (Common)	m ³	220.0	2,931	644,890	3,203	704,728	83,755,995	TS. 2.10
	Backfill with Selected Soil	m ³	4,920.0	7,270	35,766,423	47,207	232,259,395	268,025,818	TS. 4.14
	Crusher Run Bedding	m ³	3,140.0	22,458	70,517,728	48,217	151,402,677	221,920,405	TS. 4.14
	Wet Stone Masonry (1:4) for Revetment	m ³	12,700.0	3,445	43,757,602	7,007	88,993,523	132,751,125	TS. 4.14
	Cement Mortar Plastering	m ³	710.0	79,200	56,232,000	118,800	84,348,000	140,580,000	TS. 3.24
	Concrete, Type C1	kg	45,400.0	1,954	88,732,004	427	19,372,742	108,104,747	TS. 3.24
	Reinforcing Steel Bar	m ²	4,350.0	4,300	18,705,911	34,861	151,644,378	170,350,289	TS. 3.24
	Formwork FW1	nos	2,490.0	2,798	6,967,969	7,421	18,478,649	25,446,618	TS. 4.14
	Weep Hole, Dia. 50 mm	m ²	1,050.0	9,056	9,509,063	24,444	25,666,101	35,175,163	TS. 3.24
	Elastic Joint Filler, 10 mm thick								
C11	LEANING WALL FOR FLOODWAY(FW28+50m to FW34)	m ³	39,500.0	6,399	252,770,835	4,203	5,631,081,271	8,477,342,914	TS. 2.10
	Excavation (Common)	m ³	4,670.0	2,931	13,689,259	3,203	14,959,451	28,648,710	TS. 2.10
	Backfill with Selected Soil	m ³	10,300.0	4,883	50,290,499	21,026	216,572,479	266,862,977	TS. 4.14
	Rubble Stone Bedding	m ³	1,510.0	4,743	7,162,293	23,785	35,914,818	43,077,111	TS. 4.14
	Concrete, Type E	m ³	1,080.0	66,800	72,144,000	100,200	108,216,000	180,360,000	TS. 3.24
	Concrete, Type D	m ³	29,800.0	72,850	2,170,930,000	109,275	3,256,395,000	5,427,325,000	TS. 3.24
	Reinforcing Steel Bar	kg	24,600.0	1,954	48,079,456	427	10,497,125	58,576,581	TS. 3.24
	Formwork FW1	m ²	16,700.0	4,300	71,813,497	34,861	582,174,969	653,988,465	TS. 3.24
	Formwork FW2	m ²	24,400.0	5,417	132,174,701	47,635	1,162,304,301	1,294,479,002	TS. 3.24
	Elastic Joint Filler, 10 mm thick	m ²	1,420.0	9,056	12,859,875	24,444	34,710,346	47,570,221	TS. 3.24
	Weep Hole, Dia. 50 mm, including Filter Cloth	nos	4,380.0	2,798	12,256,910	7,421	32,504,611	44,761,521	TS. 4.14
	Gravel Pavement, 200 mm thick	m ³	390.0	5,360	2,090,318	27,751	10,823,034	12,913,352	TS. 7.09
C12	CHANNEL BED LINING FOR FLOODWAY	m ³	3,330.0	6,399	21,063,863	4,203	270,413,427	401,282,290	TS. 2.10
	Excavation (Common)	m ³	2,390.0	7,270	17,374,340	47,207	112,825,194	130,199,534	TS. 4.14
	Crusher Run Bedding								

MFC - 6

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C12.3	Concrete, Type C2	m ³	1,130.0	75,600	85,428,000	113,400	128,142,000	213,570,000	TS. 3.24
C12.4	Elastic Joint Filler, 10 mm thick	m ²	200.0	9,056	1,811,250	24,444	4,888,781	6,700,031	TS. 3.24
C12.5	Weep Hole, Dia. 50 mm	nos.	1,310.0	2,798	3,665,879	7,421	9,721,699	13,387,578	TS. 4.14
D	RIPARIAN STRUCTURES								
D8	MAINTENANCE STEPS, TYPE A (1 place)				1,696,426		4,076,586	5,773,012	
D8.1	Excavation (Common)	m ³	34.0	6,399	217,575	4,203	142,894	360,469	TS. 2.10
D8.2	Backfill with Selected Soil	m ³	8.0	2,931	23,451	3,203	25,626	49,077	TS. 2.10
D8.3	Concrete, Type C2	m ³	16.0	72,850	1,165,600	109,275	1,748,400	2,914,000	TS. 3.24
D8.4	Formwork FW1	m ²	45.0	4,300	193,509	34,861	1,568,735	1,762,244	TS. 3.24
D8.5	Crusher Run Bedding	m ³	12.0	7,270	87,235	47,207	566,486	653,722	TS. 4.14
D8.6	Elastic Joint Filler, 10 mm thick	m ²	1.0	9,056	9,056	24,444	24,444	33,500	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E1	DRAINAGE CHANNEL AND OUTLET WORKS								
E1.1	PREPARATION WORKS FOR DRAINAGE WORKS	L.S.	1.0		2,638,244		4,794,900	7,433,144	TS. 1.04
E1.2	Coffering and Dewatering	m ²	1,170.0	1,392,219	1,392,219	3,854,071	3,854,071	5,246,290	TS. 2.10
	Clearing and Grubbing			1,065	1,246,024	804	940,830	2,186,854	
E13	DRAINAGE OUTLET(SF5), BOX CULVERT(BATUAN RIVER)								
E13.1	Excavation (Common)	m ³	2,070.0	6,399	69,361,776	4,203	85,355,035	154,716,860	TS. 2.10
E13.2	Backfill with Selected Soil	m ³	550.0	2,931	13,246,472	3,203	8,699,719	21,946,191	TS. 2.10
E13.3	Concrete, Type C1	m ³	210.0	79,200	1,612,225	118,800	1,761,820	3,374,045	TS. 3.24
E13.4	Concrete, Type C2	m ³	140.0	75,600	10,584,000	113,400	24,948,000	41,580,000	TS. 3.24
E13.5	Concrete, Type E	m ³	120.0	66,800	8,016,000	100,200	15,876,000	26,460,000	TS. 3.24
E13.6	Reinforcing Steel Bar	kg	8,720.0	1,954	17,042,799	427	3,720,932	20,040,000	TS. 3.24
E13.7	Formwork FW1	m ²	430.0	4,300	1,849,090	34,861	14,990,134	20,763,731	TS. 3.24
E13.8	Formwork FW2	m ²	70.0	5,417	379,190	47,635	3,334,480	16,839,224	TS. 3.24
								3,713,669	TS. 3.24
E19	DRAINAGE OUTLET(SF6), PIPE CULVERT D=1000 x 1, (1 places)								
E19.1	Excavation (Common)	m ³	130.0	6,399	3,362,200	4,203	8,001,008	13,363,208	TS. 2.10
E19.2	Backfill with Selected Soil	m ³	100.0	2,931	831,904	3,203	546,359	1,378,263	TS. 2.10
E19.3	Concrete, Type C1	m ³	26.0	79,200	2,059,200	118,800	3,088,800	613,463	TS. 3.24
E19.4	Concrete, Type E	m ³	4.0	66,800	267,200	100,200	400,800	5,148,000	TS. 3.24
E19.5	Reinforcing Steel Bar	kg	370.0	1,954	723,146	427	157,884	668,000	TS. 3.24
E19.6	Formwork FW1	m ²	58.0	4,300	249,412	34,861	2,021,925	881,030	TS. 3.24
E19.7	Formwork FW2	m ²	1.0	5,417	5,417	47,635	47,635	2,271,337	TS. 3.24
E19.8	RC Pipe, D=1000mm	m	7.0	133,255	932,788	202,468	1,417,274	53,052	TS. 3.24
								2,350,063	TS. 12.10
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS								
E21.1	Excavation (Common)	m ³	1,000.0	6,399	23,720,077	4,203	35,898,427	59,618,504	TS. 2.10
E21.2	Crusher Run Bedding	m ³	95.0	7,270	6,399,262	47,207	4,202,763	10,602,025	TS. 4.14
E21.3	Wet Stone Masonry (1:4) for Revetment	m ³	95.0	22,458	690,612	48,217	4,484,683	5,175,295	TS. 4.14
E21.4	Cement Mortar Plastering	m ²	370.0	3,445	2,133,498	7,007	4,580,654	6,714,152	TS. 4.14
E21.5	Concrete, Type C2	m ³	92.0	75,600	1,274,828	113,400	2,592,725	3,867,552	TS. 4.14
E21.6	Concrete, Type E	m ³	13.0	66,800	6,955,200	100,200	10,432,800	17,388,000	TS. 3.24
E21.7	Formwork FW1	m ²	210.0	4,300	868,400	34,861	1,302,600	2,171,000	TS. 3.24
E21.8	Reinforcing Steel Bar	kg	2,300.0	1,954	903,044	427	7,320,763	8,223,807	TS. 3.24
								5,476,672	TS. 3.24
E23	DRAINAGE SIDE DITCH (WET MASONRY TYPE)								
E23.1	Excavation (Common)	m ³	760.0	6,399	20,274,320	4,203	37,628,441	57,902,961	TS. 2.10
								8,057,539	TS. 2.10

MFC - 6

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E23.2	Backfill with Gravel	m ³	330.0	4,883	1,611,249	21,026	6,938,730	8,549,979	TS. 4.14
E23.3	Wet Stone Masonry (1:4) for Revetment	m ³	250.0	22,458	5,614,469	48,217	12,054,353	17,668,822	TS. 4.14
E23.4	Cement Mortar Plastering	m ²	1,320.0	3,445	4,548,034	7,007	9,249,720	13,797,755	TS. 4.14
E23.5	Sand Bedding	m ³	73.0	3,569	260,534	18,192	1,327,982	1,588,516	TS. 4.14
E23.6	Crusher Run Bedding	m ³	4.0	7,270	29,078	47,207	188,829	217,907	TS. 4.14
E23.7	Concrete, Type C2	m ³	11.0	75,600	831,600	113,400	1,247,400	2,079,000	TS. 3.24
E23.8	Reinforcing Steel Bar	kg	900.0	1,954	1,759,004	427	384,041	2,143,046	TS. 3.24
E23.9	Formwork FW1	m ²	57.0	4,300	245,112	34,861	1,987,064	2,232,176	TS. 3.24
E23.10	Wet Stone Masonry (1:3) for Revetment	m ³	20.0	25,600	512,000	52,811	1,056,222	1,568,222	TS. 4.14
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)				147,208,289		289,904,131	437,112,420	
E24.1	Excavation (Common)	m ³	2,900.0	6,399	18,557,859	4,203	12,188,013	30,745,872	TS. 2.10
E24.2	Backfill with Selected Soil	m ³	1,610.0	2,931	4,719,423	3,203	5,157,327	9,876,750	TS. 4.14
E24.3	Concrete, Type C2	m ³	730.0	75,600	55,188,000	113,400	82,782,000	137,970,000	TS. 3.24
E24.4	Reinforcing Steel Bar	kg	23,700.0	1,954	46,320,452	427	10,113,084	56,433,535	TS. 3.24
E24.5	Formwork FW1	m ²	4,910.0	4,300	21,114,028	34,861	171,166,413	192,280,441	TS. 3.24
E24.6	Crusher Run Bedding	m ³	180.0	7,270	1,308,528	47,207	8,497,295	9,805,823	TS. 4.14

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H1	BRIDGE WORK								
H1-1	PREPARATION WORKS	L.S.	1	5,684,509	5,801,657	6,040,124	6,128,578	11,930,235	TS. 1.04
H1-2	Coffering and Dewatering	m ²	110	1,065	5,684,509	804	6,040,124	11,724,633	TS. 2.10
H1-5	Clearing and Grubbing				117,148		88,454	205,602	
H1-5-1	PIPE BRIDGE FOR IRRIGATION CHANNEL (WB3)				35,615,475		17,941,275	53,556,750	
H1-5-1.1	Abutment, Pier and Connecting Channel Works								
H1-5-1.2	Excavation (Common)	m ³	143	6,399	915,094	4,203	600,995	1,516,090	TS. 2.10
H1-5-1.3	Backfill with Gravel	m ³	2	4,883	9,765	21,026	42,053	51,818	TS. 4.14
H1-5-1.4	Backfill with Selected Soil	m ³	143	2,931	419,179	3,203	458,073	877,252	TS. 2.10
H1-5-1.5	Supply and Driving of PC Piles, Dia. 300 mm, Type AB	m	48	21,313	1,023,039	39,546	1,898,194	2,921,233	TS. 5.07
H1-5-1.6	Log Pile, Dia. 150mm, L=4.0m	m	48	758	36,364	4,854	233,000	269,364	TS. 5.07
H1-5-1.7	Concrete, Type C1	m ³	17	79,200	1,346,400	118,800	2,019,600	3,366,000	TS. 3.24
H1-5-1.8	Concrete, Type E	m ³	50	66,800	3,340,000	100,200	5,010,000	8,350,000	TS. 3.24
H1-5-1.9	Sand Bedding	m ³	3	3,569	10,707	18,192	54,575	65,281	TS. 4.14
H1-5-1.10	Reinforcing Steel Bar	kg	1680	1,954	3,283,475	427	716,877	4,000,352	TS. 3.24
H1-5-1.11	Formwork FW1	m ²	47	4,300	202,110	34,861	1,638,456	1,840,566	TS. 3.24
H1-5-2	Formwork FW2	m ²	12	5,417	65,004	47,635	571,625	636,629	TS. 3.24
H1-5-2.1	PIPE WORKS								
H1-5-2.1	Supply and Installation of Water Pipe, Dia. 300 mm, including Joint and Pipe Support	L.S.	1	24,964,338	24,964,338	4,697,827	4,697,827	29,662,165	TS. 11.06
H16	JALAN STM UJUNG BRIDGE (F3)								
H16-1	EARTH WORKS				413,001,987		232,814,842	645,820,828	
H16-1.1	Excavation (Common)	m ³	3,430.0	6,399	21,949,467	4,203	14,415,477	36,364,945	TS. 2.10
H16-1.2	Embankment	m ³	260.0	3,022	785,592	2,286	594,423	1,380,015	TS. 2.10
H16-1.3	Backfill with Selected Soil	m ³	1,370.0	2,931	4,015,907	3,203	4,388,533	8,404,439	TS. 2.10
H16-1.4	Solid Sodding	m ²	84.0	55	4,649	1,400	117,632	122,281	TS. 4.14
H16-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H16-2.1	SP Pile for Test Pile, Dia. 400 mm	m	9.0	267,379	2,406,407	35,331	317,981	2,724,388	TS. 5.07
H16-2.2	Static Load Test	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H16-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	580.0	267,379	155,079,563	35,331	20,492,097	175,571,660	TS. 5.07
H16-2.4	Reinforcing Steel Bar	kg	2,950.0	1,954	5,765,626	427	1,258,802	7,024,427	TS. 3.24
H16-2.5	Concrete, Type C1	m ³	3.0	79,200	237,600	118,800	356,400	594,000	TS. 3.24
H16-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H16-3.1	Concrete, Type C1	m ³	310.0	79,200	24,552,000	118,800	36,828,000	61,380,000	TS. 3.24
H16-3.2	Concrete, Type E	m ³	13.0	66,800	868,400	100,200	1,302,600	2,171,000	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H16-3.3	Reinforcing Steel Bar	kg	48,600.0	1,954	94,986,243	427	20,734,222	115,724,465	TS. 3.24
H16-3.4	Formwork FW1	m ²	250.0	4,300	1,075,052	34,861	8,715,194	9,790,246	TS. 3.24
H16-3.5	Formwork FW2	m ²	300.0	5,417	1,625,099	47,635	14,290,627	15,915,725	TS. 3.24
H16-3.6	Rubble Stone Bedding	m ³	27.0	4,743	128,067	23,785	642,185	770,253	TS. 4.14
H16-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H16-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	1,082,764	1,082,764	1,150,500	1,150,500	2,233,264	TS. 8.07
H16-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	2,438,000	2,438,000	2,438,000	2,438,000	4,876,000	TS. 8.07
H16-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	5,660,760	5,660,760	5,660,760	5,660,760	11,321,520	TS. 8.07
H16-4.4	Concrete, Type B for Slab	m ³	80.0	185,172	14,813,798	152,311	12,200,850	27,014,647	TS. 3.24
H16-4.5	Reinforcing Steel Bar	kg	20,000.0	1,954	39,088,989	427	8,534,248	47,623,237	TS. 3.24
H16-4.6	Formwork FW2	m ²	140.0	5,417	758,379	47,635	6,668,959	7,427,339	TS. 3.24
H16-5	MISCELLANEOUS WORKS								
H16-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	20.0	28,015	560,309	10,680	213,605	773,913	TS. 6.09
H16-5.2	Elastomeric Bearing Pad, 406mm x 280mm x 67 mm	nos.	13.0	210,538	2,737,252	313,558	4,076,255	6,813,506	TS. 8.07
H16-5.3	PVC Pipe Drain, Dia.100 mm	m	26.0	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H16-5.4	Handrail, Galvanized Steel Pipe	kg	1,590.0	3,376	5,367,722	454	721,404	6,089,126	TS. 6.09
H16-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	25.0	79,200	1,980,000	118,800	2,970,000	4,950,000	TS. 3.24
H16-5.6	Formwork FW1	m ²	110.0	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24
H16-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H16-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H16-6.1	Backfill with Gravel	m ³	210.0	4,883	1,025,340	21,026	4,415,555	5,440,896	TS. 4.14
H16-6.2	Wet Stone Masonry (1:4) for Revetment	m ³	100.0	22,458	2,245,788	48,217	4,821,741	7,067,529	TS. 4.14
H16-6.3	Cement Mortar Plastering	m ²	180.0	3,445	620,186	7,007	1,261,326	1,881,512	TS. 4.14
H16-6.4	Concrete, Type C1	m ³	6.0	79,200	475,200	118,800	712,800	1,188,000	TS. 3.24
H16-6.5	Concrete, Type E	m ³	4.0	66,800	267,200	100,200	400,800	668,000	TS. 3.24
H16-6.6	Reinforcing Steel Bar	kg	800.0	1,954	1,563,560	427	341,370	1,904,929	TS. 3.24
H16-6.7	Formwork FW1	m ²	92.0	4,300	395,619	34,861	3,207,191	3,602,811	TS. 3.24
H16-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	90.0	2,798	251,854	7,421	667,903	919,757	TS. 4.14
H16-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD : CLASS II)								
H16-7.1	Sub-Base Course (Class B)	m ³	100.0	6,229	622,919	35,576	3,557,597	4,180,516	TS. 7.09
H16-7.2	Base Course (Class A)	m ³	50.0	7,322	366,099	45,411	2,270,553	2,636,652	TS. 7.09
H16-7.3	Asphalt Treatment Base (A.T.B)	ton	74.0	156,585	11,587,256	388,149	28,723,031	40,310,287	TS. 7.09
H16-7.4	Bituminous Prime Coat	liter	760.0	769	584,673	1,114	846,426	1,431,099	TS. 7.09
H16-7.5	Bituminous Surface Course, 50 mm thick	ton	73.0	59,631	4,353,070	90,888	6,634,788	10,987,857	TS. 7.09

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H17	RAILWAY BRIDGE (F4)				434,845,701		375,804,356	810,650,057	
H17-1	EARTH WORKS								
H17-1.1	Excavation (Common)	m ³	3,370.0	6,399	21,565,512	4,203	14,163,311	35,728,823	TS. 2.10
H17-1.2	Embankment	m ³	220.0	3,022	664,732	2,286	502,973	1,167,705	TS. 2.10
H17-1.3	Backfill with Selected Soil	m ³	1,350.0	2,931	3,957,280	3,203	4,324,466	8,281,747	TS. 2.10
H17-1.4	Solid Sodding	m ²	55.0	55	3,044	1,400	77,021	80,065	TS. 4.14
H17-1.5	Demolishment and Removal of Existing Structure	m ³	56.0	9,436	528,442	8,193	458,784	987,226	TS. 4.15
H17-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H17-2.1	SP Pile for Test Pile, Dia. 400 mm	m	18.0	267,379	4,812,814	35,331	635,962	5,448,776	TS. 5.07
H17-2.2	Static Load Test for SP and PC Pile	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H17-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	860.0	267,379	229,945,559	35,331	30,384,834	260,330,393	TS. 5.07
H17-2.4	Reinforcing Steel Bar	kg	9,430.0	1,954	18,430,458	427	4,023,898	22,454,356	TS. 3.24
H17-2.5	Concrete, Type C1	m ³	35.0	79,200	2,772,000	118,800	4,158,000	6,930,000	TS. 3.24
H17-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H17-3.1	Concrete, Type C1	m ³	200.0	79,200	15,840,000	118,800	23,760,000	39,600,000	TS. 3.24
H17-3.2	Concrete, Type E	m ³	6.0	66,800	400,800	100,200	601,200	1,002,000	TS. 3.24
H17-3.3	Reinforcing Steel Bar	kg	27,300.0	1,954	53,356,470	427	11,649,248	65,005,718	TS. 3.24
H17-3.4	Formwork FW1	m ²	180.0	4,300	774,038	34,861	6,274,940	7,048,977	TS. 3.24
H17-3.5	Formwork FW2	m ²	220.0	5,417	1,191,739	47,635	10,479,793	11,671,532	TS. 3.24
H17-3.6	Rubble Stone Bedding	m ³	12.0	4,743	56,919	23,785	285,416	342,335	TS. 4.14
H17-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H17-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	38,151,020	38,151,020	57,226,530	57,226,530	95,377,550	TS. 8.07
H17-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	741,152	741,152	741,152	741,152	1,482,304	TS. 8.07
H17-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	1,886,920	1,886,920	1,886,920	1,886,920	3,773,840	TS. 8.07
H17-4.4	Concrete, Type B for Slab	m ³	44.0	185,172	8,147,589	152,511	6,710,467	14,858,056	TS. 3.24
H17-4.5	Reinforcing Steel Bar	kg	9,000.0	1,954	17,590,045	427	3,840,411	21,430,456	TS. 3.24
H17-4.6	Formwork FW2	m ²	110.0	5,417	595,870	47,635	5,239,896	5,835,766	TS. 3.24
H17-5	MISCELLANEOUS WORKS								
H17-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	8.0	28,015	224,123	10,680	85,442	309,565	TS. 6.09
H17-5.2	Elastomeric Bearing Pad, 406mm x 280mm x 67 mm	nos	7.0	210,558	1,473,905	313,558	2,194,906	3,668,811	TS. 8.07
H17-5.3	PVC Pipe Drain, Dia. 100 mm	m	26.0	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H17-5.4	Name Plate	nos	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H17-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H17-6.1	Backfill with Gravel	m ³	140.0	4,883	683,560	21,026	2,943,704	3,627,264	TS. 4.14
H17-6.2	Wet Stone Masonry (1:4) for Retevment	m ³	62.0	22,458	1,392,388	48,217	2,989,480	4,381,868	TS. 4.14
H17-6.3	Wet Stone Masonry (1:3) for Retevment	m ³	9.0	25,600	230,400	52,811	475,300	705,700	TS. 4.14
H17-6.4	Cement Mortar Plastering	m ²	180.0	3,445	620,186	7,007	1,261,326	1,881,512	TS. 4.14

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H17-6.5	Concrete, Type C1	m ³	6.0	79,200	475,200	118,800	712,800	1,188,000	TS. 3.24
H17-6.6	Concrete, Type E	m ³	2.0	66,800	133,600	100,200	200,400	334,000	TS. 3.24
H17-6.7	Reinforcing Steel Bar	kg	830.0	1,954	1,622,193	427	354,171	1,976,364	TS. 3.24
H17-6.8	Formwork FW1	m ²	110.0	4,300	473,023	34,861	3,834,685	4,307,708	TS. 3.24
H17-6.9	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	44.0	2,798	123,129	7,421	326,530	449,659	TS. 4.14
H17-7	Removal and Reinstallation of Railway								
H17-7.1	Crusher Run Bedding	m ³	170.0	7,270	1,235,832	47,207	8,025,223	9,261,055	TS. 4.14
H17-7.2	Sand Bedding	m ³	38.0	3,569	135,621	18,192	691,278	826,899	TS. 4.14
H17-7.3	Asphalt Treatment Base(A.T.B)	ton	16.0	156,585	2,505,353	388,149	6,210,385	8,715,738	TS. 7.09
H17-7.4	Bulk Concrete, Type C1	m ³	10.0	189,823	1,898,231	244,718	2,447,179	4,345,410	TS. 3.24
H17-7.5	Removal and Installation	L.S.	1.0	0	0	153,600,000	153,600,000	153,600,000	
H18	WATER PIPE BRIDGE (WB4)				183,779,873		189,587,980	373,367,853	
H18-1	ABUTMENT, PIER AND CONNECTING CHANNEL WORKS								
H18-1.1	Excavation (Common)	m ³	390.0	6,399	2,495,712	4,203	1,639,078	4,134,790	TS. 2.10
H18-1.2	Backfill with Gravel	m ³	7.0	4,883	34,178	21,026	147,185	181,363	TS. 4.14
H18-1.3	Backfill with Selected Soil	m ³	374.0	2,931	1,096,313	3,203	1,198,037	2,294,351	TS. 2.10
H18-1.4	Supply and Driving of RC Piles, 400 mm x 400 mm	m	360.0	43,896	15,802,384	52,966	19,067,600	34,869,984	TS. 5.07
H18-1.5	Concrete, Type C1	m ³	65.0	79,200	5,148,000	118,800	7,722,000	12,870,000	TS. 3.24
H18-1.6	Concrete, Type E	m ³	4.0	66,800	267,200	100,200	400,800	668,000	TS. 3.24
H18-1.7	Reinforcing Steel Bar	kg	7,060.0	1,954	13,798,413	427	3,012,589	16,811,002	TS. 3.24
H18-1.8	Formwork FW1	m ²	121.0	4,300	520,325	34,861	4,218,154	4,738,479	TS. 3.24
H18-2	METAL WORKS								
H18-2.1	Supply and Installation of Water Pipe, Dia.300 mm, including Air Valve, Joint and Pipe Support	L.S.	1.0	28,277,404	28,277,404	5,187,951	5,187,951	33,465,355	TS. 11.06
H18-2.2	Supply and Installation of Water Pipe, Dia. 600 mm, including Air Valve, Joint and Pipe Support	L.S.	1.0	50,238,780	50,238,780	9,865,897	9,865,897	60,104,677	TS. 11.06
H18-2.3	Steel Truss Girder	L.S.	1.0	66,101,164	66,101,164	137,128,688	137,128,688	203,229,852	TS. 8.07
H19	JALAN DELI TUA BRIDGE WITH WATER PIPE (F5)				1,193,260,379		676,124,709	1,869,385,087	
H19-1	EARTH WORKS								
H19-1.1	Excavation (Common)	m ³	8,250.0	6,399	52,793,909	4,203	34,672,795	87,466,704	TS. 2.10
H19-1.2	Embankment	m ³	320.0	3,022	966,883	2,286	731,597	1,698,480	TS. 2.10
H19-1.3	Backfill with Selected Soil	m ³	3,300.0	2,931	9,673,352	3,203	10,570,918	20,244,270	TS. 2.10
H19-1.4	Solid Sodding	m ²	99.0	55	5,479	1,400	138,638	144,117	TS. 4.14
H19-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H19-2.1	SP Pile for Test Pile, Dia.400 mm	m	13.0	267,379	3,475,921	35,331	459,306	3,935,227	TS. 5.07
H19-2.2	Static Load Test	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H19-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	2,080.0	267,379	556,147,398	35,331	73,488,901	629,636,299	TS. 5.07
H19-2.4	Reinforcing Steel Bar	kg	7,370.0	1,954	14,404,292	427	3,144,870	17,549,163	TS. 3.24
H19-2.5	Concrete, Type C1	m ³	19.0	79,200	1,504,800	118,800	2,257,200	3,762,000	TS. 3.24
H19-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H19-3.1	Concrete, Type C1	m ³	740.0	79,200	58,608,000	118,800	87,912,000	146,520,000	TS. 3.24
H19-3.2	Concrete, Type E	m ³	37.0	66,800	2,471,600	100,200	3,707,400	6,179,000	TS. 3.24
H19-3.3	Reinforcing Steel Bar	kg	113,500.0	1,954	221,830,011	427	48,431,856	270,261,867	TS. 3.24
H19-3.4	Formwork FW1	m ²	480.0	4,300	2,064,101	34,861	16,733,173	18,797,273	TS. 3.24
H19-3.5	Formwork FW2	m ²	590.0	5,417	3,196,028	47,635	28,104,899	31,300,927	TS. 3.24
H19-3.6	Rubble Stone Bedding	m ³	78.0	4,743	369,973	23,785	1,855,203	2,225,175	TS. 4.14
H19-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H19-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	127,164,902	127,164,902	190,747,354	190,747,354	317,912,256	TS. 8.07
H19-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	4,212,864	4,212,864	4,212,864	4,212,864	8,425,728	TS. 8.07
H19-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	9,875,740	9,875,740	9,875,740	9,875,740	19,751,480	TS. 8.07
H19-4.4	Concrete, Type B for Slab	m ³	180.0	183,172	33,331,045	152,511	27,451,911	60,782,956	TS. 3.24
H19-4.5	Reinforcing Steel Bar	kg	41.0	1,954	80,132	427	17,495	97,628	TS. 3.24
H19-4.6	Formwork FW2	m ²	180.0	5,417	975,059	47,635	8,574,376	9,549,435	TS. 3.24
H19-5	MISCELLANEOUS WORKS								
H19-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	51.0	28,015	1,428,787	10,680	544,692	1,973,479	TS. 6.09
H19-5.2	Elastomeric Bearing Pad, 406mm x 280mm x 67 mm	nos.	22.0	210,558	4,632,272	313,558	6,898,277	11,530,549	TS. 8.07
H19-5.3	PVC Pipe Drain, Dia. 100 mm	m	26.0	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H19-5.4	Handrail, Galvanized Steel Pipe	kg	1,590.0	3,376	5,367,722	454	721,404	6,089,126	TS. 6.09
H19-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	37.0	79,200	2,930,400	118,800	4,395,600	7,326,000	TS. 3.24
H19-5.6	Formwork FW1	m ²	140.0	4,300	602,029	34,861	4,880,509	5,482,538	TS. 3.24
H19-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H19-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H19-6.1	Backfill with Gravel	m ³	470.0	4,883	2,294,809	21,026	9,882,433	12,177,243	TS. 4.14
H19-6.2	Wet Stone Masonry (1:4) for Retement	m ³	140.0	22,458	3,144,103	48,217	6,750,438	9,894,540	TS. 4.14
H19-6.3	Cement Mortar Plastering	m ²	300.0	3,445	1,033,644	7,007	2,102,209	3,135,853	TS. 4.14
H19-6.4	Concrete, Type C1	m ³	3.0	79,200	237,600	118,800	356,400	594,000	TS. 3.24
H19-6.5	Concrete, Type E	m ³	11.0	66,800	734,800	100,200	1,102,200	1,837,000	TS. 3.24
H19-6.6	Reinforcing Steel Bar	kg	1,460.0	1,954	2,853,496	427	623,000	3,476,496	TS. 3.24
H19-6.7	Formwork FW1	m ²	86.0	4,300	369,818	34,861	2,998,027	3,367,845	TS. 3.24
H19-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	77.0	2,798	215,475	7,421	571,428	786,903	TS. 4.14
H19-7	PAVEMENT (SUPERSTRUCTURE AND APPROACH ROAD - CLASS II)								
H19-7.1	Sub-Base Course (Class B)	m ³	170.0	6,229	1,058,962	35,576	6,047,915	7,106,877	TS. 7.09
H19-7.2	Base Course (Class A)	m ³	82.0	7,322	600,402	45,411	3,723,707	4,324,109	TS. 7.09

MFC - 6

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H19-7.3	Asphalt Treatment Base (A.T.B)	ton	120.0	156,585	18,790,146	388,149	46,577,888	65,368,033	TS. 7.09
H19-7.4	Bituminous Prime Coat	liter	2,050.0	769	1,577,078	1,114	2,283,122	3,860,200	TS. 7.09
H19-7.5	Bituminous Surface Course, 50 mm thick	ton	160.0	59,631	9,540,974	90,888	14,542,000	24,082,975	TS. 7.09
H19-8	PIPE WORKS								
H19-8.1	Supply and Installation of Water Pipe, Dia.350 mm, including Air Valve, Joint and Pipe Support	L.S.	1.0	32,489,816	32,489,816	6,008,641	6,008,641	38,498,457	TS.11.06

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
16	OTHER WORKS				1,152,324,931		769,937,159	1,922,262,089	
	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY								
	INSPECTION ROAD								
16.1	Excavation (Common)	m ³	1,070.0	6,399	6,847,210	4,203	4,496,956	11,344,166	TS. 2.10
16.2	Gravel Pavement, 200 mm thick	m ²	1,280.0	5,360	6,860,532	27,751	35,521,752	42,382,284	TS. 7.09
16.3	Maintenance Marker Post	nos.	24.0	31,395	753,480	52,099	1,250,371	2,003,851	TS. 12.10
	KABUPATEN ROAD (CLASS III)								
16.4	Excavation (Common)	m ³	1,820.0	6,399	11,646,656	4,203	7,649,029	19,295,685	TS. 2.10
16.5	Sub-Base Course (Class C)	m ³	870.0	5,903	5,135,754	32,642	28,398,317	33,534,071	TS. 7.09
16.6	Base Course, (Class B)	m ³	580.0	6,447	3,738,994	37,532	21,768,629	25,507,622	TS. 7.09
16.7	Asphalt Treatment Base (A.T.B)	ton	750.0	156,585	117,438,410	388,149	291,111,798	408,550,209	TS. 7.09
	PLANTING ALONGSIDE INSPECTION ROAD								
16.8	Excavation (Common)	m ³	560.0	6,399	3,583,587	4,203	2,353,547	5,937,134	TS. 2.10
16.9	Concrete, Type D	m ³	190.0	72,850	13,841,500	109,275	20,762,250	34,603,750	TS. 3.24
16.10	Sand Bedding	m ³	110.0	3,569	392,586	18,192	2,001,069	2,393,654	TS. 4.14
16.11	Formwork FW1	m ²	1,900.0	4,300	8,170,398	34,861	66,235,475	74,405,873	TS. 3.24
16.12	Boulder Pitting (200mm - 300mm)	m ³	1,020.0	3,675	3,748,752	21,756	22,191,295	25,940,046	TS. 12.10
16.13	Palem Hijau	tree	56.0	1,434	80,317	21,777	1,219,489	1,299,806	TS. 12.10
16.14	Fillisium	tree	56.0	1,434	80,317	16,343	915,199	995,516	TS. 12.10
16.15	Acasia Petandra	tree	56.0	1,434	80,317	12,117	678,529	758,846	TS. 12.10
16.16	Tanjung	tree	56.0	1,434	80,317	16,343	915,199	995,516	TS. 12.10
16.17	Cemara Kipas	tree	110.0	1,434	157,766	45,927	5,051,924	5,209,691	TS. 12.10
16.18	Cemara Lilin	tree	110.0	1,434	157,766	45,927	5,051,924	5,209,691	TS. 12.10
16.19	Soka	tree	110.0	7	757	427	47,005	47,762	TS. 12.10
16.20	Bougainvillea	tree	110.0	1,434	157,766	9,702	1,067,174	1,224,941	TS. 12.10
	FENCE								
16.21	Excavation (Common)	m ³	270.0	6,399	1,727,801	4,203	1,134,746	2,862,547	TS. 2.10
16.22	Backfill with Selected Soil	m ³	200.0	2,931	586,264	3,203	640,662	1,226,925	TS. 2.10
16.23	Crusher Run Bedding	m ³	28.0	7,270	203,549	47,207	1,321,801	1,525,350	TS. 4.14
16.24	Concrete, Type D	m ³	41.0	72,850	2,986,850	109,275	4,480,275	7,467,125	TS. 3.24
16.25	Formwork FW1	m ²	540.0	4,300	2,322,113	34,861	18,824,819	21,146,932	TS. 3.24
16.26	Galvanized Steel Fence, H=1.20 m	m	2,230.0	431,186	961,545,170	100,829	224,847,923	1,186,393,093	TS. 6.09
110	APPROACH ROAD FOR MAINTENANCE				29,245,340		45,502,417	74,747,757	
110.1	Excavation (Common)	m ³	2,530.0	6,399	16,190,132	4,203	10,632,990	26,823,122	TS. 2.10
110.2	Base Course, (Class A)	m ³	53.0	7,322	388,065	45,411	2,406,786	2,794,851	TS. 7.09
110.3	Sub-Base Course, (Class C)	m ³	79.0	5,903	466,350	32,642	2,578,698	3,045,048	TS. 7.09
110.4	Asphalt Treatment Base (A.T.B)	ton	76.0	156,585	11,900,426	388,149	29,499,329	41,399,754	TS. 7.09
110.5	Entrance Gate	nos.	1.0	300,368	300,368	384,614	384,614	684,982	TS. 6.09

APPENDIX 7

CONSTRUCTION COST OF MFC-7

SUMMARY OF MFC - 7

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
A	GENERAL	1,193,000,000	1,605,000,000	2,798,000,000
B	CHANNEL AND DIKE WORKS			
B1	PREPARATION WORKS	154,000,000	116,000,000	270,000,000
B2	CHANNEL EXCAVATION	1,044,000,000	662,000,000	1,706,000,000
B3	EARTH DIKE WORKS	857,000,000	699,000,000	1,556,000,000
	SUB-TOTAL OF B.	2,055,000,000	1,477,000,000	3,532,000,000
C	SLOPE AND RIVERBED PROTECTION WORKS			
C1	PREPARATION WORKS	3,000,000	18,000,000	21,000,000
C2	SODDING AND DIKE	2,000,000	39,000,000	41,000,000
C3	REVEGETMENT - WET STONE MASONRY TYPE	534,000,000	1,053,000,000	1,587,000,000
C4	GABION TYPE FOOT PROTECTION	232,000,000	153,000,000	385,000,000
C11	LEANING WALL FOR FLOODWAY (FW34 to FW38+76m)	2,110,000,000	4,136,000,000	6,246,000,000
C12	CHANNEL BED LINING FOR FLOODWAY	223,000,000	373,000,000	596,000,000
	SUB-TOTAL OF C.	3,104,000,000	5,772,000,000	8,876,000,000
D	RIPARIAN STRUCTURES			
D9	APPROACH STEPS, TYPE DA (6 places)	21,000,000	32,000,000	53,000,000
D10	APPROACH STEPS, TYPE DB (10 places)	4,000,000	9,000,000	13,000,000
	SUB-TOTAL OF D.	25,000,000	41,000,000	66,000,000
E	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY			
E1	PREPARATION WORKS FOR DRAINAGE WORKS	1,000,000	1,000,000	2,000,000
E19	DRAINAGE OUTLET(SF7), PIPE CULVERT D=1000 x 1, (1 places)	6,000,000	8,000,000	14,000,000
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS	1,000,000	2,000,000	3,000,000
E23	DRAINAGE SIDE DITCH (WET MASONRY TYPE)	10,000,000	18,000,000	28,000,000
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)	86,000,000	141,000,000	227,000,000
	SUB-TOTAL OF E.	104,000,000	170,000,000	274,000,000

SUMMARY OF MFC-7

ITEM NO.	BQ-ITEMS	SECTION TOTAL IN FOREIGN CURRENCY (Rp.)	SECTION TOTAL IN INDONESIA CURRENCY (Rp.)	TOTAL (Rp.)
G	DIVERSION WEIRS			
G1	PREPARATION WORKS FOR DIVERSION WEIRS	12,000,000	20,000,000	32,000,000
G2	DELI RIVER WEIR	827,000,000	1,247,000,000	2,074,000,000
G3	FLOODWAY WEIR	673,000,000	1,026,000,000	1,699,000,000
	SUB-TOTAL OF G.	1,512,000,000	2,293,000,000	3,805,000,000
H	BRIDGE WORKS			
H1	PREPARATION WORKS	6,000,000	20,000,000	26,000,000
H20	PIPE AND PEDESTRIAN BRIDGE FOR PAPER FACTORY (F6)	134,000,000	101,000,000	235,000,000
H21	JALAN SMA BRIDGE (F7)	145,000,000	196,000,000	341,000,000
H22	Gg.SEKASAME BRIDGE (F8, PEDESTRIAN BRIDGE)	283,000,000	257,000,000	540,000,000
	SUB-TOTAL OF H.	568,000,000	574,000,000	1,142,000,000
I	OTHER WORKS			
I6	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY	489,000,000	215,000,000	704,000,000
I7	ENVIRONMENTAL IMPROVEMENT WORKS FOR RETARDING CHANNEL	666,000,000	342,000,000	1,008,000,000
	SUB-TOTAL OF I.	1,155,000,000	557,000,000	1,712,000,000
	TOTAL OF A - I	9,716,000,000	12,489,000,000	22,205,000,000
	VALUE ADDED TAX (PPN) 10 % OF CONTRACT PRICE	971,600,000	1,248,900,000	2,220,500,000
	TENDER PRICE	10,687,600,000	13,737,900,000	24,425,500,000

MFC7-2

MFC-7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
A	GENERAL								
A1	MOBILIZATION AND DEMOBILIZATION	L.S.	1.0	40,635,958	1,192,089,277	28,481,964	1,604,112,328	2796201605	
A2	ESTABLISHMENT	L.S.	1.0	1,146,954,049	40,635,958	1,475,564,691	28,481,964	69,117,922	GS 6.03
A3	RELOCATION OF EXISTING FACILITIES	L.S.	1.0	4,499,270	1,146,954,049	6,565,674	1,475,564,691	2,622,518,740	GS 7.05
A4	GEOLOGICAL INVESTIGATION				4,499,270		6,565,674	11,064,943	GS 14.04
	Hand Auger	m	100.0	0	0	220,000	22,000,000	22,000,000	GS 9.06
	Mechanical Boring	m	250.0	0	0	110,000	27,500,000	27,500,000	GS 9.06
	Exploratory Excavation	m³	800.0	0	0	55,000	44,000,000	44,000,000	GS 9.06
B	CHANNEL AND DIKE WORKS								
B1	PREPARATION WORKS								
	Clearing and Grubbing	m²	143,700.0	1,065	153,037,357	804	115,553,197	268,590,554	TS 2.10
B2	CHANNEL EXCAVATION								
B2.1	Excavation (River Channel)	m³	13,000.0	6,744	87,678,202	4,581	59,552,095	147,230,297	TS 2.10
B2.2	Excavation (Common)	m³	40,500.0	5,705	231,041,141	3,779	153,034,010	384,075,151	TS 2.10
B2.3	Excavation (Floodway Channel)	m³	137,000.0	5,293	725,148,984	3,275	448,734,081	1,173,883,065	TS 2.10
B3	EARTH DIKE WORKS								
B3.1	Stripping of Top Soil	m³	24,800.0	1,317	856,136,263	1,887	698,341,554	1,554,477,817	TS 2.10
B3.2	Embankment	m³	267,700.0	3,022	32,671,457	2,286	46,805,364	79,476,822	TS 2.10
B3.3	Base Course, (Class A)	m³	61.0	7,322	808,858,121	43,411	612,026,748	1,420,884,869	TS 2.10
B3.4	Sub-Base Course, (Class C)	m³	91.0	5,903	446,641	32,642	2,770,074	3,216,715	TS 7.09
B3.5	Asphalt Treatment Base (A.T.B)	ton	87.0	156,585	537,188	388,149	2,970,399	3,507,587	TS 7.09
					13,622,856		33,768,969	47,391,824	TS 7.09

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C	SLOPE AND RIVERBED PROTECTION WORKS								
C1	PREPARATION WORKS								
C1.1	Cofferting and Dewatering	L.S.	1.0	2,939,498	2,939,498	17,371,924	17,371,924	20,311,422	TS. 1.04
C2	SODDING AND DIKE								
C2.1	Solid Sodding	m ²	12,500.0	55	1,754,331	1,400	38,596,196	40,350,526	TS. 4.14
C2.2	Check Sodding for Retarding Channel and Diversion Weirs	m ³	19,200.0	55	1,062,560	1,099	21,091,387	22,153,946	TS. 4.14
C3	REVTMENT - WET STONE MASONRY TYPE								
C3.1	Excavation (Common)	m ³	14,700.0	5,705	533,234,402	3,779	1,052,321,422	1,585,555,824	TS. 2.10
C3.2	Backfill with Selected Soil	m ³	550.0	2,931	83,859,377	3,203	55,545,678	139,405,055	TS. 2.10
C3.3	Crusher Run Bedding	m ³	5,900.0	7,270	1,612,225	47,207	1,761,820	3,374,045	TS. 4.14
C3.4	Wet Stone Masonry (1:4) for Revetment	m ³	5,120.0	22,458	42,890,630	48,217	278,522,445	321,413,075	TS. 4.14
C3.5	Cement Mortar Plastering	m ²	17,500.0	3,445	114,984,321	7,007	246,873,155	361,857,476	TS. 4.14
C3.6	Concrete, Type C1	m ³	960.0	79,200	60,295,909	118,800	122,628,870	182,924,779	TS. 4.14
C3.7	Reinforcing Steel Bar	kg	56,800.0	1,954	76,032,000	427	114,048,000	190,080,000	TS. 3.24
C3.8	Formwork FW1	m ²	5,040.0	4,300	111,012,728	34,861	24,237,264	135,249,992	TS. 3.24
C3.9	Log Pile, Dia. 150 mm L=2.0m	m	1,710.0	758	21,673,055	4,854	175,698,314	197,371,369	TS. 3.24
C3.10	Elastic Joint Filler, 10 mm thick	m ²	770.0	9,056	1,295,455	24,444	8,300,622	9,596,077	TS. 5.07
C3.11	Gabion Cylinder	m ³	90.0	138,840	6,973,313	60,683	18,821,807	25,795,120	TS. 3.24
C3.12	Cobble Stone Filling	m ³	20.0	5,489	12,495,606	21,099	5,461,462	17,957,068	TS. 4.14
C4	GABION TYPE FOOT PROTECTION								
C4.1	Cobble Stone Filling	m ³	1,280.0	5,489	231,980,707	21,099	152,907,068	384,887,775	TS. 4.14
C4.2	Gabion Mattress	m ³	2,640.0	85,210	7,026,122	47,689	27,007,094	34,033,216	TS. 4.14
C11	LEANING WALL FOR FLOODWAY (FW34 to FW38+76)								
C11.1	Excavation (Common)	m ³	27,900.0	5,705	2,109,603,037	3,779	4,135,622,540	6,245,227,597	TS. 2.10
C11.2	Backfill with Selected Soil	m ³	3,860.0	2,931	159,161,675	3,203	105,423,429	264,585,104	TS. 2.10
C11.3	Backfill with Gravel	m ³	7,130.0	4,883	11,314,891	21,026	12,364,771	23,679,661	TS. 2.10
C11.4	Rubble Stone Bedding	m ³	1,090.0	4,743	34,812,743	23,785	149,918,619	184,731,362	TS. 4.14
C11.5	Concrete, Type E	m ³	780.0	66,800	5,170,132	100,200	25,925,266	31,095,398	TS. 4.14
C11.6	Concrete, Type D	m ³	22,600.0	72,850	52,104,000	109,275	78,156,000	130,260,000	TS. 3.24
C11.7	Reinforcing Steel Bar	kg	19,200.0	1,954	1,646,410,000	427	2,469,615,000	4,116,025,000	TS. 3.24
C11.8	Formwork FW1	m ²	14,200.0	4,300	37,525,429	34,861	8,192,878	45,718,307	TS. 3.24
C11.9	Formwork FW2	m ²	15,500.0	5,417	61,062,973	47,635	495,023,027	556,086,000	TS. 3.24
C11.10	Elastic Joint Filler, 10 mm thick	m ²	880.0	9,056	83,963,437	24,444	738,349,044	822,312,481	TS. 3.24
					7,969,500		21,510,637	29,480,137	TS. 3.24

MFC-7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
C11.11	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	3,000.0	2,798	8,395,144	7,421	22,263,432	30,638,576	TS. 4.14
C11.12	Gravel Pavement, 200 mm thick	m ³	320.0	5,360	1,715,133	27,751	8,880,438	10,595,571	TS. 7.09
C12	CHANNEL BED LINING FOR FLOODWAY				222,920,807		372,390,846	595,311,652	
C12.1	Excavation (Common)	m ³	2,020.0	5,705	11,523,533	3,779	7,632,807	19,156,341	TS. 2.10
C12.2	Crusher Run Bedding	m ³	1,280.0	7,270	9,305,086	47,207	60,425,209	69,730,294	TS. 4.14
C12.3	Concrete, Type C2	m ³	2,660.0	75,600	201,096,000	113,400	301,644,000	502,740,000	TS. 3.24
C12.4	Elastic Joint Filler, 10 mm thick	m ²	110.0	9,056	996,188	24,444	2,688,830	3,685,017	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
D9	RIPARIN STRUCTURES								
D9.1	APPROACH STEPS, TYPE DA (6 places)	m ³	260.0	5,705	20,510,646		31,316,104	51,866,750	
D9.2	Excavation (Common)	m ³	11.0	2,931	1,483,227	3,779	982,441	2,465,668	TS. 2.10
D9.3	Backfill with Selected Soil	m	36.0	758	32,245	3,203	35,236	67,481	TS. 2.10
D9.4	Log Pile, Dia. 150mm, L=2.0m	m ³	45.0	79,200	27,273	4,854	174,750	202,023	TS. 5.07
D9.5	Concrete, Type C2	m ³	59.0	72,850	3,564,000	118,800	5,346,000	8,910,000	TS. 3.24
D9.6	Concrete, Type D	kg	2,440.0	1,954	4,298,150	109,275	6,447,225	10,745,375	TS. 3.24
D9.7	Reinforcing Steel Bar	m ³	330.0	4,300	4,768,857	427	1,041,178	5,810,035	TS. 3.24
D9.8	Formwork FW1	m ³	53.0	7,270	1,419,069	34,861	11,504,056	12,923,125	TS. 3.24
D9.9	Crusher Run Bedding	m ³	29.0	9,056	385,289	47,207	2,501,981	2,887,270	TS. 4.14
D9.10	Elastic Joint Filler, 10 mm thick	m ³	50.0	85,210	262,631	24,444	708,873	971,505	TS. 3.24
D9.11	Gabion Mattress	m ³	9.0	5,489	4,260,504	47,689	2,384,469	6,644,973	TS. 4.14
	Cobble Stone Filling	m ³			49,402	21,099	189,894	239,296	TS. 4.14
D10	APPROACH STEPS, TYPE DB (10 places)								
D10.1	Excavation (Common)	m ³	68.0	5,705	3,380,497		8,766,408	12,146,905	
D10.2	Backfill with Selected Soil	m ³	30.0	2,931	387,921	3,779	256,946	644,867	TS. 2.10
D10.3	Concrete, Type C2	m ³	26.0	79,200	87,940	3,203	96,099	184,039	TS. 2.10
D10.4	Formwork FW1	m ³	100.0	4,300	2,059,200	118,800	3,088,800	5,148,000	TS. 3.24
D10.5	Crusher Run Bedding	m ³	26.0	7,270	430,021	34,861	3,486,078	3,916,099	TS. 3.24
D10.6	Elastic Joint Filler, 10mm thick	m ³	25.0	9,056	189,010	47,207	1,227,387	1,416,397	TS. 4.14
					226,406	24,444	611,098	837,504	TS. 3.24

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E1	DRAINAGE CHANNEL AND OUTLET WORKS FOR FLOODWAY								
E1.1	PREPARATION WORKS FOR DRAINAGE WORKS	L.S.	1.0		867,079		737,937	1,605,015	TS. 1.04
E1.2	Coffering and Dewatering	m ²	560.0	270,691	151,614	287,625	160,865	558,316	TS. 2.10
	Clearing and Grubbing			1,065	596,388	804		1,046,699	
E19	DRAINAGE OUTLET(SF7), PIPE CULVERT D=1000 x 1, (1 place)				5,271,909		7,943,869	13,217,779	
E19.1	Excavation (Common)	m ³	130.0	5,705	741,614	3,779	491,220	1,232,834	TS. 2.10
E19.2	Backfill with Selected Soil	m ³	100.0	2,931	293,132	3,203	320,331	613,463	TS. 2.10
E19.3	Concrete, Type C1	m ³	26.0	79,200	2,059,200	118,800	3,088,800	5,148,000	TS. 3.24
E19.4	Concrete, Type E	m ³	4.0	66,800	267,200	100,200	400,800	668,000	TS. 3.24
E19.5	Reinforcing Steel Bar	kg	370.0	1,954	723,146	427	157,884	881,030	TS. 3.24
E19.6	Formwork FW1	m ²	58.0	4,300	249,412	34,861	2,021,925	2,271,337	TS. 3.24
E19.7	Formwork FW2	m ²	1.0	5,417	5,417	47,635	47,635	53,052	TS. 3.24
E19.8	RC Pipe, D=1000mm	m	7.0	133,255	932,788	202,468	1,417,274	2,350,063	TS. 12.10
E21	DRAINAGE DITCH CONNECTING TO DRAINAGE OUTLETS				572,975		1,222,567	1,795,542	
E21.1	Excavation (Common)	m ³	20.0	5,705	114,094	3,779	75,572	189,667	TS. 2.10
E21.2	Crusher Run Bedding	m ³	3.0	7,270	21,809	47,207	141,622	163,430	TS. 4.14
E21.3	Wet Stone Masonry (1:4) for Revetment	m ³	3.0	22,458	67,374	48,217	144,652	212,026	TS. 4.14
E21.4	Cement Mortar Plastering	m ²	12.0	3,445	41,346	7,007	84,088	125,434	TS. 4.14
E21.5	Concrete, Type C2	m ³	3.0	72,850	218,550	109,275	327,825	546,375	TS. 3.24
E21.6	Concrete, Type E	m ³	1.0	66,800	66,800	100,200	100,200	167,000	TS. 3.24
E21.7	Formwork FW1	m ²	10.0	4,300	43,002	34,861	348,608	391,610	TS. 3.24
E23	DRAINAGE SIDE DITCH (WET MASONRY TYPE)				9,443,715		17,884,402	27,328,117	
E23.1	Excavation (Common)	m ³	360.0	5,705	2,033,699	3,779	1,360,302	3,414,001	TS. 2.10
E23.2	Backfill with Gravel	m ³	160.0	4,883	781,212	21,026	3,364,233	4,145,444	TS. 4.14
E23.3	Wet Stone Masonry (1:4) for Revetment	m ³	120.0	22,458	2,694,945	48,217	5,786,090	8,481,035	TS. 4.14
E23.4	Cement Mortar Plastering	m ²	620.0	3,445	2,136,198	7,007	4,344,566	6,480,764	TS. 4.14
E23.5	Sand Bedding	m ³	35.0	3,569	124,914	18,192	636,704	761,617	TS. 4.14
E23.6	Crusher Run Bedding	m ³	2.0	7,270	14,539	47,207	94,414	108,954	TS. 4.14
E23.7	Concrete, Type C2	m ³	5.0	75,600	378,000	113,400	567,000	945,000	TS. 3.24
E23.8	Reinforcing Steel Bar	kg	450.0	1,954	879,502	427	192,021	1,071,523	TS. 3.24
E23.9	Formwork FW1	m ²	29.0	4,300	124,706	34,861	1,010,563	1,135,669	TS. 3.24
E23.10	Wet Stone Masonry (1:3) for Revetment	m ³	10.0	25,600	256,000	52,811	528,111	784,111	TS. 4.14
E24	DRAINAGE SIDE DITCH (CONCRETE U-TYPE)				85,991,213		140,682,410	226,673,624	

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
E24.1	Excavation (Common)	m ³	1,370.0	5,705	7,815,466	3,779	5,176,706	12,992,172	TS 2.10
E24.2	Backfill with Selected Soil	m ³	760.0	2,931	2,227,802	3,203	2,434,514	4,662,317	TS 2.10
E24.3	Concrete Type C2	m ³	350.0	75,600	26,460,000	113,400	39,690,000	66,150,000	TS 3.24
E24.4	Reinforcing Steel Bar	kg	19,900.0	1,954	38,893,544	427	8,491,577	47,385,120	TS 3.24
E24.5	Formwork FW1	m ²	2,320.0	4,300	9,976,486	34,861	80,877,002	90,853,487	TS 3.24
E24.6	Crusher Run Bedding	m ³	85.0	7,270	617,916	47,207	4,012,612	4,630,527	TS 4.14

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MFC - 7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
G1	DIVERSION WEIRS								
	PREPARATION WORKS FOR DIVERSION WEIRS								
	Clearing and Grubbing	m ²	4,150.0	1,065	11,034,220		19,663,632	30,702,872	TS. 2.10
G2	DELI RIVER WEIR								
	Coffering and Dewatering	L.S.	1.0	6,614,561	6,614,561	16,331,521	16,331,521	22,946,082	TS. 1.04
	EARTH WORKS								
G2.1	Excavation (Common)	m ³	15,000.0	5,705	85,570,793	3,779	56,679,263	142,250,056	TS. 2.10
	Backfill with Selected Soil	m ³	3,800.0	2,931	11,139,012	3,203	12,172,572	23,311,584	TS. 2.10
	Backfill with Impervious Soil	m ³	250.0	2,373	593,374	2,808	701,904	1,295,278	TS. 2.10
G2.2	CONCRETE WORKS								
	Concrete, Type C1	m ³	5,810.0	79,200	460,152,000	118,800	690,228,000	1,150,380,000	TS. 3.24
	Concrete, Type D for Leaning Wall	m ³	810.0	72,850	59,008,500	109,275	88,512,750	147,521,250	TS. 3.24
G2.3	Concrete, Type E	m ³	60.0	66,800	4,008,000	100,200	6,012,000	10,020,000	TS. 3.24
	Reinforcing Steel Bar	kg	64,200.0	1,954	125,475,654	427	27,394,935	152,870,589	TS. 3.24
	Formwork FW1	m ²	2,100.0	4,300	9,030,440	34,861	73,207,631	82,238,070	TS. 3.24
G2.4	Formwork FW2	m ²	3,400.0	5,417	18,417,786	47,635	161,960,435	180,378,222	TS. 3.24
	Water Stop, 30 cm wide	m	150.0	17,116	2,567,447	43,230	6,484,486	9,051,933	TS. 3.24
	Dowel Bars, Dia. 19mm, 1.0 m long	kg	750.0	2,477	1,857,739	4,093	3,069,465	4,927,204	TS. 3.24
G2.5	Elastic Joint Filler, 10 mm thick	m ³	140.0	9,056	1,267,875	24,444	3,422,147	4,690,022	TS. 3.24
	Surface Caulking	m	85.0	811	68,972	4,530	383,034	454,007	TS. 3.24
G2.6	DRAIN WORKS								
	Concrete Drainage Ditch (U-300mm x 300mm) with Gravel Foundation	m	69.0	34,725	2,396,006	66,776	4,607,565	7,003,572	TS. 12.10
	Backfill with Gravel	m ³	650.0	4,883	3,173,672	21,026	13,667,195	16,840,867	TS. 4.14
G2.7	Weep Hole, Dia. 100mm, including Filter Cloth and Counterflow Prevention Valve, L=7m	nos.	2.0	61,233	122,466	15,789	31,578	154,044	TS. 4.14
	Weep Hole, Dia. 50 mm, including Filter Cloth, L=1.5m	nos.	180.0	2,798	503,709	7,421	1,333,806	1,839,515	TS. 4.14
G2.8	RIVER BED PROTECTION WORKS								
	Concrete Block, 980mm x 980mm x 400mm	nos.	470.0	45,028	21,162,957	136,598	64,201,249	85,364,206	TS. 4.14
	Concrete Block, Chib Type, t=400 mm	nos.	150.0	58,336	8,750,449	143,593	21,538,910	30,289,359	TS. 4.14
G2.9	Cobble Stone Filling for Crib type Concrete Block	m ³	100.0	5,489	548,916	21,099	2,109,929	2,658,845	TS. 4.14
	Crusher Run Bedding	m ³	90.0	7,270	654,264	47,207	4,248,647	4,902,911	TS. 4.14
G2.10	MISCELLANEOUS WORKS								
	Handrail, Galvanized Steel Pipe	kg	700.0	3,376	2,363,148	454	317,599	2,680,747	TS. 6.10
	Gabion Mattress	m ³	87.0	85,210	7,413,276	47,689	4,148,976	11,562,253	TS. 4.14
G3	FLOODWAY WEIR								
	EARTH WORKS								
					672,033,512		1,023,633,171	1,697,666,683	

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
G3.1	Excavation (Common)	m ³	27,000.0	5,705	154,027,427	3,779	102,022,673	256,050,100	TS. 2.10
G3.2	Backfill with Selected Soil	m ³	4,500.0	2,931	13,190,935	3,203	14,414,888	27,605,823	TS. 2.10
G3.3	Backfill with Impervious Soil	m ³	90.0	2,373	213,615	2,808	252,685	466,300	TS. 2.10
G3.4	Foundation Improvement with Cement	m ³	1,700.0	7,544	12,824,556	35,536	60,411,919	73,236,475	TS. 2.10
CONCRETE WORKS									
G3.5	Concrete, Type C1	m ³	3,360.0	79,200	266,112,000	118,800	399,168,000	665,280,000	TS. 3.24
G3.6	Concrete, Type D for Leaning Wall	m ³	880.0	72,850	64,108,000	109,275	96,162,000	160,270,000	TS. 3.24
G3.7	Concrete, Type E	m ³	54.0	66,800	3,607,200	100,200	5,410,800	9,018,000	TS. 3.24
G3.8	Reinforcing Steel Bar	kg	40,800.0	1,954	79,741,537	427	17,409,865	97,151,402	TS. 3.24
G3.9	Formwork FW1	m ²	1,020.0	4,300	4,386,214	34,861	35,557,992	39,944,206	TS. 3.24
G3.10	Formwork FW2	m ²	3,270.0	5,417	17,713,577	47,635	155,767,831	173,481,407	TS. 3.24
G3.11	Water Stop, 30 cm wide	m	140.0	17,116	2,396,284	43,230	6,052,187	8,448,471	TS. 3.24
G3.12	Dowel Bars, Dia 19mm, 1.0 m long	kg	780.0	2,477	1,932,048	4,093	3,192,244	5,124,292	TS. 3.24
G3.13	Elastic Joint Filler, 10 mm thick	m ²	160.0	9,056	1,449,000	24,444	3,911,025	5,360,025	TS. 3.24
G3.14	Surface Caulking	m	88.0	811	71,407	4,530	398,624	470,030	TS. 3.24
DRAIN WORKS									
G3.15	Concrete Drainage Ditch (U-300mm x 300mm) with Gravel Foundation	m	140.0	34,725	4,861,462	66,776	9,348,683	14,210,145	TS. 12.10
G3.16	Backfill with Gravel	m ³	450.0	4,883	2,197,158	21,026	9,461,904	11,659,062	TS. 4.14
G3.17	Weep Hole, Dia 100mm, including Filter Cloth and Counterflow Prevention Valve	nos.	2.0	61,233	122,466	15,789	31,578	154,044	TS. 4.14
G3.18	Weep Hole, Dia. 50 mm, including Filter Cloth, L=1.5m	nos.	130.0	2,798	363,790	7,421	964,749	1,328,538	TS. 4.14
RIVER BED PROTECTION WORKS									
G3.19	Concrete Block, 980mm x 980mm x 400mm	nos.	600.0	43,028	27,016,541	136,598	81,959,041	108,975,582	TS. 4.14
G3.20	Concrete Block, Crib Type, t=400 mm	nos.	110.0	58,336	6,416,996	143,593	15,795,201	22,212,196	TS. 4.14
G3.21	Cobble Stone Filling for Crib type Concrete Block	m ³	70.0	5,489	384,241	21,099	1,476,950	1,861,191	TS. 4.14
G3.22	Crusher Run Bedding	m ³	100.0	7,270	726,960	47,207	4,720,719	5,447,679	TS. 4.14
MISCELLANEOUS WORKS									
G3.23	Handrail, Galvanized Steel Pipe	kg	2,300.0	3,376	7,764,629	454	1,043,540	8,808,169	TS. 6.10
G3.24	Galvanized Steel Ladder	kg	130.0	2,362	307,095	3,460	449,762	756,858	TS. 6.10
G3.25	Water Level Staff Gauge, Type A	L.S.	1.0	98,376	98,376	248,309	248,309	346,685	TS. 12.10

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ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H1	BRIDGE WORKS								
H1-1	Preparation Works	L.S.	1.0	4,889,544	5,411,383		19,772,316	25,183,700	
H1-2	Coffering and Dewatering	m ²	490.0	1,065	4,889,544	19,378,293	19,378,293	24,267,838	TS. 1.04
H20	Clearing and Grubbing				521,839	804	394,023	915,862	TS. 2.10
H20-1	PIPE AND PEDESTRIAN BRIDGE FOR PAPER FACTORY (F6)								
H20-1.1	EARTH WORKS				133,196,491		100,167,506	233,363,997	
H20-1.2	Excavation (Common)	m ³	1,850.0	5,705	10,553,731	3,779	6,990,442	17,544,174	TS. 2.10
H20-1.3	Embankment	m ³	170.0	3,022	513,657	2,286	388,661	907,318	TS. 2.10
H20-1.4	Backfill with Selected Soil	m ³	830.0	2,931	2,432,995	3,203	2,658,746	5,091,741	TS. 2.10
H20-2	Solid Sodding	m ²	88.0	55	4,870	1,400	123,234	128,104	TS. 4.14
H20-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H20-2.1	SP Pile for Test Pile, Dia. 400mm	m	11.0	267,379	2,941,164	35,331	388,643	3,329,807	TS. 5.07
H20-2.2	Static Load Test	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H20-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	130.0	267,379	34,759,212	35,331	4,593,056	39,352,269	TS. 5.07
H20-2.4	Reinforcing Steel Bar	kg	550.0	1,954	1,074,947	427	234,692	1,309,639	TS. 3.24
H20-2.5	Concrete, Type C1	m ³	1.0	79,200	79,200	118,800	118,800	198,000	TS. 3.24
H20-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H20-3.1	Concrete, Type C1	m ³	99.0	79,200	7,840,800	118,800	11,761,200	19,602,000	TS. 3.24
H20-3.2	Concrete, Type E	m ³	3.0	66,800	200,400	100,200	300,600	501,000	TS. 3.24
H20-3.3	Reinforcing Steel Bar	kg	15,300.0	1,954	29,903,076	427	6,528,700	36,431,776	TS. 3.24
H20-3.4	Formwork FW1	m ²	130.0	4,300	559,027	34,861	4,531,901	5,090,928	TS. 3.24
H20-3.5	Formwork FW2	m ²	160.0	5,417	866,719	47,635	7,621,668	8,488,387	TS. 3.24
H20-3.6	Rubble Stone Bedding	m ³	6.0	4,743	28,459	23,785	142,708	171,167	TS. 4.14
H20-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H20-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	16,786,449	16,786,449	25,179,673	25,179,673	41,966,122	TS. 8.07
H20-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	538,310	538,310	538,310	538,310	1,076,621	TS. 8.07
H20-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	1,246,140	1,246,140	1,246,140	1,246,140	2,492,280	TS. 8.07
H20-4.4	Concrete, Type B for Slab	m ³	20.0	185,172	3,703,449	132,511	3,050,212	6,753,662	TS. 3.24
H20-4.5	Reinforcing Steel Bar	kg	4,130.0	1,954	8,071,876	427	1,762,322	9,834,198	TS. 3.24
H20-4.6	Formwork FW2	m ²	86.0	5,417	463,862	47,635	4,096,646	4,562,508	TS. 3.24
H20-5	MISCELLANEOUS WORKS								
H20-5.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	7.0	28,015	196,108	10,680	74,762	270,870	TS. 6.10
H20-5.2	Elastomeric Bearing Pad, 406mm x 280mm x 67 mm	nos	2.0	210,558	421,116	313,538	627,116	1,048,232	TS. 8.07
H20-5.3	PVC Pipe Drain, Dia 100 mm	m	26.0	7,499	194,963	18,707	486,383	681,346	TS. 8.07
H20-5.4	Handrail, Galvanized Steel Pipe	kg	1,590.0	3,376	5,367,722	454	721,404	6,089,126	TS. 6.10
H20-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	4.0	79,200	316,800	118,800	475,200	792,000	TS. 3.24

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H20-5.6	Formwork FW1	m ²	78.0	4,300	335,416	34,861	2,719,141	3,054,557	TS. 3.24
H20-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H20-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H20-6.1	Backfill with Gravel	m ³	51.0	4,883	249,011	21,026	1,072,349	1,321,360	TS. 4.14
H20-6.2	Wet Stone Masonry (1:4) for Revetment	m ³	84.0	22,458	1,886,462	48,217	4,050,263	5,936,724	TS. 4.14
H20-6.3	Cement Mortar Plastering	m ²	140.0	3,445	482,367	7,007	981,031	1,463,398	TS. 4.14
H20-6.4	Concrete, Type C1	m ³	2.0	79,200	158,400	118,800	237,600	396,000	TS. 3.24
H20-6.5	Concrete, Type E	m ³	2.0	66,800	133,600	100,200	200,400	334,000	TS. 3.24
H20-6.6	Reinforcing Steel Bar	kg	16.0	1,954	31,271	427	6,827	38,099	TS. 3.24
H20-6.7	Formwork FW1	m ²	72.0	4,300	309,615	34,861	2,509,976	2,819,591	TS. 3.24
H20-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	77.0	2,798	215,475	7,421	571,428	786,903	TS. 4.14
H20-7	PAVEMENT (APPROACH ROAD)								
H20-7.1	Gravel Pavement, 200 mm thick	m ²	59.0	5,360	316,228	27,751	1,637,331	1,953,558	TS. 7.09
H21	JALAN SMA BRIDGE (F7)								
H21-1	EARTH WORKS								
H21-1.1	Excavation (Common)	m ³	2,280.0	5,705	13,006,761	3,779	8,615,248	21,622,008	TS. 2.10
H21-1.2	Backfill with Selected Soil	m ³	2,100.0	2,931	6,155,770	3,203	6,726,948	12,882,717	TS. 2.10
H21-2	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H21-2.1	Concrete, Type C1	m ³	300.0	79,200	23,760,000	118,800	35,640,000	59,400,000	TS. 3.24
H21-2.2	Concrete, Type E	m ³	8.0	66,800	534,400	100,200	801,600	1,336,000	TS. 3.24
H21-2.3	Reinforcing Steel Bar	kg	4,200.0	1,954	8,208,688	427	1,792,192	10,000,880	TS. 3.24
H21-2.4	Formwork FW1	m ²	13.0	4,300	55,903	34,861	453,190	509,093	TS. 3.24
H21-2.5	Formwork FW2	m ²	330.0	5,417	1,787,609	47,635	15,719,689	17,507,298	TS. 3.24
H21-2.6	Rubble Stone Bedding	m ³	15.0	4,743	71,149	23,785	356,770	427,918	TS. 4.14
H21-3	CONCRETE WORKS FOR SUPER STRUCTURE								
H21-3.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	75,628,103	75,628,103	113,442,155	113,442,155	189,070,258	TS. 8.07
H21-3.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	222,736	222,736	222,736	222,736	445,471	TS. 8.07
H21-3.3	Prestressed Concrete Panel for Slab	L.S.	1.0	1,139,558	1,139,558	1,139,558	1,139,558	2,279,116	TS. 8.07
H21-3.4	Concrete, Type B for Slab	m ³	19.0	185,172	3,518,277	152,511	2,897,702	6,415,979	TS. 3.24
H21-3.5	Reinforcing Steel Bar	kg	2,800.0	1,954	5,472,458	427	1,194,795	6,667,253	TS. 3.24
H21-3.6	Formwork FW2	m ²	34.0	5,417	184,178	47,635	1,619,604	1,803,782	TS. 3.24
H21-4	MISCELLANEOUS WORKS								
H21-4.1	Expansion Joint, Steel Profile (75mm x 75mm x 6mm)	m	11.0	28,015	308,170	10,680	117,483	425,652	TS. 6.10
H21-4.2	Elastomeric Bearing Pad, 406mm x 280mm x 67mm	nos.	6.0	210,558	1,263,347	313,558	1,881,348	3,144,695	TS. 8.07
H21-4.3	PVC Pipe Drain, Dia. 100 mm	m	7.0	7,499	52,490	18,707	130,949	183,439	TS. 8.07
H21-4.4	Handrail, Galvanized Steel Pipe	kg	870.0	3,376	2,937,056	454	394,730	3,331,786	TS. 6.10

MFC-7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H21-4.5	Concrete, Type C1 for Handrail Post and Curb	m ³	3.0	79,200	237,600	118,800	356,400	594,000	TS. 3.24
H21-4.6	Formwork FW1	m ²	40.0	4,300	172,008	34,861	1,394,431	1,566,439	TS. 3.24
H21-4.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H21-5	PAVEMENT								
H21-5.1	Bituminous Prime Coat	liter	77.0	769	59,237	1,114	85,756	144,993	TS. 7.09
H21-5.2	Bituminous Surface Course, 50 mm thick	ton	3.0	59,631	178,893	90,888	272,663	451,556	TS. 7.09
H22	Og SEKASAME BRIDGE (F8, PEDESTRIAN BRIDGE)				282,338,322		256,134,309	538,472,632	
H22-1	EARTH WORKS								
H22-1.1	Excavation (Common)	m ³	2,110.0	5,705	12,036,958	3,779	7,972,883	20,009,841	TS. 2.10
H22-1.2	Embankment	m ³	8,580.0	3,022	25,924,552	2,286	19,615,949	45,540,501	TS. 2.10
H22-1.3	Backfill with Selected Soil	m ³	840.0	2,931	2,462,308	3,203	2,690,779	5,153,087	TS. 2.10
H22-1.4	Solid Sodding	m ³	2,640.0	55	146,102	1,400	3,697,016	3,843,118	TS. 4.14
H22-1.5	Demolition and Removal of Existing Structure	L.S.	1.0	566,188	566,188	491,554	491,554	1,057,742	TS. 2.10
H22-2	PILE FOUNDATION WORKS FOR ABUTMENT								
H22-2.1	SP Pile for Test Pile, Dia. 400mm	m	10.0	267,379	2,673,786	35,331	353,312	3,027,098	TS. 5.07
H22-2.2	Static Load Test	nos	1.0	0	0	1,380,000	1,380,000	1,380,000	TS. 5.07
H22-2.3	Supply and Driving of SP Piles, Dia. 400 mm	m	240.0	267,379	64,170,854	35,331	8,479,489	72,650,342	TS. 5.07
H22-2.4	Reinforcing Steel Bar	kg	1,110.0	1,954	2,169,439	427	473,651	2,643,090	TS. 3.24
H22-2.5	Concrete, Type C1	m ³	2.0	79,200	158,400	118,800	237,600	396,000	TS. 3.24
H22-3	CONCRETE WORKS FOR ABUTMENT AND APPROACH SLAB								
H22-3.1	Concrete, Type C1	m ³	200.0	79,200	15,840,000	118,800	23,760,000	39,600,000	TS. 3.24
H22-3.2	Concrete, Type E	m ³	5.0	66,800	334,000	100,200	501,000	835,000	TS. 3.24
H22-3.3	Reinforcing Steel Bar	kg	31,000.0	1,954	60,587,933	427	13,228,084	73,816,017	TS. 3.24
H22-3.4	Formwork FW1	m ²	200.0	4,300	860,042	34,861	6,972,155	7,832,197	TS. 3.24
H22-3.5	Formwork FW2	m ²	300.0	5,417	1,625,099	47,635	14,290,627	15,915,725	TS. 3.24
H22-3.6	Rubble Stone Bedding	m ³	11.0	4,743	52,176	23,785	261,631	313,807	TS. 4.14
H22-4	CONCRETE WORKS FOR SUPER STRUCTURE								
H22-4.1	Precast Prestressed Concrete Beam including Tensioning and Erection	L.S.	1.0	31,287,710	31,287,710	46,931,564	46,931,564	78,219,274	TS. 8.07
H22-4.2	Precast Prestressed Concrete Diaphragm	L.S.	1.0	998,605	998,605	998,605	998,605	1,997,210	TS. 8.07
H22-4.3	Prestressed Concrete Panel for Slab	L.S.	1.0	2,321,620	2,321,620	2,321,620	2,321,620	4,643,240	TS. 8.07
H22-4.4	Concrete, Type B for Slab	m ³	39.0	185,172	7,221,726	152,511	5,947,914	13,169,641	TS. 3.24
H22-4.5	Reinforcing Steel Bar	kg	7,860.0	1,954	15,361,973	427	3,353,959	18,715,932	TS. 3.24
H22-4.6	Formwork FW2	m ²	180.0	5,417	975,059	47,635	8,574,376	9,549,435	TS. 3.24
H22-5	MISCELLANEOUS WORKS								
H22-5.1	Expansion Joint, Sliced Profile (75mm x 75mm x 6mm)	m	13.0	28,015	364,201	10,680	138,843	503,044	TS. 6.10
H22-5.2	Elastomeric Bearing Pad for Abutment, 406mm x 280mm x 67 mm	nos.	4.0	210,558	842,231	313,558	1,254,232	2,096,463	TS. 8.07

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
H22-5.3	PVC Pipe Drain, Dia 100 mm	m	2,980.0	7,499	22,345,754	18,707	55,746,988	78,092,741	TS. 8.07
H22-5.4	Handrail, Galvanized Steel Pipe	kg	7.0	3,376	23,631	454	3,176	26,807	TS. 6.10
H22-5.5	Concrete, Type C1 for Handrail Post, Curb and Footpass	m ³	7.0	79,200	554,400	118,800	831,600	1,386,000	TS. 3.24
H22-5.6	Formwork FW1	m ²	180.0	4,300	774,038	34,861	6,274,940	7,048,977	TS. 3.24
H22-5.7	Name Plate	nos.	2.0	5,796	11,592	79,970	159,941	171,533	TS. 8.07
H22-6	DRAINAGE DITCH AND RETAINING WALL FOR APPROACH ROAD								
H22-6.1	Backfill with Gravel	m ³	43.0	4,883	209,951	21,026	904,138	1,114,088	TS. 4.14
H22-6.2	Wet Stone Masonry (1:4) for Retement	m ³	130.0	22,458	2,919,524	48,217	6,268,264	9,187,787	TS. 4.14
H22-6.3	Cement Mortar Plastering	m ²	350.0	3,445	1,205,918	7,007	2,452,577	3,658,496	TS. 4.14
H22-6.4	Concrete, Type C1	m ³	11.0	79,200	871,200	118,800	1,306,800	2,178,000	TS. 3.24
H22-6.5	Concrete, Type E	m ³	3.0	66,800	200,400	100,200	300,600	501,000	TS. 3.24
H22-6.6	Reinforcing Steel Bar	kg	1,520.0	1,954	2,970,763	427	648,603	3,619,366	TS. 3.24
H22-6.7	Formwork FW1	m ²	93.0	4,300	399,919	34,861	3,242,052	3,641,972	TS. 3.24
H22-6.8	Weep Hole, Dia. 50 mm, including Filter Cloth	nos.	62.0	2,798	173,500	7,421	460,111	633,611	TS. 4.14
H22-7	PAVEMENT (APPROACH ROAD)								
H22-7.1	Gravel Pavement, 200 mm thick	m ³	130.0	5,360	696,773	27,751	3,607,678	4,304,451	TS. 7.09

MPC-7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
16	OTHER WORKS								
	ENVIRONMENTAL IMPROVEMENT WORKS FOR INSPECTION ROAD OF FLOODWAY								
	INSPECTION ROAD								
16.1	Excavation (Common)	m ³	1,070.0	5,705	488,278.687	3,779	214,159.209	702,437.896	
16.2	Gravel Pavement, 200 mm thick	m ²	1,340.0	5,360	6,104,050	27,751	4,043,121	10,147,171	TS. 2.10
16.3	Maintenance Market Post	nos.	11.0	31,395	7,182,119	52,099	37,186,834	44,368,954	TS. 7.09
					345,345		573,087	918,432	TS. 12.10
16.4	PLANTING ALONGSIDE INSPECTION ROAD								
16.5	Excavation (Common)	m ³	260.0	5,705	1,483,227	3,779	982,441	2,465,668	TS. 2.10
16.6	Concrete, Type D	m ³	91.0	72,850	6,629,350	109,275	9,944,025	16,573,375	TS. 3.24
16.7	Sand Bedding	m ³	53.0	3,569	189,155	18,192	964,151	1,153,306	TS. 4.14
16.8	Formwork FW1	m ²	900.0	4,300	3,870,188	34,861	31,374,699	35,244,887	TS. 3.24
16.9	Palem Hijau	tree	26.0	1,434	37,290	21,777	566,191	603,481	TS. 12.10
16.10	Fillisium	tree	26.0	1,434	37,290	16,343	424,914	462,204	TS. 12.10
16.11	Acsia Petandra	tree	26.0	1,434	37,290	12,117	315,031	352,321	TS. 12.10
16.12	Tanjung	tree	26.0	1,434	37,290	16,343	424,914	462,204	TS. 12.10
16.13	Cemara Kipas	tree	53.0	1,434	76,015	45,927	2,434,109	2,510,124	TS. 12.10
16.14	Cemara Lilin	tree	53.0	1,434	76,015	45,927	2,434,109	2,510,124	TS. 12.10
16.15	Soka	tree	53.0	7	365	427	22,648	23,013	TS. 12.10
	Bougainvillea	tree	53.0	1,434	76,015	9,702	514,184	590,199	TS. 12.10
	FENCE								
16.16	Excavation (Common)	m ³	130.0	5,705	741,614	3,779	491,220	1,232,834	TS. 2.10
16.17	Backfill with Selected Soil	m ³	100.0	3,022	302,151	2,286	228,624	530,775	TS. 2.10
16.18	Crusher Run Bedding	m ³	13.0	7,270	94,505	47,207	613,694	708,198	TS. 4.14
16.19	Concrete, Type D	m ³	20.0	72,850	1,457,000	109,275	2,185,500	3,642,500	TS. 3.24
16.20	Formwork FW1	m ²	250.0	4,300	1,075,052	34,861	8,715,194	9,790,246	TS. 3.24
16.21	Galvanized Steel Fence, H=1.20 m	m	1,060.0	431,186	457,057,346	100,829	106,878,385	563,935,730	TS. 6.10
16.22	Steel Gate (2 places)	L.S.	1.0	1,370,015	1,370,015	2,842,135	2,842,135	4,212,150	TS. 9.09
17	ENVIRONMENTAL IMPROVEMENT WORKS FOR RETARDING CHANNEL								
	PREPARATION WORK								
17.1	Clearing and Grubbing	m ²	550.0	1,065	585,738	804	442,270	1,028,008	TS. 2.10
17.2	WALKWAY								
17.3	Excavation (Common)	m ³	1,640.0	5,705	9,355,740	3,779	6,196,933	15,552,673	TS. 2.10
	Gravel Pavement, 200 mm thick for Walkway	m ²	1,540.0	5,360	8,254,078	27,751	42,737,108	50,991,185	TS. 7.09
	APPROACH ROAD TO RETARDING CHANNEL (CLASS III)								

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
17.4	Stripping of Top Soil	m ³	66.0	1,317	86,948	1,887	124,563	211,511	TS. 2.10
17.5	Excavation (Common)	m ³	260.0	5,705	1,483,227	3,779	982,441	2,465,668	TS. 2.10
17.6	Embankment	m ³	130.0	3,022	392,796	2,286	297,211	690,008	TS. 2.10
17.7	Sub-Base Course, (Class C)	m ³	40.0	5,903	236,127	32,642	1,305,670	1,541,796	TS. 7.09
17.8	Base Course, (Class B)	m ³	26.0	6,447	167,610	37,532	975,835	1,143,445	TS. 7.09
17.9	Asphalt Treatment Base (A.T.B)	ton	13.0	156,585	2,035,599	388,149	5,045,938	7,081,537	TS. 7.09
DRAINAGE SIDE DITCH (WET MASONRY TYPE) AND OUTLET									
17.10	Excavation (Common)	m ³	880.0	5,705	5,020,153	3,779	3,325,183	8,345,337	TS. 2.10
17.11	Backfill with Selected Soil	m ³	290.0	2,931	850,082	3,203	928,959	1,779,042	TS. 2.10
17.12	Crusher Run Bedding	m ³	9.0	7,270	65,426	47,207	424,865	490,291	TS. 4.14
17.13	Wet Stone Masonry (1:4) for Revetment	m ³	420.0	22,458	9,432,308	48,217	20,251,313	29,683,621	TS. 4.14
17.14	Wet Stone Masonry (1:3) for Revetment	m ³	25.0	25,600	640,000	52,811	1,320,277	1,960,277	TS. 4.14
17.15	Cement Mortar Plastering	m ³	1,640.0	3,445	5,650,588	7,007	11,492,077	17,142,665	TS. 4.14
17.16	Concrete, Type C2	m ³	2.0	75,600	151,200	113,400	226,800	378,000	TS. 3.24
17.17	Reinforcing Steel Bar	kg	330.0	1,954	644,968	427	140,815	785,783	TS. 3.24
17.18	Formwork FW1	m ²	30.0	4,300	129,006	34,861	1,045,823	1,174,830	TS. 3.24
BOULDER PITCHING FOR SLOPE BETWEEN ZONE A AND B									
17.19	Excavation (Common)	m ³	350.0	5,705	1,996,652	3,779	1,322,516	3,319,168	TS. 2.10
17.20	Boulder Pitching (300mm - 500mm)	m ³	1,750.0	4,209	7,280,760	22,782	39,412,958	46,693,718	TS. 12.10
17.21	Backfill with Selected Soil	m ³	170.0	2,931	498,324	3,203	544,562	1,042,887	TS. 2.10
FENCE									
17.22	Excavation (Common)	m ³	86.0	5,705	490,606	3,779	324,961	815,567	TS. 2.10
17.23	Backfill with Selected Soil	m ³	44.0	2,931	128,978	3,203	140,946	269,924	TS. 2.10
17.24	Crusher Run Bedding	m ³	17.0	7,270	123,583	47,207	802,522	926,105	TS. 4.14
17.25	Concrete, Type D	m ³	25.0	72,850	1,821,250	109,275	2,731,875	4,553,125	TS. 3.24
17.26	Galvanized Steel Fence, H=1.20 m	m	1,370.0	431,186	590,725,060	100,829	138,135,271	728,860,331	TS. 6.10
PLANTING ALONGSIDE WALKWAY ON ZONE-D									
17.27	Excavation (Common)	m ³	310.0	5,705	1,768,463	3,779	1,171,371	2,939,834	TS. 2.10
17.28	Backfill with Selected Soil	m ³	140.0	2,931	410,385	3,203	448,463	858,848	TS. 2.10
17.29	Solid Sodding	m ²	2,500.0	55	138,354	1,400	3,500,962	3,639,316	TS. 4.14
17.30	Sand Bedding	m ³	63.0	3,569	224,845	18,192	1,146,067	1,370,911	TS. 4.14
17.31	Concrete Type D	m ³	110.0	72,850	8,013,500	109,275	12,020,250	20,033,750	TS. 3.24
17.32	Formwork, FW1	m ²	1,040.0	4,300	4,472,218	34,861	36,255,208	40,727,425	TS. 3.24
17.33	Palem Hijau	tree	32.0	1,434	45,896	21,777	696,851	742,746	TS. 12.10
17.34	Fillisium	tree	32.0	1,434	45,896	16,343	522,971	568,866	TS. 12.10
17.35	Acacia Petandra	tree	32.0	1,434	45,896	12,117	387,751	433,626	TS. 12.10
17.36	Tanjung	tree	32.0	1,434	45,896	16,343	522,971	568,866	TS. 12.10
MISCELLANEOUS									

MFC-7

ITEM NO.	BQ-ITEMS	UNIT	QUANTITY	F.C.		L.C.		TOTAL	SPEC. NO.
				UNIT COST (RP.)	AMOUNT (RP.)	UNIT COST (RP.)	AMOUNT (RP.)		
17.37	Information Board	nos.	3.0	177,366	532,097	330,251	990,753	1,522,850	TS.12.10
17.38	Water Level Staff Gauge	nos.	2.0	533,931	1,067,862	280,950	561,900	1,629,763	TS.12.10
17.39	Roofed Bench	nos.	4.0	43,084	172,336	354,962	1,419,848	1,592,184	TS.12.10
17.40	Entrance Gate	nos.	2.0	300,368	600,736	384,614	769,228	1,369,964	TS. 6.10

APPENDIX 8

BREAKDOWN OF CONSTRUCTION UNIT COST

SUMMARY OF BREAKDOWN OF CONSTRUCTION UNIT COST

Item No.	Description	Unit	Unit Cost		Total (Rp.)	Code No.	Page No.
			L.C (Rp.)	F.C (Rp.)			
1.	GENERAL ITEMS (GS)						
	MFC-1						
1	Mobilization and Demobilization, MFC-1	L.S.	34,119,840	48,648,003	82,767,843	GSA-1	A8-1
2	Mobilization and Demobilization	nos.				GSA-1-1	A8-2
3	Establishment, MFC-1	L.S.	712,612,594	541,153,446	1,253,766,040	GSA-2	A8-3
4	Contractor's Temporary Facilities and Other Construction Facilities	nos.	302,320,051	25,172,434	327,492,485	GSA-2-1	A8-4
5	Electric Power Supply System	L.S.	353,043,000	453,969,000	807,012,000	GSA-2-2	A8-5
6	Water Supply System	L.S.	36,813,178	51,656,798	88,469,976	GSA-2-3	A8-6
7	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSA-2-4	A8-7
8	Temporary Construction Roads and Bridge	L.S.	17,706,365	8,755,214	26,461,579	GSA-2-5	A8-8
9	Relocation of Existing Facilities, MFC-1	P.S	4,351,510	2,523,934	6,875,444	GSA-3	A8-9
10	Rotary Boring with Laboratory Test	m	220,000	0	220,000	GS-4	A8-10
11	Hand Auger with Laboratory Test	m	110,000	0	110,000	GS-6	A8-11
12	Exploratory Excavation	m ³	55,000	0	55,000	GS-7	A8-12
	MFC-2						
13	Mobilization and Demobilization, MFC-2	L.S.	35,560,821	50,902,007	86,462,828	GSB-1	A8-13
14	Mobilization and Demobilization	nos.				GSB-1-1	A8-14
15	Establishment, MFC-2	L.S.	1,093,436,966	721,700,416	1,815,137,382	GSB-2	A8-15
16	Contractor's Temporary Facilities and Other Construction Facilities	nos.	302,320,051	25,172,434	327,492,485	GSB-2-1	A8-16
17	Electric Power Supply System	L.S.	353,043,000	453,969,000	807,012,000	GSB-2-2	A8-17
18	Water Supply System	L.S.	36,813,178	51,656,798	88,469,976	GSB-2-3	A8-18
19	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSB-2-4	A8-19
20	Temporary Construction Roads and Bridge	L.S.	398,530,738	189,302,184	587,832,922	GSB-2-5	A8-20
21	Relocation of Existing Facilities, MFC-2	P.S	1,640,206	1,709,539	3,349,745	GSB-3	A8-21
	MFC-3						
22	Mobilization and Demobilization, MFC-3	L.S.	35,447,935	50,272,834	85,720,769	GSC-1	A8-22
23	Mobilization and Demobilization	nos.				GSC-1-1	A8-23
24	Establishment, MFC-3	L.S.	1,281,984,050	905,032,278	2,187,016,328	GSC-2	A8-24
25	Contractor's Temporary Facilities and Other Construction Facilities	nos.	330,012,051	25,172,434	355,184,485	GSC-2-1	A8-25
26	Electric Power Supply System	L.S.	474,970,050	612,858,150	1,087,828,200	GSC-2-2	A8-26
27	Water Supply System	L.S.	49,018,987	69,445,761	118,464,748	GSC-2-3	A8-27
28	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSC-2-4	A8-28
29	Temporary Construction Roads	L.S.	425,252,963	195,955,932	621,208,895	GSC-2-5	A8-29
30	Relocation of Existing Facilities, MFC-3	P.S	3,280,412	3,419,078	6,699,490	GSC-3	A8-30
	MFC-4						
31	Mobilization and Demobilization, MFC-4	L.S.	31,725,517	45,099,551	76,825,068	GSD-1	A8-31
32	Mobilization and Demobilization	nos.				GSD-1-1	A8-32
33	Establishment, MFC-4	L.S.	1,341,815,222	923,466,058	2,265,281,281	GSD-2	A8-33
34	Contractor's Temporary Facilities and Other Construction Facilities	nos.	330,012,051	25,172,434	355,184,485	GSD-2-1	A8-34
35	Electric Power Supply System	L.S.	474,970,050	612,858,150	1,087,828,200	GSD-2-2	A8-35
36	Water Supply System	L.S.	49,018,987	69,445,761	118,464,748	GSD-2-3	A8-36
37	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSD-2-4	A8-37
38	Temporary Construction Roads	L.S.	485,084,134	214,389,713	699,473,847	GSD-2-5	A8-38
39	Relocation of Existing Facilities, MFC-4	P.S	3,937,172	4,031,791	7,968,963	GSD-3	A8-39
	MFC-5						
40	Mobilization and Demobilization, MFC-5	L.S.	33,922,590	48,201,716	82,124,305	GSE-1	A8-40
41	Mobilization and Demobilization	nos.				GSE-1-1	A8-41
42	Establishment, MFC-5	L.S.	712,612,594	541,153,446	1,253,766,040	GSE-2	A8-42
43	Contractor's Temporary Facilities and Other Construction Facilities	nos.	302,320,051	25,172,434	327,492,485	GSE-2-1	A8-43
44	Electric Power Supply System	L.S.	353,043,000	453,969,000	807,012,000	GSE-2-2	A8-44
45	Water Supply System	L.S.	36,813,178	51,656,798	88,469,976	GSE-2-3	A8-45
46	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSE-2-4	A8-46
47	Temporary Construction Roads and Bridge	L.S.	17,706,365	8,755,214	26,461,579	GSE-2-5	A8-47
48	Relocation of Existing Facilities, MFC-5	P.S	6,565,444	2,693,650	9,259,095	GSE-3	A8-48
	MFC-6						
49	Mobilization and Demobilization, MFC-6	L.S.	26,464,590	37,480,353	63,944,943	GSF-1	A8-49
50	Mobilization and Demobilization	nos.				GSF-1-1	A8-50
51	Establishment, MFC-6	L.S.	926,814,304	726,716,155	1,653,530,459	GSF-2	A8-51
52	Contractor's Temporary Facilities and Other Construction Facilities	nos.	330,012,051	25,172,434	355,184,485	GSF-2-1	A8-52
53	Electric Power Supply System	L.S.	474,970,050	612,858,150	1,087,828,200	GSF-2-2	A8-53
54	Water Supply System	L.S.	49,018,987	69,445,761	118,464,748	GSF-2-3	A8-54
55	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSF-2-4	A8-55
56	Temporary Construction Roads	L.S.	70,083,216	17,639,810	87,723,026	GSF-2-5	A8-56
57	Relocation of Existing Facilities, MFC-6	P.S	11,899,579	5,141,272	17,040,852	GSF-3	A8-57
	MFC-7						
58	Mobilization and Demobilization, MFC-7	L.S.	28,481,964	40,635,958	69,117,922	GSF-1	A8-58
59	Mobilization and Demobilization	nos.				GSF-1-1	A8-59
60	Establishment, MFC-7	L.S.	1,475,564,691	1,146,954,049	2,622,518,740	GSF-2	A8-60
61	Contractor's Temporary Facilities and Other Construction Facilities	nos.	330,012,051	25,172,434	355,184,485	GSF-2-1	A8-61
62	Electric Power Supply System	L.S.	474,970,050	612,858,150	1,087,828,200	GSF-2-2	A8-62
63	Water Supply System	L.S.	49,018,987	69,445,761	118,464,748	GSF-2-3	A8-63
64	Telecommunication System	L.S.	2,730,000	1,600,000	4,330,000	GSF-2-4	A8-64
65	Temporary Construction Roads	L.S.	618,833,603	437,877,704	1,056,711,307	GSF-2-5	A8-65
66	Relocation of Existing Facilities, MFC-7	P.S	6,565,674	4,499,270	11,064,943	GSF-3	A8-66
2.	EARTH WORKS (EW)						
1	Clearing and Grubbing	m ²	804	1,065	1,869	EW-1	A8-67
2	Common Excavation	m ³	1,841	2,876	4,717	EW-2	A8-68
3	Common Excavation : Dampping at Spoil Bank 5 km	m ³	4,203	6,399	10,602	EW-3	A8-69
4	Common Excavation : Dampping at Spoil Bank 2 km	m ³	3,014	4,452	7,466	EW-3-1	A8-70

SUMMARY OF BREAKDOWN OF CONSTRUCTION UNIT COST

Item No.	Description	Unit	Unit Cost		Total (Rp.)	Code No.	Page No.
			L.C (Rp.)	F.C (Rp.)			
5	Common Excavation : Dampening at Spoil Bank 4 km	m ³	3,779	5,705	9,483	EW-3-2	A8-71
6	Common Excavation : Dampening at Spoil Bank 6.5 km	m ³	4,740	7,279	12,019	EW-3-3	A8-72
7	Excavation (Common Soil) for Floodway, 5 km	m ³	3,700	5,988	9,687	EW-4	A8-73
8	Excavation (Common Soil) for Floodway	m ³	877	1,357	2,234	EW-4-1	A8-74
9	Excavation (Common Soil) for Floodway, 2 km	m ³	2,509	4,038	6,546	EW-4-2	A8-75
10	Excavation (Common Soil) for Floodway, 4 km	m ³	3,275	5,293	8,568	EW-4-3	A8-76
11	Excavation for River Channel (Common Soil), 5km	m ³	4,581	6,744	11,325	EW-5	A8-77
12	Excavation for River Channel (Common Soil)	m ³	2,585	3,539	6,124	EW-5-1	A8-78
13	Dredging	m ³	3,468	2,197	5,665	EW-6	A8-79
14	Embankment	m ³	2,286	3,022	5,308	EW-7	A8-80
15	Embankment Materials from Spoil Yard	m ³	2,050	3,271	5,321	EW-7-1	A8-81
16	Backfill with Impervious Soil	m ³	2,808	2,373	5,181	EW-8	A8-82
17	Backfill with Selected Soil	m ³	3,203	2,931	6,135	EW-9	A8-83
18	Sand Bedding, 100 mm	m ³	18,192	3,569	21,760	EW-10	A8-84
19	Sand Filling	m ³	20,347	1,870	22,216	EW-11	A8-85
20	Soil Filling	m ³	3,402	1,334	4,736	EW-12	A8-86
21	Solid Sodding	m ²	1,400	55	1,456	EW-13	A8-87
22	Check Sodding	m ²	1,099	55	1,154	EW-14	A8-88
23	Sprigging	m ²	851	55	906	EW-15	A8-89
24	Stripping	m ²	1,887	1,317	3,205	EW-16	A8-90
3.	CONCRETE WORKS (CN)						
1	Cement Mortar Plastering, 20 mm thick	m ²	7,007	3,445	10,453	CN-1	A8-91
2	Non-Shrinkage Mortar	m ³	297,930	135,189	433,119	CN-2	A8-92
3	Form Work with Scaffolding (FW1)	m ²	34,861	4,300	39,161	CN-3	A8-93
4	Form Work with Scaffolding & Support (FW2)	m ²	47,635	5,417	53,052	CN-4	A8-94
5	Reinforcing Steel Bar	kg	427	1,954	2,381	CN-5	A8-95
6	Water Stop, w = 30 cm	m	43,230	17,116	60,346	CN-6	A8-96
7	Elastic Joint Filler, 10 mm thick	m	24,444	9,056	33,500	CN-7	A8-97
8	Reinforced Concrete, Type-C1	m ³	140,136	176,922	317,058	CN-8	A8-98
9	Reinforced Concrete, Type-C1 including Formwork (FW1)	m ³	244,718	189,823	434,541	CN-9	A8-99
10	Reinforced Concrete, Type-C1 including Formwork (FW2)	m ³	283,042	193,173	476,215	CN-10	A8-100
11	Reinforced Concrete, Type-C2	m ³	134,736	173,322	308,058	CN-11	A8-101
12	Reinforced Concrete, Type-C2 including Formwork (FW1)	m ³	239,318	186,223	425,541	CN-12	A8-102
13	Reinforced Concrete, Type-C2 including Formwork (FW2)	m ³	277,642	189,573	467,215	CN-13	A8-103
14	Reinforced Concrete, Type-D	m ³	124,210	141,256	265,466	CN-14	A8-104
15	Reinforced Concrete, Type-D including Formwork (FW1)	m ³	228,792	154,156	382,949	CN-15	A8-105
16	Reinforced Concrete, Type-D including Formwork (FW2)	m ³	267,116	157,507	424,623	CN-16	A8-106
17	Reinforced Concrete, Type-E	m ³	108,734	105,889	214,623	CN-17	A8-107
18	Reinforced Concrete Block Crib Type t = 400 mm	nos.	143,593	58,336	201,929	CN-18	A8-108
19	Reinforced Concrete Block Crib Type t = 200 mm	nos.	74,037	39,429	113,466	CN-19	A8-109
20	Reinforced Concrete Block, 0.98 x 0.98 x 0.4m	nos.	136,598	45,028	181,626	CN-20	A8-110
21	Reinforced Concrete, Type-B	m ³	152,511	185,172	337,683	CN-21	A8-111
22	Reinforced Concrete, Type-B including Formwork (FW1)	m ³	257,093	198,073	455,166	CN-22	A8-112
23	Plain Concrete, Type-D	m ³	109,275	72,850	182,125	CN-23	A8-113
24	Plain Concrete, Type-E	m ³	100,200	66,800	167,000	CN-24	A8-114
25	Plain Concrete, Type-C1	m ³	118,800	79,200	198,000	CN-25	A8-115
26	Plain Concrete, Type-C2	m ³	113,400	75,600	189,000	CN-26	A8-116
4.	MASONRY AND STONE WORKS (MS)						
1	Crusher Run Bedding	m ³	47,207	7,270	54,477	MS-1	A8-117
2	Backfill with Gravel	m ³	21,026	4,883	25,909	MS-2	A8-118
3	Cobble Stone Filling	m ³	21,099	5,489	26,588	MS-3	A8-119
4	Boulder Riprap (200 mm - 300 mm)	m ³	31,405	5,804	37,210	MS-4	A8-120
5	Boulder Riprap (300 mm - 500 mm)	m ³	32,803	7,429	40,232	MS-5	A8-121
6	Gabion Mattress filled with Cobble Stone	m ³	47,689	85,210	132,899	MS-6	A8-122
7	Gabion Cylinder filled with Cobble Stone	m ³	60,683	138,840	199,523	MS-7	A8-123
8	Rubble Stone Bedding	m ³	23,785	4,743	28,528	MS-8	A8-124
9	Wet Stone Masonry (1:3)	m ³	52,811	25,600	78,411	MS-9	A8-125
10	Wet Stone Masonry (1:4)	m ³	48,217	22,458	70,675	MS-10	A8-126
11	Boulder Pitching (200 mm - 300 mm)	m ²	21,756	3,675	25,431	MS-11	A8-127
12	Boulder Pitching (300 mm - 500 mm)	m ²	22,782	4,209	26,991	MS-12	A8-128
5.	ROAD WORKS (RW)						
1	Asphalt Treated Base (A.T.B), 65 mm thick	ton	388,149	156,585	544,734	RW-1	A8-129
2	Base Course, Class A	m ³	45,411	7,322	52,733	RW-2	A8-130
3	Base Course, Class B	m ³	37,532	6,447	43,979	RW-3	A8-131
4	Sub-Base Course, Class A	m ³	39,787	6,697	46,484	RW-4	A8-132
5	Sub-Base Course, Class B	m ³	35,576	6,229	41,805	RW-5	A8-133
6	Sub-Base Course, Class C	m ³	32,642	5,903	38,545	RW-6	A8-134
7	Gravel Pavement	m ³	27,751	5,360	33,111	RW-7	A8-135
8	Bituminous Surface Course, 50 mm thick	ton	90,888	59,631	150,519	RW-8	A8-136
9	Bituminous Prime Coat	lte	1,114	769	1,883	RW-9	A8-137
10	Bituminous Tack Coat	lte	2,046	1,445	3,491	RW-10	A8-138
6.	PIPE WORKS (PW)						
1	Drain Pipe, PVC Pipe Dia. 50 mm	m	7,231	2,717	9,948	PW-1	A8-139
2	Drain Pipe, PVC Pipe Dia. 75 mm	m	9,767	3,804	13,570	PW-2	A8-140
3	Drain Pipe, PVC Pipe Dia. 100 mm	m	18,707	7,499	26,206	PW-3	A8-141

SUMMARY OF BREAKDOWN OF CONSTRUCTION UNIT COST

Item No.	Description	Unit	Unit Cost		Total (Rp.)	Code No.	Page No.
			L.C (Rp.)	F.C (Rp.)			
4	Drain Pipe, PVC Pipe Dia. 150 mm	m	37,345	15,486	52,831	PW-4	A8-142
5	Drain Pipe, PVC Pipe Dia. 200 mm	m	60,167	25,267	85,433	PW-5	A8-143
6	Weep Hole, 50 mm	nos.	7,421	2,798	10,220	PW-6	A8-144
7	Air Vent Pipe, PVC Dia. 75 mm	set	24,239	14,454	38,693	PW-7	A8-145
8	Air Valve, Dia 150 mm	nos.	158,118	606,733	764,850	PW-8	A8-146
9	Pipe Culvert, Dia 1000 mm	m	202,468	133,255	335,723	PW-9	A8-147
10	Pipe Culvert, Dia 800 mm	m	132,191	86,404	218,596	PW-10	A8-148
11	Pipe Culvert, Dia 600 mm	m	77,129	49,696	126,826	PW-11	A8-149
12	Pipe Culvert, Dia 300 mm	m	27,139	16,369	43,508	PW-12	A8-150
13	Weep Hole, 100 mm with Filter Cloth and Valve	nos.	15,789	61,233	77,022	PW-13	A8-151
14	Water Pipe, Dia. 800 mm, WB2	L.S	18,150,983	77,848,262	95,999,245	PW-14	A8-152
15	Water Pipe, Dia. 600 mm x 2, WB1	L.S	17,824,982	121,870,548	139,695,530	PW-15	A8-153
16	Water Pipe, Dia. 300 mm, WB3	L.S	4,697,827	24,964,338	29,662,165	PW-16	A8-154
17	Water Pipe, Dia. 300 mm, WB4	L.S	5,187,951	28,277,404	33,465,355	PW-17	A8-155
18	Water Pipe, Dia. 600 mm, WB4	L.S	9,865,897	50,238,780	60,104,677	PW-18	A8-156
19	Water Pipe with Bridge, Dia. 100 mm, P-7 and P-9	L.S	2,879,598	10,967,747	13,847,344	PW-19	A8-157
20	Water Pipe with Bridge, Dia. 125 mm, P-13	L.S	13,892,191	62,457,285	76,349,476	PW-20	A8-158
21	Water Pipe with Bridge, Dia. 150 mm, P-9, P-11 and P-13	L.S	4,037,469	18,172,295	22,209,765	PW-21	A8-159
22	Water Pipe with Bridge, Dia. 300 mm, P-13	L.S	5,807,351	33,914,304	39,721,654	PW-22	A8-160
23	Water Pipe with Bridge, Dia. 350 mm, F-5	L.S	6,008,641	32,489,816	38,498,457	PW-23	A8-161
24	Water Pipe with Bridge, Dia. 400 mm, P-11	L.S	8,699,724	43,269,120	51,968,844	PW-24	A8-162
7.	BRIDGE WORKS (BD)						
1	Elastomeric Bearing Pad, 406 x 280 x 67 mm	nos.	313,558	210,558	524,116	BD-1	A8-163
2	Elastomeric Bearing Pad, 480 x 300 x 67 mm	nos.	398,367	245,424	643,791	BD-2	A8-164
3	Expansion Joint, 75 x 75 x 6 mm	m	10,680	28,015	38,696	BD-3	A8-165
4	Precast Prestressed Concrete Beam, (Erection/ Tensioning)	m ³	181,449,000	120,406,000	301,855,000	BD-4	A8-166
5	Precast Prestressed Concrete Panel	m ³	8,464,784	22,002,479	30,467,262	BD-5	A8-167
6	Static Load Test	L.S	1,380,000	0	1,380,000	BD-6	A8-168
7	Temporary Bridge	m ²	813,727	385,784	1,199,511	BD-7	A8-169
8	Temporary Bridge, P-1	L.S	292,941,825	138,882,284	431,824,109	BD7P1	A8-170
9	Temporary Bridge, P-7	L.S	85,441,366	40,507,333	125,948,699	BD7P7	A8-170
10	Temporary Bridge, P-9	L.S	195,294,550	92,588,190	287,882,740	BD7P9	A8-170
11	Temporary Bridge, P-11	L.S	170,882,731	81,014,666	251,897,397	BD7P11	A8-170
12	Temporary Bridge, P-13	L.S	244,118,187	115,735,237	359,853,424	BD7P13	A8-170
13	Temporary Bridge, F-8	L.S	122,059,094	57,867,618	179,926,712	BD7F8	A8-170
8.	METAL WORKS (MT)						
1	Galvanized Steel Fence, H = 1.20 m	lin.m.	100,829	431,186	532,015	MT-1	A8-171
2	Galvanized Steel Ladder	kg	3,460	2,362	5,822	MT-2	A8-172
3	Handrail H = 1.0 m, Galvanized Steel Pipe	kg	454	3,376	3,830	MT-3	A8-173
4	Pipe Support for Steel	set	302,405	1,903,714	2,206,119	MT-4	A8-174
5	Steel Plate with Manufacturing	kg	1,994	2,445	4,439	MT-5	A8-175
6	Structure Steel with Manufacturing	kg	7,457	3,594	11,051	MT-6	A8-176
7	Steel Wire Work	kg	4,093	2,477	6,570	MT-7	A8-177
8	Flap Gate Dia. 600 mm	L.S	4,003,732	2,512,542	6,516,274	MT-8	A8-178
9	Slide Gate 2.0 m x 1.5 m	L.S	9,688,763	6,215,196	15,903,958	MT-9	A8-179
10	Slide Gate 2.0 m x 1.5 m x 2	L.S	18,368,200	11,869,339	30,237,539	MT-10	A8-180
11	Slide Gate 1.5 m x 1.5 m	L.S	7,431,800	4,710,554	12,142,354	MT-11	A8-181
12	Slide Gate 1.0 m x 1.25 m x 2	L.S	11,397,423	7,354,303	18,751,726	MT-12	A8-182
13	Slide Gate 1.0 m x 1.0 m x 2	L.S	9,994,791	6,419,215	16,414,006	MT-13	A8-183
14	Slide Gate 1.0 m x 1.0	nos.	2,842,135	1,370,015	4,212,150	MT-14	A8-184
15	Entrance Gate	nos.	384,614	300,368	684,982	MT-15	A8-185
16	Steel Pipe for Inlet, Dia. 200 mm	nos.	55,100	306,880	361,980	MT-16	A8-186
17	Truss Bridge, WB1	L.S	188,396,394	90,814,118	279,210,513	MTWB1	A8-187
18	Truss Bridge, WB2	L.S	142,497,537	68,689,150	211,186,687	MTWB2	A8-187
19	Truss Bridge, WB4	L.S	137,128,688	66,101,164	203,229,852	MTWB4	A8-187
9.	PILE WORK (PD)						
1	Log Pile Dia. 150 mm, (3m)	m	4,854	758	5,612	PD-1	A8-188
2	PC Pile Dia. 300 mm, Type AB (12 m)	m	40,450	22,528	62,978	PD-2-1	A8-189
3	PC Pile Dia. 400 mm, Type AB (12 m)	m	64,532	33,221	97,753	PD-3	A8-190
4	PC Pile Dia. 400 mm, Type B (12 m)	m	69,604	35,394	104,998	PD-4	A8-191
5	PC Pile Dia. 600 mm, Type AB (12 m)	m	127,239	60,994	188,232	PD-5	A8-192
6	RC Pile 200 m m x 200 mm, (6.5 m)	m	20,283	20,360	40,642	PD-6	A8-193
7	Steel Pipe Pile Dia. 600 mm, (12 m)	m	48,573	397,989	446,562	PD-7	A8-194
8	Steel Sheet Pile, Type II, (4 m)	m ²	46,927	337,228	384,155	PD-8	A8-195
9	PC Pile Dia 300 mm, Type AB. (12 m with 6 m Piling)	m	39,546	21,313	60,859	PD-9	A8-196
10	Steel Pipe Pile Dia. 400 mm, (25 m), 2 joints	m	35,331	267,379	302,710	PD-10	A8-197
11	Concrete Sheet Pile, 996 mm (5.0 m)	m ²	216,279	149,615	365,894	PD-11	A8-198
12	RC Pile 400 mm x 400 mm	m	52,966	43,896	96,861	PD-12	A8-199
10.	PLANT WORKS (PT)						
1	Supply and Planting Acasia Petandra	tree	12,117	1,434	13,551	PT-1	A8-200
2	Supply and Planting Fillisium	tree	16,343	1,434	17,777	PT-2	A8-201
3	Supply and Planting Bougainvillea	tree	9,702	1,434	11,136	PT-3	A8-202
4	Supply and Planting Cemara Kipas	tree	45,927	1,434	47,361	PT-4	A8-203
5	Supply and Planting Cmelina Lilin	tree	45,927	1,434	47,361	PT-5	A8-204

SUMMARY OF BREAKDOWN OF CONSTRUCTION UNIT COST

Item No.	Description	Unit	Unit Cost		Total (Rp.)	Code No.	Page No.
			L.C (Rp.)	F.C (Rp.)			
6	Supply and Planting Palembang Hijau	tree	21,777	1,434	23,211	PT-6	A8-205
7	Supply and Planting Tanjung	tree	16,343	1,434	17,777	PT-7	A8-206
8	Supply and Planting Cendrawasih/Taiwan Lila	tree	252	7	259	PT-8	A8-207
9	Supply and Planting Soka	tree	427	7	434	PT-9	A8-208
10	Filling of Fertilized Soil	kg	4,235	590	4,825	PT-10	A8-209
11.	RUBBER TYPE DAM (RU)						
1	Inflatable Rubber-Made Type Dam including Accessory	L.S.	519,153	1,438,028,897	1,438,548,049	RU-1	A8-210
2	Control House	L.S.	9,093,020	8,183,504	17,276,524	RU-2	A8-211
3	Steel Girder for Inspection Bridge	L.S.	257,077,739	124,170,626	381,248,365	RU-3	A8-212
12.	OTHERS WORKS (OT)						
1	Coffering, 2.5 m height	m	135,179	15,473	150,651	OT-1	A8-213
2	Dewatering, Type A, (2.5 m ³ /min)	set	57,525	54,138	111,663	OT-2	A8-214
3	Dewatering, Type B, (6.5 m ³ /min)	set	103,287	106,422	209,709	OT-3	A8-215
4	Demolition and Removal, Type A (more than 50 m ³)	m ³	8,193	9,436	17,629	OT-4	A8-216
5	Demolition and Removal, Type B (less than 50 m ³)	m ³	16,419	15,318	31,737	OT-5	A8-217
6	Palm Fiber Filter, 20 mm thick	m ²	23,903	2,536	26,439	OT-6	A8-218
7	Water level Staff Gauge, Type A (attached concrete)	L.S.	248,309	98,376	346,685	OT-7	A8-219
8	Water level Staff Gauge, Type B (attached steel)	L.S.	280,950	533,931	814,881	OT-8	A8-220
9	Water Level Gauging Station, without machine	pc	749,728	3,765,716	4,515,443	OT-9	A8-221
10	Well with brick wall, 10m	nos.	1,231,310	246,028	1,477,337	OT-10	A8-222
11	Concrete Block Pavement for Landing Stage	m ²	17,057	1,111	18,168	OT-11	A8-223
12	Mooring Post, Block Type	nos.	12,303	9,370	21,673	OT-12	A8-224
13	Mooring Post, Pile Type	nos.	163,275	163,897	327,172	OT-13	A8-225
14	Name Plate	nos.	79,970	5,796	85,766	OT-14	A8-226
15	Maintenance Marker Post	nos.	52,099	31,395	83,494	OT-15	A8-227
16	Roofed Bench	nos.	354,962	43,084	398,046	OT-16	A8-228
17	Information Board	nos.	330,251	177,366	507,617	OT-17	A8-229
18	Painting	m ²	9,489	906	10,394	OT-18	A8-230
19	Surface Caulking	m	4,530	811	5,341	OT-19	A8-231
20	Concrete Drain Ditch U-300x300	m	66,776	34,725	101,501	OT-20	A8-232
21	Foundation Improvement with Cement	m ³	35,536	7,544	43,080	OT-21	A8-233
22	Temporary Channel	L.S.	210,371,778	264,490,143	474,861,921	OT-22	A8-234
23	Instillation of Railway	L.S.	153,600,000	0	153,600,000	OT-23	A8-235
13.	BRIDGE WORK (BEAM) PERCUT RIVER (BDP)						
1	Precast Prestressed Concrete Main Beam, P-1	L.S.	192,664,588	128,443,058	321,107,646	BDP1-1	A8-236
2	Precast Prestressed Concrete Diaphragm, P-1	L.S.	64,679,165	64,679,165	129,358,330	BDP1-2	A8-237
3	Precast Prestressed Concrete Panel, P-1	L.S.	11,537,260	11,537,260	23,074,520	BDP1-3	A8-238
4	Precast Prestressed Concrete Main Beam, P-2	L.S.	399,598,044	266,398,696	665,996,740	BDP2-1	A8-239
5	Precast Prestressed Concrete Diaphragm, P-2	L.S.	4,957,917	4,957,917	9,915,834	BDP2-2	A8-240
6	Precast Prestressed Concrete Panel, P-2	L.S.	14,242,060	14,242,060	28,484,120	BDP2-3	A8-241
7	Precast Prestressed Concrete Main Beam, P-3	L.S.	226,884,310	151,256,206	378,140,516	BDP3-1	A8-242
8	Precast Prestressed Concrete Diaphragm, P-3	L.S.	2,223,456	2,223,456	4,446,912	BDP3-2	A8-243
9	Precast Prestressed Concrete Panel, P-3	L.S.	7,689,360	7,689,360	15,378,720	BDP3-3	A8-244
10	Precast Prestressed Concrete Main Beam, P-5	L.S.	208,873,930	139,249,286	348,123,216	BDP5-1	A8-245
11	Precast Prestressed Concrete Diaphragm, P-5	L.S.	1,314,570	1,314,570	2,629,139	BDP5-2	A8-246
12	Precast Prestressed Concrete Panel, P-5	L.S.	5,409,600	5,409,600	10,819,200	BDP5-3	A8-247
13	Precast Prestressed Concrete Main Beam, P-6	L.S.	34,812,322	23,208,214	58,020,536	BDP6-1	A8-248
14	Precast Prestressed Concrete Main Beam, P-7	L.S.	243,686,251	162,457,501	406,143,752	BDP7-1	A8-249
15	Precast Prestressed Concrete Diaphragm, P-7	L.S.	1,685,146	1,685,146	3,370,291	BDP7-2	A8-250
16	Precast Prestressed Concrete Panel, P-7	L.S.	7,032,480	7,032,480	14,064,960	BDP7-3	A8-251
17	Precast Prestressed Concrete Main Beam, P-9	L.S.	417,747,859	278,498,573	696,246,432	BDP9-1	A8-252
18	Precast Prestressed Concrete Diaphragm, P-9	L.S.	3,089,434	3,089,434	6,178,867	BDP9-2	A8-253
19	Precast Prestressed Concrete Panel, P-9	L.S.	12,892,880	12,892,880	25,785,760	BDP9-3	A8-254
20	Precast Prestressed Concrete Main Beam, P-11	L.S.	417,747,859	278,498,573	696,246,432	BDP11-1	A8-255
21	Precast Prestressed Concrete Diaphragm, P-11	L.S.	3,089,434	3,089,434	6,178,867	BDP11-2	A8-256
22	Precast Prestressed Concrete Panel, P-11	L.S.	12,892,880	12,892,880	25,785,760	BDP11-3	A8-257
23	Precast Prestressed Concrete Main Beam, P-13	L.S.	417,747,859	278,498,573	696,246,432	BDP13-1	A8-258
24	Precast Prestressed Concrete Diaphragm, P-13	L.S.	3,089,434	3,089,434	6,178,867	BDP13-2	A8-259
25	Precast Prestressed Concrete Panel, P-13	L.S.	12,892,880	12,892,880	25,785,760	BDP13-3	A8-260
14.	BRIDGE WORK (BEAM) FLOODWAY (BDF)						
1	Precast Prestressed Concrete Main Beam, F-1	L.S.	95,373,677	63,582,451	158,956,128	BDF1-1	A8-261
2	Precast Prestressed Concrete Diaphragm, F-1	L.S.	1,872,384	1,872,384	3,744,768	BDF1-2	A8-262
3	Precast Prestressed Concrete Panel, F-1	L.S.	4,388,860	4,388,860	8,777,720	BDF1-3	A8-263
4	Precast Prestressed Concrete Main Beam, F-2	L.S.	114,453,060	76,302,040	190,755,100	BDF2-1	A8-264
5	Precast Prestressed Concrete Diaphragm, F-2	L.S.	2,438,000	2,438,000	4,876,000	BDF2-2	A8-265
6	Precast Prestressed Concrete Panel, F-2	L.S.	5,660,760	5,660,760	11,321,520	BDF2-3	A8-266
7	Precast Prestressed Concrete Main Beam, F-3	L.S.	114,453,060	76,302,040	190,755,100	BDF3-1	A8-267
8	Precast Prestressed Concrete Diaphragm, F-3	L.S.	2,438,000	2,438,000	4,876,000	BDF3-2	A8-268
9	Precast Prestressed Concrete Panel, F-3	L.S.	5,660,760	5,660,760	11,321,520	BDF3-3	A8-269
10	Precast Prestressed Concrete Main Beam, F-4	L.S.	57,226,530	38,151,020	95,377,550	BDF4-1	A8-270
11	Precast Prestressed Concrete Diaphragm, F-4	L.S.	741,152	741,152	1,482,304	BDF4-2	A8-271
12	Precast Prestressed Concrete Panel, F-4	L.S.	1,886,920	1,886,920	3,773,840	BDF4-3	A8-272
13	Precast Prestressed Concrete Main Beam, F-5	L.S.	190,747,354	127,164,902	317,912,256	BDF5-1	A8-273
14	Precast Prestressed Concrete Diaphragm, F-5	L.S.	4,212,864	4,212,864	8,425,728	BDF5-2	A8-274
15	Precast Prestressed Concrete Panel, F-5	L.S.	9,875,740	9,875,740	19,751,480	BDF5-3	A8-275

SUMMARY OF BREAKDOWN OF CONSTRUCTION UNIT COST

Item No.	Description	Unit	Unit Cost		Total (Rp.)	Code No.	Page No.
			L.C (Rp.)	F.C (Rp.)			
16	Precast Prestressed Concrete Main Beam, F-6	L.S	25,179,673	16,786,449	41,966,122	BDF6-1	A8-276
17	Precast Prestressed Concrete Diaphragm, F-6	L.S	538,310	538,310	1,076,621	BDF6-2	A8-277
18	Precast Prestressed Concrete Panel, F-6	L.S	1,246,140	1,246,140	2,492,280	BDF6-3	A8-278
19	Precast Prestressed Concrete Main Beam, F-7	L.S	113,442,155	75,628,103	189,070,258	BDF7-1	A8-279
20	Precast Prestressed Concrete Diaphragm, F-7	L.S	222,346	222,346	444,692	BDF7-2	A8-280
21	Precast Prestressed Concrete Panel, F-7	L.S	1,139,558	1,139,558	2,279,116	BDF7-3	A8-281
22	Precast Prestressed Concrete Main Beam, F-8	L.S	46,931,564	31,287,710	78,219,274	BDF8-1	A8-282
23	Precast Prestressed Concrete Diaphragm, F-8	L.S	998,605	998,605	1,997,210	BDF8-2	A8-283
24	Precast Prestressed Concrete Panel, F-8	L.S	2,321,620	2,321,620	4,643,240	BDF8-3	A8-284
15.	BRIDGE WORK (BD8)						
1	Coffering and Dewatering, P-1	L.S.	22,779,066	3,558,409	26,337,475	BD8P1	A8-285
2	Coffering and Dewatering, P-2	L.S.	15,818,853	3,712,806	19,531,659	BD8P2	A8-285
3	Coffering and Dewatering, P-3	L.S.	17,371,924	2,939,498	20,311,422	BD8P3	A8-285
4	Coffering and Dewatering, P-5	L.S.	17,371,924	2,939,498	20,311,422	BD8P5	A8-285
5	Coffering and Dewatering, P-6	L.S.	6,270,016	1,430,984	7,701,001	BD8P6	A8-285
6	Coffering and Dewatering, P-7	L.S.	18,522,424	4,022,262	22,544,686	BD8P7	A8-285
7	Coffering and Dewatering, P-9	L.S.	34,106,016	7,697,987	41,804,004	BD8P9	A8-285
8	Coffering and Dewatering, P-11	L.S.	20,012,913	5,609,327	25,622,240	BD8P11	A8-285
9	Coffering and Dewatering, P-13	L.S.	28,123,625	6,537,694	34,661,319	BD8P13	A8-285
10	Coffering and Dewatering, F-1	L.S.	1,150,500	1,082,764	2,233,264	BD8F1	A8-286
11	Coffering and Dewatering, F-2	L.S.	2,301,000	2,165,527	4,466,527	BD8F2	A8-286
12	Coffering and Dewatering, F-3	L.S.	1,150,500	1,082,764	2,233,264	BD8F3	A8-286
13	Coffering and Dewatering, F-4	L.S.	862,875	812,073	1,674,948	BD8F4	A8-286
14	Coffering and Dewatering, F-5	L.S.	2,301,000	2,165,527	4,466,527	BD8F5	A8-286
15	Coffering and Dewatering, F-6	L.S.	862,875	812,073	1,674,948	BD8F6	A8-286
16	Coffering and Dewatering, F-7	L.S.	862,875	812,073	1,674,948	BD8F7	A8-286
17	Coffering and Dewatering, F-8	L.S.	18,404,794	4,003,721	22,408,515	BD8F8	A8-286
18	Coffering and Dewatering, WB1	L.S.	6,270,016	1,430,984	7,701,001	BD8WB1	A8-286
19	Coffering and Dewatering, WB2	L.S.	1,150,500	1,082,764	2,233,264	BD8WB2	A8-286
20	Coffering and Dewatering, WB3	L.S.	862,875	812,073	1,674,948	BD8WB3	A8-286
21	Coffering and Dewatering, WB4	L.S.	862,875	812,073	1,674,948	BD8WB4	A8-286
16.	BRIDGE WORK (BD9)						
1	Demolishment of Existing Facilities, P-1	L.S.	655,405	754,918	1,410,323	BD9P1	A8-287
2	Demolishment of Existing Facilities, P-2	L.S.	3,277,026	3,774,589	7,051,615	BD9P2	A8-287
3	Demolishment of Existing Facilities, P-3	L.S.	983,108	1,132,377	2,115,484	BD9P3	A8-287
4	Demolishment of Existing Facilities, P-5	L.S.	2,293,918	2,642,212	4,936,130	BD9P5	A8-287
5	Demolishment of Existing Facilities, P-6	L.S.	656,760	612,713	1,269,473	BD9P6	A8-287
6	Demolishment of Existing Facilities, P-7	L.S.	2,457,770	2,830,941	5,288,711	BD9P7	A8-287
7	Demolishment of Existing Facilities, P-9	L.S.	2,457,770	2,830,941	5,288,711	BD9P9	A8-287
8	Demolishment of Existing Facilities, P-11	L.S.	2,621,621	3,019,671	5,641,292	BD9P11	A8-287
9	Demolishment of Existing Facilities, P-13	L.S.	3,440,877	3,963,318	7,404,196	BD9P13	A8-287
10	Demolishment of Existing Facilities, WB1	L.S.	819,257	943,647	1,762,904	BD9WB1	A8-287
11	Demolishment of Existing Facilities, F-8	L.S.	491,554	566,188	1,057,742	BD9F8	A8-287
17.	TEMPOARARY WORKS (TE)						
1	Coffering and Dewatering, MFC-1, B1	L.S.	14,668,354	2,630,042	17,298,396	TEAB1	A8-288
2	Coffering and Dewatering, MFC-1, C1	L.S.	9,059,927	2,939,167	11,999,093	TEAC1	A8-288
3	Coffering and Dewatering, MFC-1, D1	L.S.	21,589,741	8,395,119	29,984,860	TEAD1	A8-288
4	Coffering and Dewatering, MFC-1, E1	L.S.	2,703,571	309,456	3,013,026	TEAE1	A8-288
5	Coffering and Dewatering, MFC-2, C1	L.S.	21,599,959	5,801,135	27,401,094	TEBC1	A8-289
6	Coffering and Dewatering, MFC-2, D1	L.S.	44,002,584	10,214,902	54,217,486	TEBD1	A8-289
7	Coffering and Dewatering, MFC-2, E1	L.S.	6,557,641	1,701,675	8,259,316	TEBE1	A8-289
8	Coffering and Dewatering, MFC-2, F1	L.S.	25,794,019	7,697,656	33,491,675	TEBF1	A8-289
9	Coffering and Dewatering, MFC-2, F3	L.S.	9,831,079	11,323,766	21,154,845	TEBF3	A8-289
10	Coffering and Dewatering, MFC-3, C1	L.S.	147,973,375	35,417,288	183,390,662	TECC1	A8-290
11	Coffering and Dewatering, MFC-3, D1	L.S.	42,653,276	7,735,399	50,388,674	TECD1	A8-290
12	Coffering and Dewatering, MFC-3, E1	L.S.	36,268,313	8,431,177	44,699,490	TECE1	A8-290
13	Coffering and Dewatering, MFC-3, I1	L.S.	31,284,815	7,369,991	38,654,806	TECI1	A8-290
14	Coffering and Dewatering, MFC-4, C1	L.S.	119,177,306	23,131,704	142,309,010	TEDC1	A8-291
15	Coffering and Dewatering, MFC-4, D1	L.S.	35,204,049	6,312,101	41,516,150	TEDD1	A8-291
16	Coffering and Dewatering, MFC-4, E1	L.S.	50,160,131	11,447,873	61,608,004	TEDE1	A8-291
17	Coffering and Dewatering, MFC-5, B1	L.S.	2,640,988	2,669,829	5,310,817	TEEB1	A8-292
18	Coffering and Dewatering, MFC-5, C1	L.S.	4,630,606	1,005,565	5,636,171	TEEC1	A8-292
19	Coffering and Dewatering, MFC-5, D1	L.S.	3,278,821	850,838	4,129,658	TEED1	A8-292
20	Coffering and Dewatering, MFC-5, E1	L.S.	6,456,999	2,165,693	8,622,692	TEEE1	A8-292
21	Coffering and Dewatering, MFC-5, I1	L.S.	31,284,815	7,369,991	38,654,806	TEEI1	A8-292
22	Coffering and Dewatering, MFC-6, C1	L.S.	57,522,915	9,437,405	66,960,320	TEFC1	A8-293
23	Coffering and Dewatering, MFC-6, E1	L.S.	3,854,071	1,392,219	5,246,290	TEFE1	A8-293
24	Coffering and Dewatering, MFC-6, I1	L.S.	36,684,422	12,728,189	49,412,612	TEFI1	A8-293
25	Coffering and Dewatering, MFC-7, C1	L.S.	17,371,924	2,939,498	20,311,422	TEGC1	A8-294
26	Coffering and Dewatering, MFC-7, E1	L.S.	287,625	270,691	558,316	TEGE1	A8-294
27	Coffering and Dewatering, MFC-7, G1	L.S.	16,331,521	6,614,561	22,946,082	TEGG1	A8-294
28	Coffering and Dewatering, MFC-7, I1	L.S.	17,884,592	5,841,253	23,725,845	TEGI1	A8-294

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment					19,459,201	13,647,936	
-	Bulldozer 15 ton	Nos	4	232,098	153,412	928,393	613,649	
-	Bulldozer 12 ton	Nos	7	232,098	153,412	1,624,688	1,073,885	
-	Crawler Loader 1.2 m ³	Nos	0	232,098	153,412	0	0	
-	Wheel Loader 1.0 m ³	Nos	5	232,098	153,412	1,160,491	767,061	
-	Back Hoe 0.6 m ³ , 2 Nos	Nos	6	232,098	153,412	1,392,589	920,473	
-	Back Hoe 0.4 m ³	Nos	6	232,098	153,412	1,392,589	920,473	
-	Dump Truck 8 ton	Nos	54	51,778	38,134	2,796,010	2,059,217	
-	Dump Truck 6 ton	Nos	2	51,778	38,134	103,556	76,267	
-	Ordinary Truck 4 ton	Nos	3	51,778	38,134	155,334	114,401	
-	Vibrator Roller	Nos	1	232,098	153,412	232,098	153,412	
-	Steel Roller (8-12) ton	Nos	0	232,098	153,412	0	0	
-	Tire Roller (8-20) ton	Nos	3	232,098	153,412	696,295	460,236	
-	Grader 2.8 m	Nos	2	232,098	153,412	464,196	306,824	
-	Asph. Finisher (2.4-3.6) m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph. Sprayer 30 l/min	Nos	1	51,778	38,134	51,778	38,134	
-	Crawler Crane, 35 ton	Nos	2	232,098	153,412	464,196	306,824	
-	Truck Crane 20 ton for concrete Placing	Nos	2	232,098	153,412	464,196	306,824	
-	Water Truck	Nos	1	51,778	38,134	51,778	38,134	
-	Conc. Mixer 0.5 m ³ 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	S. Pump Water & Waste Pump	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	D.E. Gen. 50 Kva 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	Wld. Machine nos. C.Saw	Trip	20	51,778	38,134	1,035,559	762,673	
-	D.E. Gen. 20 Kva 2 nos, etc	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	Portal Crane	Nos	0	232,098	153,412	0	0	
-	Dredger, 200 PS	Nos	1	232,098	153,412	232,098	153,412	
2)	Labour 5 % of (1)	L.S.	1.00			972,960	682,397	
(3)	Miscellaneous Cost, 20% of (1)					3,891,840	2,729,587	
Total						24,324,002	17,059,920	
Demobilization						24,324,002	17,059,920	
Total						48,648,003	34,119,840	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MEC-1 ****

Reference No. : GSA-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	Lr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
				Total		232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	Lr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
				Total		51,778	38,134	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	302,320,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			453,969,000	353,043,000	GS 2-2
(3)	Water Supply System	L.S.	1			51,656,798	36,813,178	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			8,755,214	17,706,365	GS 2-5

Total	541,153,446	712,612,594	1,253,766,040

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5 % of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						57,120,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	600		75,000		45,000,000	
2)	White board (1.2x2.4) m, 5set	Nos	100		20,000		2,000,000	
3)	Filing cabinet, 2 set	Nos	40		15,000		600,000	
4)	Miscellaneous 20 %	L.S.	1		0		9,520,000	
4.	Operation & Maintenance						22,000,000	
1)	Office Supply	Month	20		500,000		10,000,000	
2)	Utility Man and Watchman, 3 persons	M/M	60		200,000		12,000,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	
Total							302,320,051	

Note : Construction period is assumed 20 months

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-2-2
 Description : Electric Power Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent.Engine 100 KVA for Contractor, 2 set	hr.	9,000	28,280	12,120	254,520,000	109,080,000	EQ32
2)	D.Gent.Engine 35 KVA for Contractor, 2 set	hr.	9,000	10,570	4,530	95,130,000	40,770,000	EQ33
3)	D.Gent.Engine 15 KVA for Engineer, 1 set	hr.	4,500	5,880	2,520	26,460,000	11,340,000	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Lr hr	503,100	76	304	77,859,000	187,173,000	
2)	Grease	Kg hr	5,031	400	3,600	38,235,600	152,942,400	A-2
3)	Repairing 10 % of 1	L.S.	1			2,012,400	18,111,600	A-6
						37,611,000	16,119,000	
Total						453,969,000	353,043,000	
Total construction hour 9 hr x 1 shift x 25 days x				20 month =		4,500 hr		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					37,021,875	17,084,375	
1)	W.Pump with cap. 4 l/min., 3 sets	hr.	13,500	2,450	1,050	33,075,000	14,175,000	EQ-46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			3,365,625	1,553,125	
2.	Installation 10 % of 1					3,702,188	1,708,438	
3.	Operation & Maintenance					10,932,735	18,020,365	
-	Fuel(Gasoline)	Ltr	24,503	140	560	3,430,350	13,721,400	A-1
-	Grease	Kg	245	400	3,600	98,010	882,090	A-6
-	Maintenance 20 % of (1)					7,404,375	3,416,875	
Total						51,656,798	36,813,178	
Total construction hour 9 hr x 1 shift x 25 days x				20 month =	4,500 hr			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSA-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000

Note:

** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 **
 Reference No. : GSA-2-5
 Description : Temporary Construction Roads and Bridge
 Unit : L.S
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						8,755,214	17,706,365	
1)	Embankment for Road	m ³	1200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ³	365	5,360	27,751	1,958,467	10,140,350	RW-7
4)	Removal of temporary Road 30 % of (1+2+3)	L.S.	1			2,020,434	4,086,084	
Total							8,755,214	17,706,365

Reference No.	Description	Unit	Quantity for Estimation	GSA-3 Relocation of Existing Facilities P.S

Total	2,523,934	4,351,510

Quantity for Estimation : 200 m

A 8 - 10

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ••

Reference No. : GS-6
 Description : Hand Auger with Laboratory Test
 Unit :
 Quantity for Estimation : 200 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Hand Auger with Laboratory Test 2.0 m x 100 loc.	m	200		100,000		20,000,000	
2.	Miscellaneous 10% of (1.)	L.S.	1		.		2,000,000	

Total	22,000,000
Unit Cost	110,000

** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 **

Reference No.	:	GS-7
Description	:	Exploratory Excavation
Unit	:	
Quantity for Estimation	:	60 m ³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Exploratory Excavation Test 2.0 m3 x 30 loc.	m³	60		50,000		3,000,000	
2.	Miscellaneous 10% of (1.)	L.S.	1		.		300,000	
Total							3,300,000	
Unit Cost							\$5,000	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-2 ****

Reference No. : GSB-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1. DIRECT COST								
(1) Construction Equipment						20,360,803	14,224,328	
- Bulldozer 15 ton	Nos		6	232,098	153,412	1,392,589	920,473	
- Bulldozer 12 ton	Nos		6	232,098	153,412	1,392,589	920,473	
- Crawler Loader 1.2 m ³	Nos		0	232,098	153,412	0	0	
- Wheel Loader 1.0 m ³	Nos		6	232,098	153,412	1,392,589	920,473	
- Back Hoe 0.6 m ³ , 2 Nos	Nos		7	232,098	153,412	1,624,688	1,073,885	
- Back Hoe 0.4 m ³	Nos		5	232,098	153,412	1,160,491	767,061	
- Dump Truck 8 ton	Nos		45	51,778	38,134	2,330,008	1,716,014	
- Dump Truck 6 ton	Nos		1	51,778	38,134	51,778	38,134	
- Ordinary Truck 4 ton	Nos		8	51,778	38,134	414,224	305,069	
- Vibrator Roller	Nos		1	232,098	153,412	232,098	153,412	
- Steel Roller (8-12) ton	Nos		0	232,098	153,412	0	0	
- Tire Roller (8-20) ton	Nos		4	232,098	153,412	928,393	613,649	
- Grader 2.8 m	Nos		3	232,098	153,412	696,295	460,236	
- Asph. Finisher (2.4-3.6) m	Nos		1	232,098	153,412	232,098	153,412	
- Asph. Sprayer 30 l/min/ft	Nos		1	51,778	38,134	51,778	38,134	
- Crawler Crane, 35 ton	Nos		2	232,098	153,412	464,196	306,824	
- Truck Crane 20 ton for concrete Placing	Nos		3	232,098	153,412	696,295	460,236	
- Water Truck	Nos		1	51,778	38,134	51,778	38,134	
- Conc. Mixer 0.5 m ³ , 1 Nos	Trip		20	51,778	38,134	1,035,559	762,673	
- S. Pump Water & Waste Pump	Trip		40	51,778	38,134	2,071,118	1,525,346	
- D.E. Genl. 50 Kva 1 Nos	Trip		20	51,778	38,134	1,035,559	762,673	
- Wild. Machine nos, C.Saw	Trip		20	51,778	38,134	1,035,559	762,673	
- D.E. Genl. 20 Kva 2 nos, etc	Trip		40	51,778	38,134	2,071,118	1,525,346	
- Portal Crane	Nos		2	232,098	153,412	464,196	306,824	
- Dredger, 200 FS	Nos		-	232,098	153,412	0	0	
2) Labour 5 % of (1)	L.S.		1.00			1,018,040	711,216	
(3) Miscellaneous Cost, 20% of (1)						4,072,161	2,844,866	
Total						25,451,003	17,780,411	
Demobilization						25,451,003	17,780,411	
Total						50,902,007	35,560,821	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-2 ****
 Reference No. : GSB-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	Ltr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
				Total		232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	Ltr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
				Total		51,778	38,134	
				Total				

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ••

Reference No. : GSB-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	302,320,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			453,969,000	353,043,000	GS 2-2
(3)	Water Supply System	L.S.	1			51,656,798	36,813,178	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			189,302,184	398,530,738	GS 2-5

Total	721,700,416	1,093,436,966	1,815,137,382

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSB-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5% of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						57,120,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	600		75,000		45,000,000	
2)	White board (1.2x2.4) m, 5set	Nos	100		20,000		2,000,000	
3)	Filing cabinet, 2 set	Nos	40		15,000		600,000	
4)	Miscellaneous 20 %	L.S.	1		0		9,520,000	
4.	Operation & Maintenance						22,000,000	
1)	Office Supply	Month	20				10,000,000	
2)	Utility Man and Watchman, 3 persons	M/M	60		500,000		12,000,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	
Total						25,172,434	302,320,051	

Note : Construction period is assumed 20 months

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ••

Reference No. : GSB-2-2
Description : Electric Power Supply System
Unit :
Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent.Engine 100 KVA for Contractor, 2 set	hr.	9,000	28,280	12,120	376,110,000	161,190,000	EQ32
2)	D.Gent.Engine 35 KVA for Contractor, 2 set	hr.	9,000	10,570	4,530	254,520,000	109,080,000	EQ33
3)	D.Gent.Engine 15 KVA for Engineer, 1 set	hr.	4,500	5,880	2,520	95,130,000	40,770,000	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Ltr hr	503,100	76	304	77,859,000	187,173,000	
2)	Grease	Kg hr	5,031	400	3,600	38,235,600	152,942,400	A-2
3)	Repairing 10 % of 1	L.S.	1			2,012,400	18,111,600	A-5
						37,611,000	16,119,000	
Total				20 month =		453,969,000	353,043,000	
Total construction hour 9 hr x 1 shift x 25 days x				4,500 hr				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSB-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					37,021,875	17,084,375	
1)	W.Pump with cap. 4 l/min., 3 sets	hr.	13,500	2,450	1,050	33,075,000	14,175,000	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			3,365,625	1,553,125	
2.	Installation 10 % of 1					3,702,188	1,708,438	
3.	Operation & Maintenance					10,932,735	18,020,365	
-	Fuel(Gasoline)	Ltr	24,503	140	560	3,430,350	13,721,400	A-1
-	Grease	Kg	245	400	3,600	98,010	882,090	A-6
-	Maintenance 20 % of (1)					7,404,375	3,416,875	
Total						51,656,798	36,813,178	
Total construction hour 9 hr x 1 shift x 25 days x				20 month =	4,500 hr			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : GSB-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Tally for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Tally for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000

Note:

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****
 Reference No. : GSB-2-5
 Description : Temporary Construction Roads and Bridge
 Unit : L.S
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						189,302,184	398,530,738	
1)	Embankment for Road	m ³	1200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ³	365	5,360	27,751	1,958,467	10,140,350	RW-7
4)	Temporary Bridge	m ²	360	385,784	813,727	138,882,284	292,941,825	BD-7
5)								
6)	Removal of temporary Road 30 % of (1+2+3+4)	L.S.	1			43,685,119	91,968,632	
							189,302,184	398,530,738
Total							398,530,738	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-2 ****

Reference No. : GSB-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	100	9,436	8,193	943,647	819,257	OT-4
2	Demolish & Remolish Type B	m ³	50	15,318	16,419	765,892	820,950	OT-5

Total	1,709,539	1,640,206

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Bulldozer 15 ton	Nos	2	232,098	153,412	20,109,134	14,179,174	
-	Bulldozer 12 ton	Nos	5	232,098	153,412	464,196	306,824	
-	Crawler Loader 1.2 m ³	Nos	0	232,098	153,412	1,160,491	767,061	
-	Wheel Loader 1.0 m ³	Nos	3	232,098	153,412	0	0	
-	Back Hoe 0.6 m ³ 2 Nos	Nos	9	232,098	153,412	696,295	460,236	
-	Back Hoe 0.4 m ³	Nos	8	232,098	153,412	2,088,884	1,380,709	
-	Dump Truck 8 ton	Nos	77	232,098	153,412	1,856,786	1,227,297	
-	Dump Truck 6 ton	Nos	1	51,778	38,134	3,986,903	2,936,290	
-	Ordinary Truck 4 ton	Nos	7	51,778	38,134	51,778	38,134	
-	Vibrator Roller	Nos	1	51,778	38,134	362,446	266,935	
-	Steel Roller (8-12) ton	Nos	0	232,098	153,412	232,098	153,412	
-	Tire Roller (8-20) ton	Nos	2	232,098	153,412	0	0	
-	Grader 2.8 m	Nos	1	232,098	153,412	464,196	306,824	
-	Asph.Finisher (2.4-3.6) m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph.Sprayer 30 l/min/nil	Nos	1	232,098	153,412	232,098	153,412	
-	Crawler Crane, 35 ton	Nos	2	51,778	38,134	51,778	38,134	
-	Truck Crane 20 ton for concrete Placing	Nos	2	232,098	153,412	464,196	306,824	
-	Water Truck	Nos	1	51,778	38,134	51,778	38,134	
-	Conc. Mixer 0.5 m ³ 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	S. Pump Water & Waste Pump	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	D.E. Gen.50 Kva 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	Wild. Machine nos,C.Saw	Trip	20	51,778	38,134	1,035,559	762,673	
-	D.E. Gen.20 Kva 2 nos,etc	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	Portal Crane	Nos	2	232,098	153,412	464,196	306,824	
-	Dredger, 200 PS	Nos	-	232,098	153,412	0	0	
2)	Labour 5 % of (1)	L.S.	1.00			1,005,457	708,959	
(3)	Miscellaneous Cost,20% of (1)					4,021,827	2,835,835	
Total						25,136,417	17,723,968	
Demobilization						25,136,417	17,723,968	
Total						50,272,834	35,447,935	

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ••

Reference No. : GSC-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	Ltr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
4)					Total	232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	Ltr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
4)					Total	51,778	38,134	
Total								

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ••

Reference No. : GSC-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				P.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	330,012,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			612,858,150	474,970,050	GS 2-2
(3)	Water Supply System	L.S.	1			69,445,761	49,018,987	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			195,955,932	425,252,963	GS 2-5
Total							905,032,278	1,281,984,050
								2,187,016,328

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5 % of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain. Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						77,112,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	810		75,000		60,750,000	
2)	White board (1.2x2.4) m, 5set	Nos	135		20,000		2,700,000	
3)	Filing cabinet, 2 set	Nos	54		15,000		810,000	
4)	Miscellaneous 20 %	L.S.	1		0		12,852,000	
4.	Operation & Maintenance						29,700,000	
1)	Office Supply	Month	27		500,000		13,500,000	
2)	Utility Man and Watchman, 3 persons	M/M	81		200,000		16,200,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	

Total						25,172,434	330,012,051	
Note :	Construction period is assumed		27 months					

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****
Reference No. : GSC-2-2
Description : Electric Power Supply System
Unit :
Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent Engine 100 KVA for Contractor, 2 set	hr.	12,150	28,280	12,120	343,602,000	147,258,000	EQ32
2)	D.Gent Engine 35 KVA for Contractor, 2 set	hr.	12,150	10,570	4,530	128,425,500	55,039,500	EQ33
3)	D.Gent Engine 15 KVA for Engineer, 1 set	hr.	6,075	5,880	2,520	35,721,000	15,309,000	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	1 hr	679,185	76	304	51,618,060	206,472,240	A-2
2)	Grease	Kg hr	6,792	400	3,600	2,716,740	24,450,660	A-6
3)	Repairing 10 % of 1	L.S.	1			50,774,850	21,760,630	
Total				27 month =		612,858,150	474,970,050	
Total construction hour 9 hr x 1 shift x 25 days x				6,075 hr				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					49,755,750	22,541,750	
1)	W Pump with cap. 4 l/min., 3 sets	hr.	18,225	2,450	1,050	44,651,250	19,136,250	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			4,523,250	2,049,250	
2.	Installation 10 % of 1					4,975,575	2,254,175	
3.	Operation & Maintenance					14,714,436	24,223,062	
-	Fuel(Gasoline)	Ltr	33,078	140	560	4,630,973	18,573,890	A-1
-	Grease	Kg	331	400	3,600	132,314	1,190,822	A-6
-	Maintenance 20 % of (1)					9,951,150	4,508,350	

Total	69,445,761	49,018,987
Total construction hour 9 hr x 1 shift x 25 days x	27 month =	6,075 hr

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	
Total							1,600,000	2,730,000

Note:

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-2-5
 Description : Temporary Construction Roads
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						195,955,932	425,252,963	
1)	Embankment for Road	m ³	1200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Commons Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ²	2400	5,360	27,751	12,863,498	66,603,285	RW-7
4)	Temporary Bridge, P-7	m ²	105	385,784	813,727	40,507,333	85,441,366	BD-7
5)	Temporary Bridge, P-9	m ²	240	385,784	813,727	92,588,190	195,294,550	BD-7
6)	Removal of temporary	L.S.	1			45,220,600	74,433,831	
	Road 30 % of (1+2+3+4+5)							

	L (m)	W	m ²	Vol
Temp. P-7	70	3	210	50%
Temp. P-9	80	3	240	100%

Total	195,955,932	425,252,963

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSC-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	200	9,436	8,193	1,887,294	1,638,513	OT-4 bridge
2	Demolish & Remolish Type B	m ³	100	15,318	16,419	1,531,783	1,641,899	OT-5 water level station
Total						3,419,078	3,280,412	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment					18,039,820	12,690,207	
-	Bulldozer 15 ton	Nos	2	232,098	153,412			
-	Bulldozer 12 ton	Nos	7	232,098	153,412	464,196	306,824	
-	Crawler Loader 1.2 m ³	Nos	0	232,098	153,412	1,624,688	1,073,885	
-	Wheel Loader 1.0 m ³	Nos	4	232,098	153,412	0	0	
-	Back Hoe 0.6 m ³ , 2 Nos	Nos	7	232,098	153,412	928,393	613,649	
-	Back Hoe 0.4 m ³	Nos	6	232,098	153,412	1,624,688	1,073,885	
-	Dump Truck 8 ton	Nos	45	51,778	38,134	1,392,589	920,473	
-	Dump Truck 6 ton	Nos	1	51,778	38,134	2,330,008	1,716,014	
-	Ordinary Truck 4 ton	Nos	7	51,778	38,134	51,778	38,134	
-	Vibrator Roller	Nos	1	232,098	153,412	362,446	266,935	
-	Steel Roller (8-12) ton	Nos	0	232,098	153,412	232,098	153,412	
-	Tire Roller (8-20) ton	Nos	1	232,098	153,412	0	0	
-	Grader 2.8 m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph. Finisher (2.4-3.6) m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph. Sprayer 30 l/min	Nos	1	232,098	153,412	232,098	153,412	
-	Crawler Crane, 35 ton	Nos	2	51,778	38,134	51,778	38,134	
-	Truck Crane 20 ton for concrete Placing	Nos	2	232,098	153,412	464,196	306,824	
-	Water Truck	Nos	2	51,778	38,134	464,196	306,824	
-	Conc. Mixer 0.5 m ³ , 1 Nos	Trip	20	51,778	38,134	103,556	76,267	
-	S. Pump Water & Waste Pump	Trip	40	51,778	38,134	1,035,559	762,673	
-	D.E. Genl. 50 Kva 1 Nos	Trip	20	51,778	38,134	2,071,118	1,525,346	
-	Weld. Machine nos. C.Saw	Trip	20	51,778	38,134	1,035,559	762,673	
-	D.E. Genl. 20 Kva 2 nos, etc	Trip	40	51,778	38,134	1,035,559	762,673	
-	Portal Crane	Nos	1	232,098	153,412	2,071,118	1,525,346	
-	Dredger, 200 PS	Nos	-	232,098	153,412	232,098	153,412	
2)	Labour 5 % of (1)	L.S.	1.00			0	0	
						901,991	634,510	
(3)	Miscellaneous Cost, 20% of (1)					3,607,964	2,538,041	
Total						22,549,775	15,862,759	
Demobilization						22,549,775	15,862,759	
Total						45,099,551	31,725,517	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****
 Reference No. : GSD-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	(Ltr)	101	140	560	14,134	56,538	A-1
-	Grease	(Kg)	1	400	3,600	404	3,635	A-6
				Total		232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	(Ltr)	30	140	560	4,178	16,710	A-1
-	Grease	(Kg)	0.3	400	3,600	119	1,074	A-6
				Total		51,778	38,134	
				Total				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	330,012,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			612,858,150	474,970,050	GS 2-2
(3)	Water Supply System	L.S.	1			69,445,761	49,018,987	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			214,389,713	485,084,134	GS 2-5

Total	923,466,058	1,341,815,222	2,265,281,281

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500					
2)	Warehouse	m ²	200		100,000		50,000,000	
3)	Workshop	m ²	400		100,000		20,000,000	
4)	Stock Yard	m ²	150		100,000		40,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		15,000,000	
6)	Site hut	m ²	100		25,000		50,000,000	
7)	Miscellaneous	L.S.	1		0		2,500,000	
	5 % of (1+2+3+4+5+6+7)						8,875,000	
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						77,112,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	810					
2)	White board (1.2x2.4) m, 5set	Nos	135		75,000		60,750,000	
3)	Filing cabinet, 2 set	Nos	54		20,000		2,700,000	
4)	Miscellaneous 20 %	L.S.	1		15,000		810,000	
					0		12,852,000	
4.	Operation & Maintenance						29,700,000	
1)	Office Supply	Month	27					
2)	Utility Man and Watchman, 3 persons	M/M	81		500,000		13,500,000	
					200,000		16,200,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	
Total						25,172,434	330,012,051	

Note : Construction period is assumed 27 months

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2-2
 Description : Electric Power Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent.Engine 100 KVA for Contractor, 2 set	hr.	12,150	28,280	12,120	507,748,500	217,606,500	EQ32
2)	D.Gent.Engine 35 KVA for Contractor, 2 set	hr.	12,150	10,570	4,530	343,602,000	147,258,000	EQ33
3)	D.Gent.Engine 15 KVA for Engineer, 1 set	hr.	6,075	5,880	2,520	128,425,500	55,039,500	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Lr hr	679,185	76	304	105,109,650	252,683,550	A-2
2)	Grease	Kg hr	6,792	400	3,600	51,618,060	206,472,240	A-6
3)	Repairing 10 % of 1	L.S.	1			2,716,740	24,450,660	
						50,774,850	21,760,650	
Total				27 month =		612,858,150		474,970,050
Total construction hour 9 hr x 1 shift x 25 days x				6,075 hr				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					49,755,750	22,541,750	
1)	W.Pump with cap. 4 l/min., 3 sets	hr.	18,225	2,450	1,050	44,651,250	19,136,250	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			4,523,250	2,049,250	
2.	Installation 10 % of 1					4,975,575	2,254,175	
3.	Operation & Maintenance					14,714,436	24,223,062	
-	Fuel(Gasoline)	Ltr	33,078	140	560	4,630,973	18,523,890	A-1
-	Grease	Kg	331	400	3,600	132,314	1,190,822	A-6
-	Maintenance 20 % of (1)					9,951,150	4,508,350	
Total							69,445,761	49,018,987
Total construction hour 9 hr x 1 shift x 25 days x							27 month =	
							6,075 hr	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance							
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000
Note:		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : GSD-2-5
 Description : Temporary Construction Roads
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						214,389,713	485,084,134	
1)	Embankment for Road	m ³	1,200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ²	2,400	5,360	27,751	12,863,498	66,603,285	RW-7
4)	Temporary Bridge, P-11	m ²	210	385,784	813,727	81,014,666	170,882,731	BD-7
5)	Temporary Bridge, P-13	m ²	300	385,784	813,727	115,735,237	244,118,187	BD-7
6)	Removal of temporary	L.S.	1			64,316,914	107,010,355	
	Road 30 % of (1+2+3+4+5)							

	L (m)	W	m ²	Vol
Temp. P-11	70	6	420	50%
Temp. P-13	50	6	300	100%

Total	214,389,713	485,084,134

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ••

Reference No. : GSD-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	200	9,436	8,193	1,887,294	1,638,513	OT-4
2	Demolish & Remolish Type B	m ³	140	15,318	16,419	2,144,497	2,298,659	OT-5

Total	4,031,791	3,937,172

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1. DIRECT COST								
(1) Construction Equipment						19,280,686	13,569,036	
- Bulldozer 15 ton	Nos	5		232,098	153,412	1,160,491	767,061	
- Bulldozer 12 ton	Nos	4		232,098	153,412	928,393	613,649	
- Crawler Loader 1.2 m ³	Nos	0		232,098	153,412	0	0	
- Wheel Loader 1.0 m ³	Nos	5		232,098	153,412	1,160,491	767,061	
- Back Hoe 0.6 m ³ 2 Nos	Nos	5		232,098	153,412	1,160,491	767,061	
- Back Hoe 0.4 m ³	Nos	8		232,098	153,412	1,856,786	1,227,297	
- Dump Truck 8 ton	Nos	58		51,778	38,134	3,003,122	2,211,751	
- Dump Truck 6 ton	Nos	3		51,778	38,134	155,334	114,401	
- Ordinary Truck 4 ton	Nos	5		51,778	38,134	258,890	190,668	
- Vibrator Roller	Nos	1		232,098	153,412	232,098	153,412	
- Steel Roller (8-12) ton	Nos	0		232,098	153,412	0	0	
- Tire Roller (8-20) ton	Nos	2		232,098	153,412	464,196	306,824	
- Grader 2.8 m	Nos	1		232,098	153,412	232,098	153,412	
- Asph. Finisher (2.4-3.6) m	Nos	1		232,098	153,412	232,098	153,412	
- Asph. Sprayer 30 l/min	Nos	1		51,778	38,134	51,778	38,134	
- Crawler Crane, 35 ton	Nos	2		232,098	153,412	464,196	306,824	
- Truck Crane 20 ton for concrete Placing	Nos	2		232,098	153,412	464,196	306,824	
- Water Truck	Nos	4		51,778	38,134	207,112	152,535	
- Conc. Mixer 0.5 m ³ 1 Nos	Trip	20		51,778	38,134	1,035,559	762,673	
- S. Pump Water & Waste Pump	Trip	40		51,778	38,134	2,071,118	1,525,346	
- D.E. Gen. 50 Kva 1 Nos	Trip	20		51,778	38,134	1,035,559	762,673	
- Wld. Machine nos, C.Saw	Trip	20		51,778	38,134	1,035,559	762,673	
- D.E. Gen. 20 Kva 2 nos, etc	Trip	40		51,778	38,134	2,071,118	1,525,346	
- Portal Crane	Nos	1		232,098	153,412	232,098	153,412	
- Dredger, 200 PS	Nos	-		232,098	153,412	0	0	
2) Labour 5 % of (1)	L.S.	1.00				964,034	678,452	
(3) Miscellaneous Cost, 20% of (1)						3,856,137	2,713,807	
Total						24,100,858	16,961,295	
Demobilization						24,100,858	16,961,295	
Total						48,201,716	33,922,590	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment							
1)	Trailer	hr.	4	43,190	18,510	217,560	93,240	EQ16
2)	Truck	hr.	4	8,610	3,690	172,760	74,040	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials							
-	Fuel(Gasoline)	Ltr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
				Total		232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment							
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	47,481	20,349	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials							
-	Fuel(Gasoline)	Ltr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
				Total		51,778	38,134	
				Total				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	302,320,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			453,969,000	353,043,000	GS 2-2
(3)	Water Supply System	L.S.	1			51,656,798	36,813,178	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			8,755,214	17,706,365	GS 2-5

Total				541,153,446		712,612,594	1,253,766,040	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5 % of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						57,120,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	600		75,000		45,000,000	
2)	White board (1.2x2.4) m, 5set	Nos	100		20,000		2,000,000	
3)	Filing cabinet, 2 set	Nos	40		15,000		600,000	
4)	Miscellaneous 20 %	L.S.	1		0		9,520,000	
4.	Operation & Maintenance						22,000,000	
1)	Office Supply	Month	20				10,000,000	
2)	Utility Man and Watchman, 3 persons	M/M	60		200,000		12,000,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	

Total						25,172,434	302,320,051	
Note :	Construction period is assumed		20 months					

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-2-2
Description : Electric Power Supply System
Unit :
Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent.Engine 100 KVA for Contractor, 2 set	hr.	9,000	28,280	12,120	376,110,000	161,190,000	EQ32
2)	D.Gent.Engine 35 KVA for Contractor, 2 set	hr.	9,000	10,570	4,530	254,520,000	109,080,000	EQ33
3)	D.Gent.Engine 15 KVA for Engineer, 1 set	hr.	4,500	5,880	2,520	95,130,000	40,770,000	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Ltr hr	503,100	76		77,859,000	187,173,000	
2)	Grease	Kg hr	5,031	400	304	38,235,600	152,942,400	A-2
3)	Repairing 10 % of 1	L.S.	1		3,600	2,012,400	18,111,600	A-6
						37,611,000	16,119,000	
Total						453,969,000	353,013,000	
Total construction hour 9 hr x 1 shift x 25 days x				20 month =	4,500 hr			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					37,021,875	17,084,375	
1)	W.Pump with cap. 4 l/min., 3 sets	hr.	13,500	2,450	1,050	33,075,000	14,175,000	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			3,365,625	1,553,125	
2.	Installation 10 % of 1					3,702,188	1,708,438	
3.	Operation & Maintenance					10,932,735	18,020,365	
-	Fuel(Gasoline)	Ltr	24,503	140	560	3,430,350	13,721,400	A-1
-	Grease	Kg	245	400	3,600	98,010	882,090	A-6
-	Maintenance 20 % of (1)					7,404,375	3,416,875	

Total						51,656,798	36,813,178	
Total construction hour 9 hr x 1 shift x 25 days x				20 month =	4,500 hr			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****

Reference No. : GSE-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000

Note:

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****
 Reference No. : GSE-2-5
 Description : Temporary Construction Roads and Bridge
 Unit : L.S
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						8,755,214	17,706,365	
1)	Embankment for Road	m ³	1200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ³	365	5,360	27,751	1,938,467	10,140,350	RW-7
4)	Temporary Bridge	m ²	0	385,784	813,727	0	0	BD-7
5)	Temporary Bridge	m ²	0	385,784	813,727	0	0	BD-7
6)	Removal of temporary	L.S.	1			2,020,434	4,086,084	
	Road 30 % of (1+2+3+4+5)							

Total	8,755,214	17,706,365

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****
 Reference No. : GSE-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	100	9,436	8,193	943,647	819,257	OT-4
2	Demolish & Remolish Type B	m ³	50	15,318	16,419	765,892	820,950	OT-5
3	Well, 10 m	nos.	4	246,028	1,231,310	984,111	4,925,238	OT-10

Total	2,693,650						6,565,444

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : GSF.1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment					14,992,141	10,585,836	
-	Bulldozer 15 ton	Nos	1	232,098	153,412			
-	Bulldozer 12 ton	Nos	2	232,098	153,412	232,098	153,412	
-	Crawler Loader 1.2 m ³	Nos	0	232,098	153,412	464,196	306,824	
-	Wheel Loader 1.0 m ³	Nos	2	232,098	153,412	0	0	
-	Back Hoe 0.6 m ³ 2 Nos	Nos	2	232,098	153,412	464,196	306,824	
-	Back Hoe 0.4 m ³	Nos	4	232,098	153,412	464,196	306,824	
-	Dump Truck 8 ton	Nos	24	51,778	38,134	928,393	613,649	
-	Dump Truck 6 ton	Nos	1	51,778	38,134	1,242,671	915,207	
-	Ordinary Truck 4 ton	Nos	4	51,778	38,134	51,778	38,134	
-	Vibrator Roller	Nos	2	232,098	153,412	207,112	152,535	
-	Steel Roller (8-12) ton	Nos	0	232,098	153,412	464,196	306,824	
-	Tire Roller (8-20) ton	Nos	3	232,098	153,412	0	0	
-	Grader 2.8 m	Nos	1	232,098	153,412	696,295	460,236	
-	Asph Finisher (2.4-3.6) m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph Sprayer 30 l/min/it	Nos	1	232,098	153,412	232,098	153,412	
-	Crawler Crane, 35 ton	Nos	4	51,778	38,134	51,778	38,134	
-	Truck Crane 20 ton for concrete Placing	Nos	4	232,098	153,412	928,393	613,649	
-	Water Truck	Nos	3	51,778	38,134	155,334	114,401	
-	Conc. Mixer 0.5 m ³ 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	S. Pump Water & Waste Pump	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	D.E. Gen. 50 Kva 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	Wild. Machine nos, C.Saw	Trip	20	51,778	38,134	1,035,559	762,673	
-	D.E. Gen. 20 Kva 2 nos, etc	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	Portal Crane	Nos	1	232,098	153,412	232,098	153,412	
-	Dredger, 200 PS	Nos	-	232,098	153,412	0	0	
2)	Labour 5 % of (1)	L.S.	1.00			749,607	529,292	
(3)	Miscellaneous Cost, 20% of (1)					2,998,428	2,117,167	
Total						18,740,177	13,232,295	
Demobilization						18,740,177	13,232,295	
Total						37,480,353	26,464,590	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****
 Reference No. : GSF-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	Ltr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
				Total		232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	Ltr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
				Total		51,778	38,134	
				Total				

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ••

Reference No. : GSF-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	330,012,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			612,838,150	474,970,050	GS 2-2
(3)	Water Supply System	L.S.	1			69,445,761	49,018,987	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			17,639,810	70,083,216	GS 2-5

Total						726,716,155	926,814,304	1,653,530,459

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : GSF-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5 % of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						77,112,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	810		75,000		60,750,000	
2)	White board (1.2x2.4) m, 5set	Nos	135		20,000		2,700,000	
3)	Filing cabinet, 2 set	Nos	54		15,000		810,000	
4)	Miscellaneous 20 %	L.S.	1		0		12,852,000	
4.	Operation & Maintenance						29,700,000	
1)	Office Supply	Month	27		500,000		13,500,000	
2)	Utility Man and Watchman, 3 persons	M/M	81		200,000		16,200,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	
Total							330,012,051	
Note : Construction period is assumed							27 months	
							25,172,434	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : GSF-2-2
 Description : Electric Power Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent.Engine 100 KVA for Contractor, 2 set	hr.	12,150	28,280	12,120	507,748,500	217,606,500	EQ32
2)	D.Gent.Engine 35 KVA for Contractor, 2 set	hr.	12,150	10,570	4,530	343,602,000	147,258,000	EQ33
3)	D.Gent.Engine 15 KVA for Engineer, 1 set	hr.	6,075	5,880	2,520	128,425,500	55,039,500	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Lr hr	679,185			105,109,650	252,683,550	
2)	Grease	Kg hr	6,792		304	51,618,060	206,472,240	A-2
3)	Repairing 10 % of 1	L.S.	1		3,600	2,716,740	24,450,660	A-6
						50,774,850	21,760,650	
Total				27 month =		612,858,150	474,970,050	
Total construction hour 9 hr x 1 shift x 25 days x				6,075 hr				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : GSF-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					49,755,750	22,541,750	
1)	W Pump with cap. 4 l/min., 3 sets	hr.	18,225	2,450	1,050	44,651,250	19,136,250	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			4,523,250	2,049,250	
2.	Installation 10 % of 1					4,975,575	2,254,175	
3.	Operation & Maintenance					14,714,436	24,223,062	
-	Fuel(Gasoline)	Ltr	33,078	140	560	4,630,973	18,523,890	A-1
-	Grease	Kg	331	400	3,600	132,314	1,190,822	A-6
-	Maintenance 20 % of (1)					9,951,150	4,508,350	
Total						69,445,761	49,018,987	
Total construction hour 9 hr x 1 shift x 25 days x				27 month =		6,075 hr		

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ••

Reference No. : GSF-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000
Note:		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****
 Reference No. : GSF-2-5
 Description : Temporary Construction Roads
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						17,639,810	70,083,216	
1)	Embankment for Road	m ³	1,200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ²	2,400	5,360	27,751	12,863,498	66,603,285	RW-7
4)	Temporary Bridge	m ²	0	385,784	813,727	0	0	BD-7
5)	Temporary Bridge	m ²	0	385,784	813,727	0	0	BD-7
6)	Removal of temporary Road 30 % of (1+2+3+4+5)	L.S.	1			5,291,943	21,024,965	
Total						17,639,810	70,083,216	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : GSF-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	200	9,436	8,193	1,887,294	1,638,513	OT-4
2	Demolish & Remolish Type B	m ³	100	15,318	16,419	1,531,783	1,641,899	OT-5
3	Well, 10m	nos.	7	246,028	1,231,310	1,722,195	8,619,167	OT-10

Total	5,141,272	11,899,579

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-7 ****

Reference No. : GSG-1
 Description : Mobilization and Demobilization
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment					16,254,383	11,392,786	
-	Bulldozer 15 ton	Nos	5	232,098	153,412	1,160,491	767,061	
-	Bulldozer 12 ton	Nos	4	232,098	153,412	928,393	613,649	
-	Crawler Loader 1.2 m ³	Nos	0	232,098	153,412	0	0	
-	Wheel Loader 1.0 m ³	Nos	5	232,098	153,412	1,160,491	767,061	
-	Back Hoe 0.6 m ³ 2 Nos	Nos	4	232,098	153,412	928,393	613,649	
-	Back Hoe 0.4 m ³	Nos	5	232,098	153,412	1,160,491	767,061	
-	Dump Truck 8 ton	Nos	51	51,778	38,134	2,640,676	1,944,816	
-	Dump Truck 6 ton	Nos	1	51,778	38,134	51,778	38,134	
-	Ordinary Truck 4 ton	Nos	6	51,778	38,134	310,668	228,802	
-	Vibrator Roller	Nos	1	232,098	153,412	232,098	153,412	
-	Steel Roller (8-12) ton	Nos	0	232,098	153,412	0	0	
-	Tire Roller (8-20) ton	Nos	2	232,098	153,412	464,196	306,824	
-	Grader 2.8 m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph. Finisher (2.4-3.6) m	Nos	1	232,098	153,412	232,098	153,412	
-	Asph. Sprayer 30 l/min	Nos	1	51,778	38,134	51,778	38,134	
-	Crawler Crane, 35 ton	Nos	3	232,098	153,412	696,295	460,236	
-	Truck Crane 20 ton for concrete Placing	Nos	2	232,098	153,412	464,196	306,824	
-	Water Truck	Nos	5	51,778	38,134	258,890	190,668	
-	Conc. Mixer 0.5 m ³ 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	S. Pump Water & Waste Pump	Trip	40	51,778	38,134	2,071,118	1,525,346	
-	D.E. Gen. 50 Kva 1 Nos	Trip	20	51,778	38,134	1,035,559	762,673	
-	Wld. Machine nos, C.Saw	Trip	20	51,778	38,134	1,035,559	762,673	
-	D.E. Gen. 20 Kva 2 nos, etc	Trip	2	51,778	38,134	103,556	76,267	
-	Portal Crane	Nos	2	232,098	153,412	464,196	306,824	
-	Dredger, 200 PS	Nos	-	232,098	153,412	0	0	
2)	Labour 5 % of (1)	L.S.	1.00			812,719	569,639	
(3)	Miscellaneous Cost, 20% of (1)					3,250,877	2,278,557	
Total						20,317,979	14,240,982	
Demobilization						20,317,979	14,240,982	
Total						40,635,958	28,481,964	

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-7 ••

Reference No. : GSG-1-1
 Description : Mobilization and Demobilization
 Unit : Nos
 Quantity for Estimation : 1.0 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
A	Heavy Equipment (more than 10 ton)							
1	Equipment					217,560	93,240	
1)	Trailer	hr.	4	43,190	18,510	172,760	74,040	EQ16
2)	Truck	hr.	4	8,610	3,690	34,440	14,760	EQ11
3)	Miscellaneous 5 %	L.S.	1			10,360	4,440	
2	Construction Materials					14,538	60,172	
-	Fuel(Gasoline)	Ltr	101	140	560	14,134	56,538	A-1
-	Grease	Kg	1	400	3,600	404	3,635	A-6
4)					Total	232,098	153,412	
B	Light Equipment (less than 10 ton)							
1	Equipment					47,481	20,349	
1)	Truck with Crane, 6 ton	hr.	2	13,580	5,820	27,160	11,640	EQ14
2)	Truck	hr.	2	9,030	3,870	18,060	7,740	EQ15
3)	Miscellaneous 5 %	L.S.	1			2,261	969	
2	Construction Materials					4,297	17,785	
-	Fuel(Gasoline)	Ltr	30	140	560	4,178	16,710	A-1
-	Grease	Kg	0.3	400	3,600	119	1,074	A-6
4)					Total	51,778	38,134	
Total								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSG-2
 Description : Establishment
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Contractor's Temporary Facilities	L.S.	1			25,172,434	330,012,051	GS 2-1
(2)	Electric Power Supply System	L.S.	1			612,858,150	474,970,050	GS 2-2
(3)	Water Supply System	L.S.	1			69,445,761	49,018,987	GS 2-3
(4)	Telecommunication System	L.S.	1			1,600,000	2,730,000	GS 2-4
(5)	Temporary Works	L.S.	1			437,877,704	618,833,603	GS 2-5

Total						1,146,954,049	1,475,564,691	2,622,518,740

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSG-2-1
 Description : Contractor's Temporary Facilities and Other Construction Facilities
 Unit : Nos
 Quantity for Estimation : 1 Nos

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Building					0	186,375,000	
1)	Contractor's office	m ²	500		100,000		50,000,000	
2)	Warehouse	m ²	200		100,000		20,000,000	
3)	Workshop	m ²	400		100,000		40,000,000	
4)	Stock Yard	m ²	150		100,000		15,000,000	
5)	Labour camp (Quarter)	m ²	500		100,000		50,000,000	
6)	Site hut	m ²	100		25,000		2,500,000	
7)	Miscellaneous	L.S.	1		0		8,875,000	
	5 % of (1+2+3+4+5+6+7)							
2.	Land Preparation					25,172,434	27,506,301	
1)	Clearing and Grubbing	m ²	2,500	1,065	804	2,662,445	2,010,320	EW-1
2)	Backfill with Selected Soil	m ³	750	2,931	3,203	2,198,489	2,402,481	EW-9
3)	Fence	m	200	82,320	20,580	16,464,000	4,116,000	E-26
4)	Drain Pipe, PVC Dia 150 mm	m	300	12,825	29,925	3,847,500	8,977,500	G-1
5)	Land Acquisition	m ²	4,000		2,500		10,000,000	
3.	Facilities						77,112,000	
1)	Furniture (Table & Chairs etc.), 30 person	Nos	810				60,750,000	
2)	White board (1.2x2.4) m, 5set	Nos	135		75,000		2,700,000	
3)	Filing cabinet, 2 set	Nos	54		15,000		810,000	
4)	Miscellaneous 20 %	L.S.	1		0		12,852,000	
4.	Operation & Maintenance						29,700,000	
1)	Office Supply	Month	27				13,500,000	
2)	Utility Man and Watchman, 3 persons	M/M	81		500,000		16,200,000	
5.	Removal (5% of Item 1.)	L.S.	1				9,318,750	

Total						25,172,434	330,012,051	
Note :	Construction period is assumed		27 months					

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSG-2-2
 Description : Electric Power Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment							
1)	D.Gent Engine 100 KVA for Contractor, 2 set	hr.	12,150	28,280	12,120	343,602,000	147,258,000	EQ32
2)	D.Gent Engine 35 KVA for Contractor, 2 set	hr.	12,150	10,570	4,530	128,425,500	55,039,500	EQ33
3)	D.Gent Engine 15 KVA for Engineer, 1 set	hr.	6,075	5,880	2,520	35,721,000	15,309,000	EQ34
2.	Material & Installation							
1)	Wire	L.S.	1				4,680,000	
2)	Lamp	L.S.	1				1,500,000	
3)	Miscellaneous 10 % (1+2)	L.S.	1				1,500,000	
4)	Installation 30 % (1+2+3)	L.S.	1				300,000	
							990,000	
3.	Operation & Maintenance							
1)	Fuel	Lr hr	679,185	76	304	51,618,060	206,472,240	A-2
2)	Grease	Kg hr	6,792	400	3,600	2,716,740	24,450,660	A-6
3)	Repairing 10 % of 1	L.S.	1			50,774,850	21,760,650	
Total				27 month =		612,838,150	474,970,050	
Total construction hour 9 hr x 1 shift x 25 days x				6,075 hr				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MPC-3 ****

Reference No. : GSG-2-3
 Description : Water Supply System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment & material					49,755,750	22,541,750	
1)	W.Pump with cap. 4 l/min., 3 sets	hr.	18,225	2,450	1,050	44,651,250	19,136,250	EQ46
2)	Pvc Pipe Dia 25 mm	m	50	10,500	24,500	525,000	1,225,000	G-5
3)	Pvc Pipe Dia 50 mm	m	25	2,250	5,250	56,250	131,250	G-4
4)	Miscellaneous 10 %	L.S.	1			4,523,250	2,049,250	
2.	Installation 10 % of 1					4,975,575	2,254,175	
3.	Operation & Maintenance					14,714,436	24,223,062	
-	Fuel(Gasoline)	Ltr	33,078	140	560	4,630,973	18,523,890	A-1
-	Grease	Kg	331	400	3,600	132,314	1,190,822	A-6
-	Maintenance 20 % of (1)					9,951,150	4,508,350	

Total	69,445,761	49,018,987
Total construction hour 9 hr x 1 shift x 25 days x	27 month =	6,075 hr

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ••

Reference No. : GSG-2-4
 Description : Telecommunication System
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Equipment					1,600,000	2,400,000	
1)	Handy Talky for Contractor	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2)	Handy Talky for Engineer	Nos	5	160,000	240,000	800,000	1,200,000	J-16
2.	Operation & Maintenance						330,000	
1)	Operation License		1		300,000		300,000	
2)	Maintenance 10 % of 1		1				30,000	

Total	1,600,000	2,730,000

Note:

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****

Reference No. : GSG-2.5
 Description : Temporary Construction Roads
 Unit :
 Quantity for Estimation :

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						437,877,704	618,833,603	
1)	Embankment for Road	m ³	1200	3,022	2,286	3,625,812	2,743,489	EW-7
2)	Common Excavation	m ³	400	2,876	1,841	1,150,501	736,441	EW-2
3)	Gravel of temporary	m ²	2400	5,360	27,751	12,863,498	66,603,285	RW-7
4)	Temporary Bridge	m ²	300	385,784	813,727	115,735,237	244,118,187	BD-7
5)	Temporary Channel	L.S.	1	264,490,143	210,371,778	264,490,143	210,371,778	OT-22
6)	Removal of temporary	L.S.	1			40,012,514	94,260,421	
	Road 30 % of (1+2+3+4)							

Total	437,877,704	618,833,603

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-7 ••

Reference No. : GSG-3
 Description : Relocation of Existing Facilities
 Unit :
 Quantity for Estimation : P.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1	Demolish & Remolish Type A	m ³	100	9,436	8,193	943,647	819,257	OT-4
2	Demolish & Remolish Type B	m ³	200	15,318	16,419	3,063,567	3,283,798	OT-5
3	Well, 10m	nos.	2	246,028	1,231,310	492,056	2,462,619	OT-10

Total	4,499,270	6,565,674

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-1
 Description : Clearing and Grubbing
 Unit : m²
 Quantity for Estimation : 600 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					555,641	419,545	
(1)	Construction Equipment					514,500	231,440	
-	Bulldozer, 12 t	hrs	8.00	42,140	18,060	337,120	144,480	EQ2
-	Backhoe, 0.4 m ³	hrs	5.00	30,100	12,900	150,500	64,500	EQ6
-	Chain Saw	hrs	16.00	1,680	720	26,880	11,520	EQ49
-	Misc. Tools, (10 % of Labour Cost)	L.S.	1.00				10,940	
(2)	Labour						109,400	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	1.50		19,200		28,800	LA2
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material					14,682	58,727	
-	Light Oil (Diesel oil)	lit.	193.18	76	304	14,682	58,727	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				26,459	19,978	
2.	INDIRECT COST	15 % of DIRECT COST				83,346	62,932	
Total				638,987		482,477		
Unit Cost				1,065		804		1,869

Note:

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-2
Description : Common Excavation
Unit : m³
Quantity for Estimation : 340 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					850,370	544,326	
(1)	Construction Equipment					789,320	338,280	
-	Backhoe, 0.60 m ³	hrs	8.00	45,990	19,710	367,920	157,680	EQ5
-	Bulldozer, 12 t	hrs	10.00	42,140	18,060	421,400	180,600	EQ2
(2)	Labour						97,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	2.00		19,200		38,400	LA2
-	Driver	M/D	0.00		14,400		0	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	4.00		9,600		38,400	LA17
(3)	Construction Material					20,556	82,226	
-	Light Oil (Diesel oil)	lit.	270.48	76	304	20,556	82,226	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				40,494	25,920	
2.	INDIRECT COST	15 % of DIRECT COST				127,556	81,649	
Total						977,926	625,975	
Unit Cost						2,876	1,841	4,717
- Daily Equipment Production at 50 m handling distance								
Backhoe (0.6 m ³)				8 hrs/day =	340 m ³ /day			
Bulldozer, 12 ton				34 m ³ /hrs =	10 hrs			

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-3
 Description : Common Excavation : Dumping at Spoil Bank(5 Km)
 Unit : m³
 Quantity for Estimation : 340 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,891,956	1,242,556	
(1)	Construction Equipment					1,746,603	748,544	
-	Backhoe, 0.60 m ³	hrs	8.0	45,990	19,710	367,920	157,680	EQ5
-	Dump Truck, 8 t	hrs	56.0	23,100	9,900	1,293,904	554,530	EQ9
-	Bulldozer, 12 t	hrs	2.0	42,140	18,060	84,779	36,334	EQ2
(2)	Labour						213,805	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.27		19,200		24,384	LA2
-	Driver	M/D	6.22		14,400		89,621	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					55,259	221,037	
-	Light Oil (Diesel oil)	lit.	727.10	76	304	55,259	221,037	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				90,093	59,169	
2.	INDIRECT COST	15 % of DIRECT COST				283,793	186,383	
Total						2,175,749	1,428,939	
Unit Cost						6,399	4,203	10,602

- Daily Equipment Production at 50 m handling distance, hauling distance 5 km.

Backhoe (0.6 m ³)	42.5 m ³ /hr x	8 hrs/day =	340 m ³ /day
Dump Truck, 8 t	340 m ³ /	6.07 m ³ /hrs =	56 hrs
Bulldozer, 12 t	68 m ³ /	34 m ³ /hrs =	2.0 hrs

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-3-1
 Description : Common Excavation : Dumping at Spoil (2 Km)
 Unit : m³
 Quantity for Estimation : 340 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Backhoe, 0.60 m ³	hrs	8.0	45,990	19,710	367,920	157,680	EQ5
-	Dump Truck, 8 t	hrs	33.0	23,100	9,900	763,265	327,114	EQ9
-	Bulldozer, 12 t	hrs	2.0	42,140	18,060	84,779	36,334	EQ2
(2)	Labour							
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.27		19,200		24,384	LA2
-	Driver	M/D	3.67		14,400		52,867	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material							
-	Light Oil (Diesel oil)	lit.	494.63	76	304	37,592	150,366	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				62,678	42,427	A-2
2.	INDIRECT COST	15 % of DIRECT COST				197,435	133,646	
Total								
Unit Cost				1,513,668		1,024,618		
- Daily Equipment Production at 50 m handling distance, hauling distance 2 km.				4,452		3,014		7,466
Backhoe (0.6 m ³)				8 hrs/day =	340 m ³ /day			
Dump Truck, 8 t				10.29 m ³ /hrs =	33 hrs			
Bulldozer, 12 t				34 m ³ /hrs =	2.0 hrs			

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-3-2
 Description : Common Excavation : Dumping at Spoil Bank (4 Km)
 Unit : m³
 Quantity for Estimation : 340 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,686,613	1,117,156	
(1)	Construction Equipment					1,557,340	667,431	
-	Backhoe, 0.60 m ³	hrs	8.0	45,990	19,710	367,920	157,680	EQ5
-	Dump Truck, 8 t	hrs	47.8	23,100	9,900	1,104,641	473,418	EQ9
-	Bulldozer, 12 t	hrs	2.0	42,140	18,060	84,779	36,334	EQ2
(2)	Labour						200,696	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.27		19,200		24,384	LA2
-	Driver	M/D	5.31		14,400		76,512	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					48,958	195,831	
-	Light Oil (Diesel oil)	lit.	644.18	76	304	48,958	195,831	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				80,315	53,198	
2.	INDIRECT COST					252,992	167,573	

Total						1,939,605	1,284,730	
Unit Cost						5,705	3,779	9,483
- Daily Equipment Production at 50 m handling distance, hauling distance 10 km.								
Backhoe (0.6 m ³)	42.5 m ³ /hr x	8 hrs/day =	340 m ³ /day					
Dump Truck, 8 t	340 m ³ /	7.11 m ³ /hrs =	48 hrs					
Bulldozer, 12 t	68 m ³ /	34 m ³ /hrs =	2.0 hrs					

Reference No.	Description	Unit	Quantity for Estimation
EW-3-3	Common Excavation : Dumping at Spoil Bank (6.5 Km)	m ³	340 m ³

Total	2,474,924	1,611,641
Unit Cost	7,279	4,740
- Daily Equipment Production of 50 m handling distance, handling distance 200		12,019

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-4
 Description : Excavation for Floodway (Common Soil) : Damping at Spoil Bank 5 km
 Unit : m³
 Quantity for Estimation : 1,105 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Bulldozer, 15 t	hr.	8.00	52,430	22,470	419,440	179,760	EQ1
-	Backhoe A, 0.6 m ³	hr.	8.00	45,990	19,710	367,920	157,680	EQ5
-	Wheel Type Loader, 1.2 m ³	hr.	8.16	38,920	16,680	317,405	136,031	EQ8
-	Dump Truck, 8 t	hr.	182.01	23,100	9,900	4,204,428	1,801,898	EQ9
(2)	Labour							
-	Foreman	M/D	1.00		19,200	169,151	676,606	LA1
-	Operator	M/D	2.68		19,200	169,151	676,606	LA2
-	Driver	M/D	20.22		14,400	273,917	169,246	LA6
-	Skilled Labour	M/D	2.00		11,500			LA16
-	Common Labour	M/D	5.00		9,600			LA17
(3)	Construction Material							
-	Light Oil (Diesel oil)	lit.	2,225.68	76	304			A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)						
2.	INDIRECT COST	15 % of DIRECT COST				862,839	533,125	

Total						6,615,101	4,087,292	
Unit Cost						5,988	3,700	9,687
-Daily Equipment Production at 20 m handling distance								
Bulldozer, 15 t	=	85.0 m ³ /hr x	8 hrs/day =	680 m ³ /day				Total Daily Production :
Backhoe, 0.6 m ³	=	53.1 m ³ /hr x	8 hrs/day =	424.8 m ³ /day				1,105 m ³ /day
Loader, 1.2 m ³	=	1104.8 m ³ /	135.47 m ³ /hr =	8.155 hr				
Dump Truck, 8 ton	=	1104.8 m ³ /	6.07 m ³ /hrs =	182 hrs				

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-4-1
 Description : Excavation for Floodway (Common Soil) : Damping at Beside(fishpond)
 Unit : m³
 Quantity for Estimation : 1,105 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,303,261	842,733	
(1)	Construction Equipment					1,206,800	517,200	
-	Bulldozer, 15 t	hr.	16.00	52,430	22,470	838,880	359,520	EQ1
-	Backhoe A, 0.6 m ³	hr.	8.00	45,990	19,710	367,920	157,680	EQ5
(2)	Labour						147,800	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	3.00		19,200		57,600	LA2
-	Driver	M/D	0.00		14,400		0	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material					34,401	137,603	
-	Light Oil (Diesel oil)	lit.	452.64	76	304	34,401	137,603	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				62,060	40,130	
2.	INDIRECT COST	15 % of DIRECT COST				195,489	126,410	
Total				1,498,750		969,143		
Unit Cost				1,357		877		2,234
-Daily Equipment Production at 100 m handling and pushing distance(average)								
Bulldozer, 15 t =				85.0 m ³ /hr x	8 hrs/day =	680 m ³ /day	Total Daily Production :	
Backhoe, 0.6 m3 =				53.1 m ³ /hr x	8 hrs/day =	425 m ³ /day	1,105 m ³ /day	

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-4-2
 Description : Excavation for Floodway (Common Soil) : Damping at Spoil Bank 2 km
 Unit : m³
 Quantity for Estimation : 1,105 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					3,878,891	2,410,130	
(1)	Construction Equipment					3,582,520	1,535,366	
-	Bulldozer, 15 t	hr.	8.00	52,430	22,470	419,440	179,760	EQ1
-	Backhoe A, 0.6 m ³	hr.	8.00	45,990	19,710	367,920	157,680	EQ5
-	Wheel Type Loader, 1.2 m ³	hr.	8.16	38,920	16,680	317,405	136,031	EQ8
-	Dump Truck, 8 t	hr.	107.26	23,100	9,900	2,477,755	1,061,895	EQ9
(2)	Labour						313,351	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	2.68		19,200		51,531	LA2
-	Driver	M/D	11.92		14,400		171,619	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material					111,661	446,646	
-	Light Oil (Diesel oil)	lit.	1,469.23	76	304	111,661	446,646	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				184,709	114,768	
2.	INDIRECT COST	15 % of DIRECT COST				581,834	361,520	

Total						4,460,724	2,771,650	
Unit Cost						4,038	2,509	6,546
-Daily Equipment Production at 20 m handling distance								
Bulldozer, 15 t	=	85.0 m ³ /hr x	8 hrs/day =	680 m ³ /day				
Backhoe, 0.6 m ³	=	53.1 m ³ /hr x	8 hrs/day =	424.8 m ³ /day				
Loader, 1.2 m ³	=	1104.8 m ³ /	135.47 m ³ /hr =	8.155 hr				
Dump Truck, 8 ton	=	1104.8 m ³ /	10.30 m ³ /hrs =	107 hrs				
				Total Daily Production :				
				1,105 m ³ /day				

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-4-3
 Description : Excavation for Floodway (Common Soil) : Damping at Spoil Bank 4 km
 Unit : m³
 Quantity for Estimation : 1,105 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Bulldozer, 15 t	hr.	8.00	52,430	22,470	419,440	179,760	EQ1
-	Backhoe A, 0.6 m ³	hr.	8.00	45,990	19,710	367,920	157,680	EQ5
-	Wheel Type Loader, 1.2 m ³	hr.	8.16	38,920	16,680	317,405	136,031	EQ8
-	Dump Truck, 8 t	hr.	155.39	23,100	9,900	3,589,435	1,538,329	EQ9
(2)	Labour							
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	2.68		19,200		51,531	LA2
-	Driver	M/D	17.27		14,400		248,619	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material							
-	Light Oil (Diesel oil)	lit.	1,956.25	76	304	148,675	594,700	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				242,144	149,843	
2.	INDIRECT COST	15 % of DIRECT COST				762,753	472,004	
Total				5,847,771		3,618,696		
Unit Cost				5,293		3,275		8,568

-Daily Equipment Production at 20 m handling distance

Bulldozer, 15 t	=	85.0 m ³ /hr x	8 hrs/day =	680 m ³ /day	Total Daily Production :
Backhoe, 0.6 m ³	=	53.1 m ³ /hr x	8 hrs/day =	424.8 m ³ /day	1,105 m ³ /day
Loader, 1.2 m ³	=	1104.8 m ³ /	135.47 m ³ /hr =	8.155 hr	
Dump Truck, 8 ton	=	1104.8 m ³ /	7.11 m ³ /hrs =	155 hrs	

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-5
 Description : River Channel Excavation (Common Soil), Dumping soil 5 km
 Unit : m³
 Quantity for Estimation : 233.3 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,368,132	929,252	
(1)	Construction Equipment					1,255,691	538,153	
-	Backhoe, 0.60 m ³ (on pontoon)	hrs	8.00	45,990	19,710	367,920	157,680	EQ5
-	Dump Truck, 8 t	hrs	38.43	23,100	9,900	887,771	380,473	EQ9
-	Backhoe, 0.40 m ³	hrs	8.31	30,100	12,900	250,062	107,169	EQ6
(2)	Labour						157,680	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	1.81		19,200		34,790	LA2
-	Driver	M/D	4.27		14,400		61,491	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					47,292	189,168	
-	Light Oil (Diesel oil)	lit.	622.26	76	304	47,292	189,168	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				65,149	44,250	
2.	INDIRECT COST	15 % of DIRECT COST				205,220	139,388	

Total						1,573,352	1,068,639	
Unit Cost						6,744	4,581	11,325
- Daily Equipment Production at 15 m handling distance.								
Backhoe, 0.60 m ³ :	29.16 m ³ /hr x	8 hrs/day =	233 m ³ /day					
Dump Truck, 8 t :	233.3 m ³ /	6.07 m ³ /hr	38.4 hr					
Backhoe, 0.40 m ³ :	233.3 m ³ /hr x /	28.08 hrs/day =	8.31 hr					

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-5-1
 Description : River Channel Excavation (Common Soil), Dumping Beside
 Unit : m³
 Quantity for Estimation : 233.3 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					717,920	524,283	
(1)	Construction Equipment					658,761	282,326	
-	Backhoe, 0.60 m ³ (on pontoon)	hrs	8.00	45,990	19,710	367,920	157,680	EQ5
-	Bulldozer, 12ton	hrs	6.90	42,140	18,060	290,841	124,646	EQ2
-	Backhoe, 0.40 m ³	hrs	8.31	30,100	12,900	250,062	107,169	EQ6
(2)	Labour						117,103	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	2.90		19,200		55,703	LA2
-	Driver	M/D	0.00		14,400		0	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					24,972	99,888	
-	Light Oil (Diesel oil)	lit.	328.58	76	304	24,972	99,888	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				34,187	24,966	
2.	INDIRECT COST	15 % of DIRECT COST				107,688	78,642	
Total							825,607	602,925
Unit Cost							3,539	2,585
- Daily Equipment Production at 50 m handling distance.								
Backhoe, 0.60 m ³ :				29.16 m ³ /hr x	8 hrs/day =	233 m ³ /day		
Bulldozer, 12ton :				233.3 m ³ /	33.80 m ³ /hr	6.9 hr		
Backhoe, 0.40 m ³ :				233.3 m ³ /hr x	28.08 hrs/day =	8.31 hr		

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-6
 Description : Dredging with pipeline transportation
 Unit : m³
 Quantity for Estimation : 320 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					611,352	965,097	
(1)	Construction Equipment					501,200	214,800	
-	Dredger	hrs	8.00		21,480	400,960	171,840	EQ54
-	Other Machines	25 % of above				100,240	42,960	
(2)	Labour						212,100	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	3.00		19,200		57,600	LA2
-	Driver	M/D	1.00		14,400		14,400	LA6
-	Skilled Labour	M/D	3.00		11,500		34,500	LA16
-	Common Labour	M/D	10.00		9,600		96,000	LA17
-	Watch Man	M/D	2.00		10,500		21,000	LA18
(3)	Construction Material					81,040	492,240	
-	Light Oil (Diesel oil)	lit.	624.00	76	304	47,424	189,696	A-2
-	Grease	lit.	62.40	400	3,600	24,960	224,640	A-6
-	Log Pile, Dia. 100	m	18	110	990	1,936	17,424	D-2
-	Plywood	m ²	5	1,400	12,600	6,720	60,480	D-4
(4)	Miscellaneous Cost;	5 % of (1) to (3)				29,112	45,957	
2.	INDIRECT COST	15 % of DIRECT COST				91,703	144,765	
Total						703,055	1,109,862	
Unit Cost						2,197	3,468	5,665

- Pipeline 100 m
 Dredger, 200 PS 40 m³/hr x 8 hr = 320 m³
 wooden work for pipe support and replacement will be total 800 m
 total volume for this package is assumed 80,000 m³
 800 m x 320 m³ / 80,000 m³ = 3.20 m
 every 20 m Log Pile 110 m , Plywood 30 m²

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-7
 Description : Embankment by Selected Material (soil in excavated materials)
 Unit : m³
 Quantity for Estimation : 202.8 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Bulldozer, 12 ton	hrs	6.00	42,140	18,060	252,840	108,360	EQ2
-	Motor Grader, 94 ph	hrs	3.00	34,650	14,850	103,950	44,550	EQ27
-	Vibrator Roller, 4 t	hrs	5.63	18,690	8,010	105,287	45,123	EQ23
-	Water Tanker	hrs	2.00	9,870	4,230	19,740	8,460	EQ20
-	Tamper	hrs	4.00	3,850	1,650	15,400	6,600	EQ21
(2)	Labour							
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.88		19,200		36,096	LA2
-	Driver	M/D	0.25		14,400		3,600	LA6
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material							
-	Embankment Material	m ³	243.36	0	0	0	0	
-	Light Oil (Diesel oil)	lit.	134.82	76	304	10,246	40,986	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				25,373	19,199	
2.	INDIRECT COST	15 % of DIRECT COST				79,925	60,476	
Total						612,762	463,650	
Unit Cost						3,022	2,286	5,308
- Daily Equipment Production at 20 m pushing distance								
Pushing --	Bulldozer, 12 t	:		33.8 m ³ /hr x	6 hrs/day =		203 m ³ /day	
Spreading --	Motor Grader, 94 ph	:		83 m ³ /hr x	3 hrs/day =		249 m ³ /day	
Tamping --	Vibrator Roller, 4 t	:		202.8 m ³ /	36 m ³ /hr =		5.6 hours	
Embankment Materials			203 x	1.2 =	243.36 m ³			

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-7-1
 Description : Embankment Material from the stock yard, with hauling 2 km
 Unit : m³
 Quantity for Estimation : 813 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					2,311,819	1,448,998	
(1)	Construction Equipment					2,134,242	914,675	
-	Wheel Type Loader, 1.2 m ³	hr.	8.00	38,920	16,680	311,360	133,440	EQ8
-	Dump Truck, 8 t	hr.	78.91	23,100	9,900	1,822,882	781,235	EQ9
(2)	Labour						195,360	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.00		19,200		19,200	LA2
-	Driver	M/D	8.77		14,400		126,260	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	2.00		9,600		19,200	LA17
(3)	Construction Material					67,491	269,963	
-	Light Oil (Diesel oil)	lit.	888.04	76	304	67,491	269,963	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				110,087	69,000	
2.	INDIRECT COST					346,773	217,350	

Total						2,658,592	1,666,348	
Unit Cost						3,271	2,050	5,321
-Daily Equipment Production at 15 m handling distance								
Loader, 1.2 m ³	=	8 hr	x			101.6 m ³ /hr	=	813 hr
Dump Truck, 8 ton	=	812.8 m ³	/			10.30 m ³ /hrs	=	79 hrs
							Total Daily Production :	
							813 m ³ /day	

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-8
 Description : Backfill by Impervious Soil
 Unit : m³
 Quantity for Estimation : 85 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					175,432	207,519	
(1)	Construction Equipment					163,678	80,501	
-	Backhoe, 0.60 m ³	hrs	2.00	45,990	19,710	91,980	39,420	EQ5
-	Vibrator Roller, 1 t	hrs	4.25	9,170	3,930	38,973	16,703	EQ22
-	Tamper	hrs	8.50	3,850	1,650	32,725	14,025	EQ21
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00			0	10,353	
(2)	Labour						103,533	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	0.69		19,200		13,333	LA2
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					3,401	13,603	
-	Light Oil (Diesel oil)	lit.	44.75	76	304	3,401	13,603	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				8,354	9,882	
2.	INDIRECT COST	15 % of DIRECT COST				26,315	31,128	
Total						201,747	238,647	
Unit Cost						2,373	2,808	5,181
Daily Equipment Production								
-	Filling	Backhoe, 0.60 m ³	42.5 m ³ /hr x	2 hrs/day =	85 m ³ /day			
-	Compaction	Vibrator Roller, 1 t	85 m ³ /	20 m ³ /day =	4 hr			
-		Temper	85 m ³ /	10 m ³ /day =	9 hr			
Backfill Material is provided in site.								

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-9
 Description : Backfill by Selected Soil
 Unit : m³
 Quantity for Estimation : 85 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					216,663	236,766	
(1)	Construction Equipment					202,650	98,110	
-	Backhoe, 0.60 m ³	hrs	2.00	45,990	19,710	91,980	39,420	EQ5
-	Vibrator Roller, 1 t	hrs	8.50	9,170	3,930	77,945	33,405	EQ22
-	Tamper	hrs	8.50	3,850	1,650	32,725	14,025	EQ21
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00			0	11,260	
(2)	Labour						112,600	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	1.17		19,200		22,400	LA2
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					3,695	14,782	
-	Light Oil (Diesel oil)	lit.	48.62	76	304	3,695	14,782	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				10,317	11,275	
2.	INDIRECT COST	15 % of DIRECT COST				32,499	35,515	

Total		249,162	272,281
Unit Cost		2,931	3,203

Daily Equipment Production :
 - Filling -- Backhoe, 0.60 m³ 42.5 m³/hr x 2 hrs/day = 85 m³/day
 - Compaction -- Vibrator Roller, 1 t 85 m³ / 10 m³/day = 9 hr
 Temper 85 m³ / 10 m³/day = 9 hr
 Backfill Material is provided in site.

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-10
 Description : Sand Bedding, 100 mm
 Unit : m³
 Quantity for Estimation : 85 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					263,793	1,344,592	
(1)	Construction Equipment					124,705	62,892	
-	Backhoe, 0.60 m ³	hrs	2.00	45,990	19,710	91,980	39,420	EQ5
-	Vibrator Roller, 1 t	hrs	0.00	9,170	3,930	0	0	EQ22
-	Tamper	hrs	8.50	3,850	1,650	32,725	14,025	EQ21
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00			0	9,447	
(2)	Labour						94,467	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	0.22		19,200		4,267	LA2
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					126,526	1,123,205	
-	Sand	m ³	93.50	1,320	11,880	123,420	1,110,780	B-1
-	Light Oil (Diesel oil)	lit.	40.87	76	304	3,106	12,425	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				12,562	64,028	
2.	INDIRECT COST	15 % of DIRECT COST				39,569	201,689	

Total		303,362	1,546,280	
Unit Cost		3,569	18,192	21,760
Daily Equipment Production :				
- Filling	Backhoe, 0.60 m ³	42.5 m ³ /hr x	2 hrs/day =	85 m ³ /day
- Compaction	Temper	85 m ³ /	10 m ³ /day =	9 hr
				Shrinkage and loss factor of Sand is assumed at 0.10 . V = 76 X 1.1 = 83.6 M ³ /day V = 85 x 1.1 = 93.5

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-11
 Description : Sand Filling
 Unit : m³
 Quantity for Estimation : 27 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					43,893	477,701	
(1)	Construction Equipment					2,100	9,920	
	- Pump B	hrs	1.50					
	- Minor Tools, (10% of Labour Cost)	L.S.	1.00		600	2,100	900	EQ47
(2)	Labour						90,200	
	- Foreman	M/D	0.50		19,200		9,600	LA1
	- Operator	M/D	0.00		19,200		0	LA2
	- Skilled Labour	M/D	2.00		11,500		23,000	LA16
	- Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					39,703	354,833	
	- Sand	m ³	29.70		11,880	39,204	352,836	B-1
	- Light Oil (Diesel oil)	lit.	6.57		304	499	1,997	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,090	22,748	
2.	INDIRECT COST	15 % of DIRECT COST				6,584	71,655	
Total						50,478	549,356	
Unit Cost						1,870	20,347	22,216
Daily Equipment Production								
- Filling	Manual	3 m ³ /hr/6 men x	9 hrs/day =	27 m ³ /day				
- Compaction								

Shrinkage and loss factor of Sand is assumed at 0.10. $V = 76 \times 1.1 = 83.6 \text{ M}^3/\text{day}$
 $V = 27 \times 1.1 = 29.7$

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-12
Description : Soil Filling
Unit : m³
Quantity for Estimation : 56.16 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Backhoe, 0.40 m ³	hrs	2.00	30,100	12,900	60,200	25,800	EQ6
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00			0	11,367	
(2)	Labour						113,667	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Operator	M/D	0.22		19,200		4,267	LA2
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	8.00		9,600		76,800	LA17
(3)	Construction Material					1,845	7,381	
-	Soil	m ³	61.78					
-	Light Oil (Diesel oil)	lit.	24.28	76	304	1,845	7,381	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				3,102	7,911	
2.	INDIRECT COST	15 % of DIRECT COST				9,772	24,919	

Total	74,920	191,044
Unit Cost	1,334	3,402
Daily Equipment Production		4,736

- Filling : Backhoe, 0.40 m³ 28.08 m³/hr x 2 hrs/day = 56 m³/day
Soil is produce in site
Shrinkage and loss factor of Sand is assumed at 0.10 .
V= 56.16 x 1.1 = 61.776

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-13
 Description : Solid Sodding
 Unit : m²
 Quantity for Estimation : 800 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Ordinary Truck	hrs	4.00			38,499	974,181	
-	Misc.Tools, (10 % of Labour Cost)	L.S.	1.00			34,440	60,590	
				8,610	3,690	34,440	14,760	EQ11
							45,830	
(2)	Labour						458,300	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Driver	M/D	0.50		14,400		7,200	LA6
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	40.00		9,600		384,000	LA17
(3)	Construction Material					2,225	408,901	
-	Light Oil (Diesel oil)	lit.	29.28	76	304	2,225	8,901	A-2
-	Sodding Grass	m ²	800.00	0	500	0	400,000	J-26
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,833	46,390	
2.	INDIRECT COST	15 % of DIRECT COST				5,775	146,127	
Total						44,273	1,120,308	
Unit Cost						55	1,400	1,456

Reference No.	:	FW-14
Description	:	Check Sodding
Unit	:	m ²
Quantity for Estimation	:	800 m ²

Note: Grass Density = 1/2

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-15
 Description : Sprigging
 Unit : m²
 Quantity for Estimation : 800 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Ordinary Truck	hrs	4.00					
-	Misc. Tools, (10 % of Labour Cost)	L.S.	1.00					
				8,610	3,690	34,440	14,760	EQ11
							45,830	
(2)	Labour							
-	Foreman	M/D	0.50					
-	Driver	M/D	0.50					
-	Skilled Labour	M/D	5.00					
-	Common Labour	M/D	40.00					
							458,300	
(3)	Construction Material							
-	Light Oil (Diesel oil)	lit.	29.28					
-	Sodding Grass	m ²	72.00					
				76	304	2,225	8,901	LA1
				0	500	0	36,000	LA6
								LA16
								LA17
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,833	28,190	
2.	INDIRECT COST	15 % of DIRECT COST				5,775	88,797	
Total				44,273		680,778		
Unit Cost				55		851		906
Grass Density = 9 : 100				800 m ² x 9/100 =		72 m ²		

**** BREAKDOWN OF CONSTRUCTION COST UNIT COST FOR MFC ****

Reference No. : EW-16
 Description : Stripping, t = 0.25 m, hauling distance 5 km
 Unit : m³
 Quantity for Estimation : 170 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					194,746	278,994	
(1)	Construction Equipment					153,700	65,872	
-	Bulldozer A, 15 ton	hr	2.00	52,430	22,470	104,860	44,940	EQ1
-	Wheel-type Loader	hr	1.25	38,920	16,680	48,840	20,932	EQ8
-	Dump Truck B	hr	50.00	11,550	4,950	577,500	247,500	EQ10
(2)	Labour						72,750	
-	Foreman	M/D	1.00	-	15,300	-	15,300	LA1
-	Operator	M/D	0.50	-	11,500	-	5,750	LA2
-	Skilled Labour	M/D	1.00	-	11,500	-	11,500	LA16
-	Common Labour	M/D	6.00	-	6,700	-	40,200	LA17
-	Driver	M/D	5.56	-	6,701	-	37,228	LA6
(3)	Construction Material					31,772	127,087	
-	Light Oil (Diesel oil)	lit.	418.05	76	304	31,772	127,087	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				9,274	13,285	
2.	INDIRECT COST	15 % of DIRECT COST				29,212	41,849	
Total				223,958		320,843		
Unit Cost				1,317		1,887		3,205

-Daily Equipment Production at 20 m handling distance
 Bulldozer, 15 t = 85.0 m³/hr x / 2 hrs/day = 170 m³/day
 Loader, 1.2 m³ = 170 m³ / 135.47 m³/hr = 1 hr
 Dump Truck, 4 ton = 170 m³ / 3.40 m³/hrs = 50 hrs
 Total Daily Production :

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-1
 Description : Cement Mortar Plastering, 20 mm thick
 Unit : m²
 Quantity for Estimation : 30 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					89,882	182,801	
(1)	Construction Equipment					3,091	5,159	
-	Concrete Mixer, 0.2 m ³	hrs	0.48			3,091	1,325	EQ40
-	Misc. Tools (10% of Labour)	L.S.	1.00		2,760	-	3,834	
(2)	Labour					-	38,340	
-	Foreman	M/D	0.20		19,200	-	3,840	LA1
-	Plasterer	M/D	1.00		15,300	-	15,300	LA14
-	Common Labour	M/D	2.00		9,600	-	19,200	LA17
(3)	Construction Material					82,511	130,597	
-	Cement	bag	24.00	3,400	5,100	81,600	122,400	C-1
-	Sand	m ³	0.69	1,320	11,880	911	8,197	B-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,280	8,705	
2.	INDIRECT COST	15 % of DIRECT COST				13,482	27,420	
Total						103,364	210,221	
Unit Cost						3,445	7,007	10,453

Daily production : 20.0 m² per man-day
 Cement -- 31 kg/m² x 30 m² = 960.0 kg, 960 kg / 40 kg = 24 bag
 Sand ---- 0.023 m³/m² x 30 m² = 0.69 m³
 : Concrete Mixer -- 0.86 m³/hour = 6.88 m³/day

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-2
 Description : Non-Shrinkage Mortar
 Unit : m³
 Quantity for Estimation : 0.86 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					101,098	222,800	
(1)	Construction Equipment					7,674	7,462	
-	Concrete Mixer, 0.2 m ³	hrs	1.00	6,440	2,760	6,440	2,760	EQ40
-	Water Tanker	hrs	0.13	9,870	4,230	1,234	529	EQ20
-	Misc.Tools (10% of Labour)	L.S.	1.00			-	4,173	
(2)	Labour					-	41,731	
-	Foreman	M/D	0.05		19,200	-	960	LA1
-	Plasterer	M/D	1.54		15,300	-	23,562	LA14
-	Concrete Worker	M/D	0.25		15,300	-	3,825	LA12
-	Carpenter	M/D	0.08		17,300	-	1,384	LA8
-	Common Labour	M/D	1.25		9,600	-	12,000	LA17
(3)	Construction Material					88,610	162,998	
-	Cement	bag	22.62	3,400	5,100	76,908	115,362	C-1
-	Sand	m ³	0.62	1,320	11,880	818	7,366	B-1
-	Plywood, 12 mm	m ²	2.02	1,400	12,600	2,828	25,452	D-4
-	Admixture (10%)	L.S.	1.00			8,055	14,818	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,814	10,610	
2.	INDIRECT COST	15 % of DIRECT COST				15,165	33,420	
Total						116,262	256,220	
Unit Cost						135,189	297,930	433,119

Hourly production : Mortar Mixing : Portable Mixer, 0.2 m³ -- 0.86 m³/hr
 Cement : Sand 1 : 2, Cement = 26.3 bag, Sand = 0.7 m³ per 1 m³ of Mortar
 Plastering and Finishing : @ 0.07 m²/man-hour x 12.29 men = 0.86 m³/hr (1.54 men per hr)
 Form Work : 2.35 m² per 1.0 m³ -- 2.02 m² per 0.86 m³, 0.2 men

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-3
 Description : Form Work with Scaffolding (FW1)
 Unit : m²
 Quantity for Estimation : 24 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					89,744	727,529	
(1)	Construction Equipment					8,610	16,345	
-	Ordinary Truck, 4 ton	hrs	1.00	8,610	3,690	8,610	3,690	EQ11
-	Misc.Tools (10 % of Labour)	L.S.	1.00			-	12,655	
(2)	Labour					-	126,550	
-	Foreman	M/D	0.50		19,200	-	9,600	LA1
-	Carpenter	M/D	1.00		17,300	-	17,300	LA8
-	Scaffolding Man	M/D	0.50		15,300	-	7,650	LA9
-	Driver	M/D	0.13		14,400	-	1,800	LA6
-	Skilled Labour	M/D	2.00		11,500	-	23,000	LA16
-	Common Labour	M/D	7.00		9,600	-	67,200	LA17
(3)	Construction Material					76,860	549,990	
-	Plywood, 12 mm	m ²	24.00	1,400	12,600	33,600	302,400	D-4
-	Form Timber	m ³	0.48	45,000	405,000	21,600	194,400	D-6
-	Form Tie	pcs.	8.00	2,000	3,000	16,000	24,000	C-28
-	C.W.nails	kg	2.50	800	1,200	2,000	3,000	J-15
-	Misc.Cost, (5%)	L.S.	1.00			3,660	26,190	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,274	34,644	
2.	INDIRECT COST	15 % of DIRECT COST				13,462	109,129	
Total						103,205	836,659	
Unit Cost						4,300	34,861	39,161
Daily Production				: @ 0.30 sq.m./man-hour x 10 men x 8 hrs/day = 24.0 m ² /day				
Forms Usage				: 3 re-used and falsework @ 9.0 bf. per sq.m. of forms.				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-4
 Description : Form Work with Scaffolding & Support (FW2)
 Unit : m²
 Quantity for Estimation : 20 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					94,209	828,442	
(1)	Construction Equipment					8,610	17,880	
-	Ordinary Truck, 4 ton	hrs	1.00	8,610	3,690	8,610	3,690	EQ11
-	Misc.Tools (10% of Labour)	L.S.	1.00			-	14,190	
(2)	Labour					-	141,900	
-	Foreman	M/D	0.50		19,200	-	9,600	LA1
-	Carpenter	M/D	2.00		17,300	-	34,600	LA8
-	Scaffolding Man	M/D	1.00		15,300	-	15,300	LA9
-	Driver	M/D	0.13		14,400	-	1,800	LA6
-	Skilled Labour	M/D	2.00		11,500	-	23,000	LA16
-	Common Labour	M/D	6.00		9,600	-	57,600	LA17
(3)	Construction Material					81,113	629,213	
-	Plywood, 12 mm	m ²	20.00	1,400	12,600	28,000	252,000	D-4
-	Form Timber	m ³	0.36	45,000	405,000	16,200	145,800	D-6
-	Support Timber	m ³	0.54	37,500	337,500	20,250	182,250	D-3
-	Form Tie	pcs.	5.00	2,000	3,000	10,000	15,000	C-28
-	C.W.nails	kg	3.50	800	1,200	2,800	4,200	J-15
-	Misc.Cost, (5%)	L.S.	1.00			3,863	29,963	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,486	39,450	
2.	INDIRECT COST	15 % of DIRECT COST				14,131	124,266	
Total						108,340	952,708	
Unit Cost						5,417	47,635	53,052
Daily Production				: @ 0.25 sq.m./man-hour x 10 men x 8 hrs/day = 20.0 m ² /day				
Forms Usage				: 3 re-used and falsework @ 9.0 bf. per sq.m. of forms.				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-5
 Description : Reinforcing Steel Bar : Bending and Installation
 Unit : kg
 Quantity for Estimation : 1200 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					2,039,426	445,265	
(1)	Construction Equipment					66,850	28,650	
-	Truck with Crane, 4 ton	hrs	2.00	9,030	3,870	18,060	7,740	EQ15
-	Ordinary Truck, 4 ton	hrs	3.00	8,610	3,690	25,830	11,070	EQ11
-	Bar Cutting Machine	hrs	8.00	770	330	6,160	2,640	EQ51
-	Bar Bending Machine	hrs	8.00	2,100	900	16,800	7,200	EQ52
(2)	Labour					-	181,472	
-	Foreman	M/D	1.00		19,200	-	19,200	LA1
-	Steel Worker	M/D	5.00		15,300	-	76,500	LA11
-	Driver	M/D	0.63		14,400	-	9,072	LA6
-	Skilled Labour	M/D	5.00		11,500	-	57,500	LA16
-	Common Labour	M/D	2.00		9,600	-	19,200	LA17
(3)	Construction Material					1,875,460	213,940	
-	Reinforcing Steel Bar	kg	1,200	1,485	165	1,782,000	198,000	E-2
-	Tie Wire	kg	20.00	2,000	500	40,000	10,000	E-23
-	Wastage of Re-bar (3 %)	L.S.	1.00			53,460	5,940	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				97,116	21,203	
2.	INDIRECT COST	15 % of DIRECT COST				305,914	66,790	
Total							512,055	
Unit Cost							427	2,381
Daily Production : For cutting, bending and placing Re-bars @ 15.0 kf/man-hour x 10 men x 8 hr/day = 1,200 kg/day								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-6
 Description : Water Stop, W=300 mm, t=10 mm ; Supply and Installation
 Unit : m
 Quantity for Estimation : 12 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					178,605	451,095	
(1)	Construction Equipment					-	2,974	
-	Misc. Tools (10%) of Labour Cost	L.S.	1.00	2,974		-	2,974	
(2)	Labour					-	29,740	
-	Foreman	M/D	0.20	19,200		-	3,840	LA1
-	Skilled Labour	M/D	1.00	11,500		-	11,500	LA16
-	Common Labour	M/D	1.50	9,600		-	14,400	LA17
(3)	Construction Material					170,100	396,900	
-	Water Stop, PVC 300mm x 10mm	m	12.00	13,500	31,500	162,000	378,000	G-8
-	Wastage (5%)	L.S.	1.00			8,100	18,900	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				8,505	21,481	
2.	INDIRECT COST	15 % of DIRECT COST				26,791	67,664	
Total						205,396	518,759	
Unit Cost						17,116	43,230	60,346

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-9
 Description : Reinforce Concrete, Type C1 including formwork (FW1)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C1	m ³	1	63,360	95,040	63,360	95,040	C-8
(2)	Form Work (FW1)	m ²	3	4,300	34,861	12,901	104,582	CN-3
(3)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(4)	Labour & Equipment	10 % of (1)				6,336	9,504	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,504	14,256	

Total	189,823	244,718
Unit Cost	189,823	244,718
- Volume of Concrete / Area of Form work (FW1) = 1/3		434,541

** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC **

Reference No.	Description	Unit	Quantity for Estimation
CN-10	Reinforce Concrete,Type C1 including formwork (FW2)	m ³	1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C1	m ³	1	63,360	95,040	63,360	95,040	C-8
(2)	Form Work (FW2)	m ²	3	5,417	47,635	16,251	142,906	CN-4
(3)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(4)	Labour & Equipment	10 % of (1)				6,336	9,504	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,504	14,256	
Total						193,173	283,042	
Unit Cost						193,173	283,042	476,215

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-11
 Description : Reinforce Concrete, Type C2
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C2	m ³	1	60,480	90,720	60,480	90,720	C-9
(2)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(3)	Labour & Equipment	10 % of (1)				6,048	9,072	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,072	13,608	

Total	173,322	134,736
Unit Cost	173,322	134,736
		308,058

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-12
 Description : Reinforce Concrete, Type C2 including formwork (FW1)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C2	m ³	1	60,480	90,720	60,480	90,720	C-9
(2)	Form Work (FW1)	m ²	3	4,300	34,861	12,901	104,582	CN-3
(3)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(4)	Labour & Equipment	10 % of (1)				6,048	9,072	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,072	13,608	
Total						186,223	239,318	
Unit Cost						186,223	239,318	425,541
- Volume of Concrete / Area of Form work (FW1) = 1/3								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-13
 Description : Reinforce Concrete, Type C2 including formwork (FW2)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C2	m ³	1	60,480	90,720	60,480	90,720	C-9
(2)	Form Work (FW2)	m ²	3	5,417	47,635	16,251	142,906	CN-4
(3)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(4)	Labour & Equipment	10 % of (1)				6,048	9,072	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,072	13,608	

Total	189,573	277,642
Unit Cost	189,573	277,642
- Volume of Concrete / Area of Form work (FW2) = 1/3		467,215

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-15
 Description : Reinforce Concrete, Type D including formwork (FW1)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type D	m ³	1	58,280	87,420	58,280	87,420	C-10
(2)	Form Work (FW1)	m ²	3	4,300	34,861	12,901	104,582	CN-3
(3)	Reinforcing Re-bar	kg	35	1,954	427	68,406	14,935	CN-5
(4)	Labour & Equipment	10 % of (1)				5,828	8,742	
2.	INDIRECT COST	15 % of DIRECT COST (1)				8,742	13,113	

Total	154,156	228,792
Unit Cost	154,156	228,792
- Volume of Concrete / Area of Form work (FW1) = 1/3		382,949

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-16
 Description : Reinforce Concrete, Type D including formwork (FW2)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type D	m ³	1	58,280	87,420	58,280	87,420	C-10
(2)	Form Work (FW2)	m ²	3	5,417	47,635	16,251	142,906	CN-4
(3)	Reinforcing Re-bar	kg	35	1,954	427	68,406	14,935	CN-5
(4)	Labour & Equipment	10 % of (1)				5,828	8,742	
2.	INDIRECT COST	15 % of DIRECT COST (1)				8,742	13,113	
Total						157,507	267,116	
Unit Cost						157,507	267,116	424,623
- Volume of Concrete / Area of Form work (FW2) = 1/3								

Quantity for Estimation :

Total	105,889	108,734
Unit Cost	105,889	108,734
		214,623

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-18
 Description : Reinforce Concrete Block Crib t = 400 mm Type C1 including formwork (FW1)
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C1	m ³	0.32	63,360	95,040	20,275	30,413	C-8
(2)	Form Work (FW1) & oil	m ²	2.9	4,300	34,861	12,471	101,096	CN-3
(3)	Reinforcing Re-bar	kg	10.5	1,954	427	20,522	4,480	CN-5
(4)	Labour & Equipment	10 % of (1)				2,028	3,041	
2.	INDIRECT COST	15 % of DIRECT COST (1)				3,041	4,562	
Total				58,336		143,593		
Unit Cost				58,336		143,593		201,929

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-19
 Description : Reinforce Concrete Block Crib t = 200 mm Type C1 including formwork (FW1)
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C1	m ³	0.16	63,360	95,040	10,138	15,206	C-8
(2)	Form Work (FW1) with oil	m ²	1.45	4,300	34,861	6,235	50,548	CN-3
(3)	Reinforcing Re-bar	kg	10.5	1,954	427	20,522	4,480	CN-5
(4)	Labour & Equipment	10 % of (1)				1,014	1,521	
2.	INDIRECT COST	15 % of DIRECT COST (1)				1,521	2,281	

Total	39,429	74,037
Unit Cost	39,429	74,037
		113,466

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : **CN-20**

Description	:	Reinforce Concrete Block 0.98 x 0.98 x 0.4 m Type C1 including formwork (FW1)

Unit	:	NOS.
1	:	1
2	:	2
3	:	3
4	:	4
5	:	5
6	:	6
7	:	7
8	:	8
9	:	9
10	:	10
11	:	11
12	:	12
13	:	13
14	:	14
15	:	15
16	:	16
17	:	17
18	:	18
19	:	19
20	:	20
21	:	21
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93	:	93
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95	:	95
96	:	96
97	:	97
98	:	98
99	:	99
100	:	100

Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type C1	m ³	0.39	63,360	95,040	24,710	37,066	C-8
(2)	Form Work (FW1) with oil	m ²	2.57	4,300	34,861	11,052	89,592	CN-3
(3)	Reinforcing Re-bar	kg	1.58	1,954	427	3,088	674	CN-5
(4)	Labour & Equipment	10 % of (1)				2,471	3,707	
2.	INDIRECT COST	15 % of DIRECT COST (1)				3,707	5,560	
Total						45,028	136,598	
Unit Cost						45,028	136,598	181,626

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-21
 Description : Reinforce Concrete, Type B
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type B	m ³	1	69,960	104,940	69,960	104,940	C-7
(2)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(3)	Labour & Equipment	10 % of (1)				6,996	10,494	
2.	INDIRECT COST	15 % of DIRECT COST (1)				10,494	15,741	

Total	185,172	152,511
Unit Cost	185,172	152,511
		337,683

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-22
 Description : Reinforce Concrete, Type B including formwork (FW1)
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type B	m ³	1	69,960	104,940	69,960	104,940	C-7
(2)	Form Work (FW1)	m ²	3	4,300	34,861	12,901	104,582	CN-3
(3)	Reinforcing Re-bar	kg	50	1,954	427	97,722	21,336	CN-5
(4)	Labour & Equipment	10 % of (1)				6,996	10,494	
2.	INDIRECT COST	15 % of DIRECT COST (1)				10,494	15,741	
Total						198,073	257,093	
Unit Cost						198,073	257,093	455,166
- Volume of Concrete / Area of Form work (FW1) = 1/3								

CN-23

Reference No.

Description	:	Plain Concrete, Type D

Unit : m³

Quantity for Estimation : 1 m^3

2. INDIRECT COST

Total

Quantity for Estimation :

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-25
 Description : Plain Concrete, Type C1
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type D	m ³	1	63,360	95,040	63,360	95,040	C-8
(2)	Reinforcing Re-bar	kg	0	1,954	427	-	-	CN-5
(3)	Labour & Equipment	10 % of (1)				6,336	9,504	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,504	14,256	

Total	79,200	118,800
Unit Cost	79,200	118,800
		198,000

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : CN-26
 Description : Plain Concrete, Type C2
 Unit : m³
 Quantity for Estimation : 1 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Ready Concrete Type D	m ³	1	60,480	90,720	60,480	90,720	C-9
(2)	Reinforcing Re-bar	kg	0	1,954	427	-	-	CN-5
(3)	Labour & Equipment	10 % of (1)				6,048	9,072	
2.	INDIRECT COST	15 % of DIRECT COST (1)				9,072	13,608	
						75,600	113,400	
Total						75,600	113,400	
Unit Cost						75,600	113,400	189,000

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-1
 Description : Crusher Run Bedding
 Unit : m³
 Quantity for Estimation : 60.0 m³
 for Structure with Compaction : Average Hauling Distance = 20 km

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					379,283	2,462,984	
(1)	Construction Equipment					115,780	59,330	
-	Tamper	hrs	16.00	3,850	1,650	61,600	26,400	EQ21
-	Water Tanker	hrs	2.00	9,870	4,230	19,740	8,460	EQ20
-	Ordinary Truck, 4 ton	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	9,710	
(2)	Labour					0	97,100	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	4.00		9,600		38,400	LA17
-	Driver	M/D	0.75		14,400		10,800	LA6
(3)	Construction Material					245,442	2,189,269	
-	Crusher Run	m ³	69.00	3,500	31,500	241,500	2,173,500	B-4
-	Oil	lre	51.87	76	304	3,942	15,769	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				18,061	117,285	
2.	INDIRECT COST	15 % of DIRECT COST				56,893	369,448	
Total				436,176		2,832,432		
Unit Cost				7,270		47,207		54,477

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-2
 Description : Backfill Gravel
 Unit : m³
 Quantity for Estimation : 85 m³
 Gravel : Sand = 1 : 3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Backhoe, 0.60 m ³	hrs	2.00	45,990	19,710	91,980	39,420	EQ5
-	Vibrator Roller, 1 t	hrs	8.50	9,170	3,930	77,945	33,405	EQ22
-	Tamper	hrs	8.00	3,850	1,650	30,800	13,200	EQ21
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00				11,420	
(2)	Labour						114,200	
-	Foreman	M/D	0.50	-	19,200		9,600	LA1
-	Operator	M/D	1.25	-	19,200		24,000	LA2
-	Skilled Labour	M/D	2.00	-	11,500		23,000	LA16
-	Common Labour	M/D	6.00	-	9,600		57,600	LA17
(3)	Construction Material					142,976	1,268,478	
-	Gravel	m ³	23.38	2,000	18,000	46,750	420,750	B-5
-	Light Oil (Diesel oil)	lte	48.17	76	304	3,661	14,643	A-2
-	Sand	m ³	70.13	1,320	11,880	92,565	833,085	B-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				17,185	74,006	
2.	INDIRECT COST	15 % of DIRECT COST				54,133	233,119	
Total						415,019	1,787,249	
Unit Cost						4,883	21,026	25,909

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-3
 Description : Cobble Stone Fill
 Unit : m³
 Quantity for Estimation : 145 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Bulldozer, 15 ton	hrs	8.00					
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00					
				52,430	22,470	419,440	179,760	EQ1
							18,040	
(2)	Labour							
							180,400	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	1.00		19,200		19,200	LA2
-	Driver	M/D	0.00		14,400		0	LA6
-	Skilled Labour	M/D	4.00		11,500		46,000	LA16
-	Common Labour	M/D	10.00		9,600		96,000	LA17
(3)	Construction Material							
						251,482	2,202,508	
-	Cobble Stone	m ³	159.54	1,500	13,500	239,316	2,153,844	B-3
-	Light Oil (Diesel oil)	lit	160.08	76	304	12,166	48,664	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				33,546	129,035	
2.	INDIRECT COST	15 % of DIRECT COST				103,845	399,162	
Total				796,147		3,060,241		
Unit Cost				5,489		21,099		26,588

- Daily Equipment Production Handling distance = 30 m
 Bulldozer, 15 ton -- 18 m³/hr x 8 hrs = 145 m³/day
 Shrinkage and loss factor of Sand is assumed at 0.10.
 V= 145 x 1.1 = 159.5 m³

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-4
 Description : Boulder Riprap, (200mm-300mm)
 Unit : m³
 Quantity for Estimation : 60.0 m³
 : Average Hauling Distance = 25 km

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					302,837	1,638,529	
(1)	Construction Equipment					133,070	68,220	
-	Tamper	hrs	8.00	3,850	1,650	30,800	13,200	EQ21
-	Crawler Crane, 15 ton	hrs	1.50	45,220	19,380	67,830	29,070	EQ30
-	Ordinary Truck, 4 ton	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00				11,190	
(2)	Labour					0	111,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Driver	M/D	0.44		14,400		6,400	LA6
(3)	Construction Material					155,346	1,380,383	
-	Boulder, 200-300 mm	m ³	69.00	2,200	19,800	151,800	1,366,200	B-6
-	Oil	lte	46.66	76	304	3,546	14,183	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				14,421	78,025	
2.	INDIRECT COST	15 % of DIRECT COST				45,425	245,779	
Total						348,262	1,884,308	
Unit Cost						5,804	31,405	37,210
- Daily Production				: @ 1.25 m ³ /man-day x 6 men x 8 hrs/day = 60.0 m ³ /day				
- Shrinkage and loss factor of gravel is assumed at 0.15.				V = 60.0 m ³ x 1.15 = 69.0 m ³				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-5
 Description : Boulder Riprap, (300mm-500mm)
 Unit : m³
 Quantity for Estimation : 48.0 m³

: Average Hauling Distance = 25 km

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Crawler Crane, 15 ton	hrs	3.00	45,220	19,380	135,660	58,140	EQ30
-	Ordinary Truck, 4 ton	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00				11,190	
(2)	Labour					0	111,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Driver	M/D	0.44		14,400		6,400	LA6
(3)	Construction Material					125,197	1,107,990	
-	Boulder, 300-500 mm	m ³	55.20	2,200	19,800	121,440	1,092,960	B-6
-	Oil	lit	49.44	76	304	3,757	15,030	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				14,765	65,199	
2.	INDIRECT COST	15 % of DIRECT COST				46,509	205,377	
Total						356,572	1,574,556	
Unit Cost						7,429	32,803	40,232
- Daily Production				: @ 1.0 m ³ /man-day x 6 men x 8 hrs/day = 48.0 m ³ /day				
- Shrinkage and loss factor of gravel is assumed at 0.15.				V = 48.0 m ³ x 1.15 =				
				## m ³				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-6
 Description : Gabion Mattress filled with Cobble Stone, 1.5 x 3.0 x 0.5 m
 Unit : m³
 Quantity for Estimation : 40 m³
 : Cobble Delivery

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					2,963,829	1,658,761	
(1)	Construction Equipment					80,430	51,065	
-	Ordinary Truck	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Back hoe, 0.6 m ³	hrs	1.00	45,990	19,710	45,990	19,710	EQ5
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				16,595	
(2)	Labour					0	165,952	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	0.06		19,200		1,152	LA2
-	Driver	M/D	0.25		14,400		3,600	LA6
-	Skilled Labour	M/D	4.00		11,500		46,000	LA16
-	Common Labour	M/D	10.00		9,600		96,000	LA17
(3)	Construction Material					2,742,264	1,362,755	
-	Gabion Mattress	pcs.	17.80	136,000	34,000	2,420,800	605,200	E-27
-	Cobble Stone	m ³	46.00	1,500	13,500	69,000	621,000	B-3
-	Miscellaneous (10%)	L.S.	1.00			248,980	122,620	A-2
-	Oil	litre	45.84	76	304	3,484	13,935	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				141,135	78,989	
2.	INDIRECT COST	15 % of DIRECT COST				444,574	248,814	
Total						3,408,403	1,907,575	
Unit Cost						85,210	47,689	132,899

- Daily Production : @ 0.50 m³/man-hour x 10 men x 8 hrs/day = 40 m³/day

1 pc. = 1.5 x 3.0 x 0.5 = 2.25 m³

40 m³/day / 2.25 m³/pc. = 17.8 pcs./day

- Shrinkage and loss factor of cobble stone is assumed at 0.1 V = 40.0 x 1.15 = 46.0 m³

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : MS-7
 Description : Gabion Cylinder filled with Cobble Stone, Dia. 500 mm
 Unit : m³
 Quantity for Estimation : 40 m³
 : Cobble Delivery

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Ordinary Truck	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Back hoe, 0.6 m ³	hrs	0.50	45,990	19,710	22,995	9,855	EQ5
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				16,595	
(2)	Labour							
-	Foreman	M/D	1.00		19,200	0	165,952	
-	Operator	M/D	0.06		19,200		1,152	LA1
-	Driver	M/D	0.25		14,400		3,600	LA2
-	Skilled Labour	M/D	4.00		11,500		46,000	LA6
-	Common Labour	M/D	10.00		9,600		96,000	LA16 LA17
(3)	Construction Material							
-	Gabion Cylinder	m ³	203.70	20,000	5,000	4,074,000	1,018,500	E-28
-	Cobble Stone	m ³	46.00	1,500	13,500	69,000	621,000	B-3
-	Miscellaneous (10%)	L.S.	1.00			414,300	163,950	
-	Oil	lte	22.92	76	304	1,742	6,968	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				229,963	100,510	
2.	INDIRECT COST	15 % of DIRECT COST				724,383	316,606	
Total						5,553,603	2,427,316	
Unit Cost						138,840	60,683	199,523

- Daily Production : @ 0.50 m³/man-hour x 10 men x 8 hrs/day = 40 m³/day
 40 m³ / (0.25*2 x 3.14) = 203.7 m/day
 - Shrinkage and loss factor of cobble stone is assumed at 0.1 V = 40.0 x 1.15 = 46.0 m³

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-8
Description : Rubble Stone Bedding
Unit : m³
Quantity for Estimation : 60.0 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					247,473	1,240,938	
(1)	Construction Equipment					124,880	66,710	
-	Crawler Crane C, 15 ton	hrs	2.00	45,220	19,380	90,440	38,760	EQ30
-	Ordinary Truck, 4 ton	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00				13,190	
(2)	Labour					0	131,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	8.00		9,600		76,800	LA17
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					110,809	983,236	
-	Cobble Stone	m ³	72.00	1,500	13,500	108,000	972,000	B-3
-	Oil	lte	36.96	76	304	2,809	11,236	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				11,784	59,092	
2.	INDIRECT COST	15 % of DIRECT COST				37,121	186,141	
Total						284,594	1,427,079	
Unit Cost						4,743	23,785	28,528
- Daily Production				: @ 0.75 m ³ /man-day x 10 men x 8 hrs/day = 60 m ³ /day				
- Shrinkage and loss factor of cobble stone is assumed at 0.2				V = 60.0 m ³ x 1.20 = 72.0 m ³				

MS-9

Wet Stone Masonry (1:3)

3.

60.0 m³

- Daily Production : @ 0.3 m³/man-hr x 25 men x 8 hrs/day = 60 m³/day
 - Infilling volume is assumed at 20 % of Stone volume. V = 60.0 m³ x 0.20 =
 Sand : Cement = 3 : 1

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-10
 Description : Wet Stone Masonry (1:4)
 Unit : m³
 Quantity for Estimation : 60.0 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,171,715	2,515,691	
(1)	Construction Equipment							
-	Concrete Mixer, 0.2 m, 6 pc	hrs	48.00	6,440	2,760	382,480	196,110	EQ40
-	Wheel Loader, 1.2 m ³	hrs	1.00	38,920	16,680	309,120	132,480	EQ8
-	Ordinary Truck, 4 ton	hrs	4.00	8,610	3,690	38,920	16,680	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			34,440	14,760	
							32,190	
(2)	Labour					0	321,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	2.00		15,300		30,600	LA7
-	Skilled Labour	M/D	3.00		11,500		34,500	LA16
-	Common Labour	M/D	25.00		9,600		240,000	LA17
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					733,439	1,877,886	
-	Cobble Stone	m ³	60.00	1,500	13,500	90,000	810,000	B-3
-	Oil	lit	40.46	76	304	3,075	12,300	A-2
-	Sand	m ³	9.60	1,320	11,880	12,672	114,048	B-1
-	Cement	bag	184.62	3,400	5,100	627,692	941,538	C-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				55,796	119,795	
2.	INDIRECT COST	15 % of DIRECT COST				175,757	377,354	
Total						1,347,473	2,893,045	
Unit Cost						22,458	48,217	70,675
- Daily Production : @ 0.3 m ³ /man-day x 25 men x 8 hrs/day = 60 m ³ /day								
- Infilling volume is assumed at 20 % of Stone volume. V = 60.0 m ³ x 0.20 =								
Sand : Cement = 4 : 1								
						12.0 m ³	9.6 m ³	
						Sand	2.4 m ³	
						Cement		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-11
 Description : Boulder Pitching. (200mm-300mm)
 Unit : m²
 Quantity for Estimation : 67.6 m²
 : Average Hauling Distance = 25 km

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					215,989	1,278,582	
(1)	Construction Equipment					86,030	47,900	
-	Back hoe, 0.4 m ³	hrs	2.00	30,100	12,900	60,200	25,800	EQ6
-	Ordinary Truck, 4 ton	hrs	3.00	8,610	3,690	25,830	11,070	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00				11,030	
(2)	Labour					0	110,300	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Driver	M/D	0.33		14,400		4,800	LA6
(3)	Construction Material					119,674	1,059,497	
-	Boulder, 300-500 mm	m ³	52.80	2,200	19,800	116,160	1,045,440	B-6
-	Oil	lte	46.24	76	304	3,514	14,057	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				10,285	60,885	
2.	INDIRECT COST	15 % of DIRECT COST				32,398	191,787	
Total						248,388	1,470,369	
Unit Cost						3,675	21,756	25,431

- Daily Production : @ 1.0 m³/man-day x 6 men x 8 hrs/day = 48 m³/day
 - Shrinkage and loss factor of gravel is assumed at 0.1. V = 48.0 m³ x 1.1 = 52.8 m³
 A = 1.28 x 52.8 m³ = 68 m²

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MS-12
 Description : Boulder Pitching, (300mm-500mm)
 Unit : m²
 Quantity for Estimation : 50.7 m²

: Average Hauling Distance = 25 km

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					185,497	1,004,154	
(1)	Construction Equipment					86,030	47,900	
-	Back hoe, 0.4 m ³	hrs	2.00	30,100	12,900	60,200	25,800	EQ6
-	Ordinary Truck, 4 ton	hrs	3.00	8,610	3,690	25,830	11,070	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00				11,030	
(2)	Labour					0	110,300	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Mason	M/D	1.00		15,300		15,300	LA7
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Driver	M/D	0.33		14,400		4,800	LA6
(3)	Construction Material					90,634	798,137	
-	Boulder, 300-500 mm	m ³	39.60	2,200	19,800	87,120	784,080	B-6
-	Oil	lte	46.24	76	304	3,514	14,057	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				8,833	47,817	
2.	INDIRECT COST	15 % of DIRECT COST				27,825	150,623	
Total						213,322	1,154,777	
Unit Cost						4,209	22,782	26,991

- Daily Production : @ 0.75 m³/man-day x 6 men x 8 hrs/day = 36 m³/day
 - Shrinkage and loss factor of gravel is assumed at 0.1. V = 36.0 m³ x 1.1 = 39.6 m³
 A = 1.28 x 39.6 m³ = 51 m²

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-1
 Description : Asphalt Treated Base (A.T.B), 65 mm thick
 Unit : ton
 Quantity for Estimation : 13.87 ton

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,888,818	4,682,090	
(1)	Construction Equipment					816,900	350,100	
-	Asphalt Sprayer	hrs	2.00	18,410	7,890	36,820	15,780	EQ43
-	Tandem Roller	hrs	8.00	27,440	11,760	219,520	94,080	EQ26
-	Ordinary Truck, 41	hrs	8.00	8,610	3,690	68,880	29,520	EQ11
-	Asphalt Finisher	hrs	8.00	28,980	12,420	231,840	99,360	EQ42
-	Bulldozer, 12 ton	hrs	4.00	42,140	18,060	168,560	72,240	EQ2
-	Air Compressor	hrs	8.00	11,410	4,890	91,280	39,120	EQ31
(2)	Labour					306,800		
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	2.25		19,200		43,200	LA2
-	Driver	M/D	1.00		14,400		14,400	LA6
-	Asphalt Worker	M/D	5.00		15,300		76,500	LA15
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	10.00		9,600		96,000	LA17
(3)	Construction Material					981,974	3,802,234	
-	Asphalt	ton	13.87	44,000	66,000	610,368	915,552	C-3
-	Sand	m ³	40.8	1,320	11,880	53,856	484,704	B-1
-	Crusher Run	m ³	65.28	3,500	31,500	228,480	2,056,320	B-4
-	Other Materials (10%)	L.S.	1			89,270	345,658	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				89,944	222,957	
2.	INDIRECT COST	15 % of DIRECT COST				283,323	702,314	
Total				2,172,141		5,384,404		
Unit Cost				156,585		388,149		544,734

- Daily Production : Asphalt Sprayer - 800 m²/hour ; 800 x 8 hrs = 6,400 m²/day
 Tandem Roller - 170 m²/hour ; 170 x 8 hrs = 1,360 m²/day
 - Material : Asphalt - 1,360 m² x 8.5 kg/m² x 1.2 = 13,872 kg
 Crusher Run - 1,360 m² x 0.040 m x 1.2 = 65.28 m³
 Sand - 1,360 m² x 0.025 m x 1.2 = 40.8 m³

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-2
 Description : Base Course, Class A (Crusher Run)
 Unit : m³
 Quantity for Estimation : 304 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Motor Grader, 94 ps	hrs	6.00	34,650	14,850	207,900	89,100	EQ27
-	Vibrator Roller, 12 t	hrs	8.00	46,550	19,950	372,400	159,600	EQ24
-	Water Tanker	hrs	4.00	9,870	4,230	39,480	16,920	EQ20
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				14,060	
(2)	Labour						140,600	
-	Foreman	M/D	1.00				19,200	LA1
-	Skilled Labour	M/D	2.00				23,000	LA16
-	Common Labour	M/D	6.00				57,600	LA17
-	Operator	M/D	1.75				33,600	LA2
-	Driver	M/D	0.50				7,200	LA6
(3)	Construction Material						11,012,400	
-	Crusher Run	m ³	349.6	3,500	31,500	1,223,600	11,012,400	B-4
-	Gravel	m ³	0	2,000	18,000			B-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				92,169	571,634	
2.	INDIRECT COST	15 % of DIRECT COST				290,332	1,800,647	
Total				2,225,881		13,804,961		52,733
Unit Cost				7,322		45,411		
- Daily Production : 38.0 cu.m./hour x 8.0 hrs/day =				304 m ³ /day	V =	304 x 1.1	349.6 m ³	
- Shrinkage and loss factor of gravel is assumed at 0.15.					100 %	349.6 x	349.6 m ³	
Crusher run					0 %	349.6 x	0 m ³	
Gravel								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-3
Description : Base Course, Class B (Crusher Run & Gravel)
Unit : m³
Quantity for Estimation : 304 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,704,129	9,921,534	
(1)	Construction Equipment					619,780	279,680	
-	Motor Grader, 94 ps	hrs	6.00	34,650	14,850	207,900	89,100	EQ27
-	Vibrator Roller, 12 t	hrs	8.00	46,550	19,950	372,400	159,600	EQ24
-	Water Tanker	hrs	4.00	9,870	4,230	39,480	16,920	EQ20
-	Minor Tools (10% of Labour Cost)	L.S.	1.00			-	14,060	
(2)	Labour						140,600	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Operator	M/D	1.75		19,200		33,600	LA2
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					1,003,200	9,028,800	
-	Crusher Run	m ³	182.4	3,500	31,500	638,400	5,745,600	B-4
-	Gravel	m ³	182.4	2,000	18,000	364,800	3,283,200	B-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				81,149	472,454	
2.	INDIRECT COST					255,619	1,488,230	

Total						1,959,748	11,409,764	
Unit Cost						6,447	37,532	43,979
- Daily Production : 38.0 cu.m./hour x 8.0 hrs/day =				304 m ³ /day				
- Shrinkage and loss factor of gravel is assumed at 0.20.				V =				
Crusher run		50 %	364.8 x	0.5 =	304 x 1.2		364.8 m ³	
Gravel		50 %	364.8 x	0.5 =	182.4 m ³		182.4 m ³	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-4
 Description : Sub-Base Course, Class A (Cusher Run)
 Unit : m³
 Quantity for Estimation : 304 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,770,363	10,517,640	
(1)	Construction Equipment					619,780	279,680	
-	Motor Grader, 94 ps	hrs	6.00	34,650	14,850	207,900	89,100	EQ27
-	Vibrator Roller, 12 t	hrs	8.00	46,550	19,950	372,400	159,600	EQ24
-	Water Tanker	hrs	4.00	9,870	4,230	39,480	16,920	EQ20
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				14,060	
(2)	Labour						140,600	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Operator	M/D	1.75		19,200		33,600	LA2
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					1,066,280	9,596,520	
-	Cusher Run	m ³	244.72	3,500	31,500	856,520	7,708,680	B-4
-	Gravel	m ³	104.88	2,000	18,000	209,760	1,887,840	B-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				84,303	500,840	
2.	INDIRECT COST	15 % of DIRECT COST				265,554	1,577,646	
Total				2,035,917		12,095,286		
Unit Cost				6,697		39,787		46,484
- Daily Production : 38.0 cu.m/hour x 8.0 hrs/day =				304 m ³ /day	304 x 1.1	349.6 m ³		
- Shrinkage and loss factor of gravel is assumed at 0.15.				V =	244.72 m ³			
Crusher run				70 %	0.7 =			
Gravel				30 %	0.3 =			

Reference No.	:	RW-5
Description	:	Sub-Base Course, Class B (Crusher Run & Gravel)
Unit	:	m ³
Quantity for Estimation	:	304 m ³

Total	1,893,674	10,815,095	41,805
Unit Cost	6,229	35,576	
- Daily Production : 38.0 cum./hour x 8.0 hrs/day =	304 m ³ /day		
- Shrinkage and loss factor of gravel is assumed at 0.20 .			
Crusher run	364.8 x	304 x 1.2	364.8 m ³
	40 %	145.92 m ³	
Gravel	364.8 x	0.6 x	218.88 m ³
	60 %		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-6
 Description : Sub-Base Course, Class C (Crusher Run & Gravel)
 Unit : m³
 Quantity for Estimation : 304 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,560,489	8,628,774	
(1)	Construction Equipment					619,780	279,680	
-	Motor Grader, 94 ps	hrs	6.00	34,650	14,850	207,900	89,100	EQ27
-	Vibrator Roller, 12 t	hrs	8.00	46,550	19,950	372,400	159,600	EQ24
-	Water Tanker	hrs	4.00	9,870	4,230	39,480	16,920	EQ20
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				14,060	
(2)	Labour						140,600	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Operator	M/D	1.75		19,200		33,600	LA2
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					866,400	7,797,600	
-	Crusher Run	m ³	91.2	3,500	31,500	319,200	2,872,800	B-4
-	Gravel	m ³	273.6	2,000	18,000	547,200	4,924,800	B-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				74,309	410,894	
2.	INDIRECT COST	15 % of DIRECT COST				234,073	1,294,316	
Total						1,794,562	9,923,090	
Unit Cost						5,903	32,642	38,545
- Daily Production : 38.0 cu.m./hour x 8.0 hrs/day =				304 m ³ /day				
- Shrinkage and loss factor of gravel is assumed at 0.20.				V =				
Crusher run				0.25 =	304 x 1.2		364.8 m ³	
Gravel				0.75 =	91.2 m ³		273.6 m ³	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-7
 Description : Gravel Pavement
 Unit : m³
 Quantity for Estimation : 304 m³

Item	Description	Unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,416,849	7,336,014	
(1)	Construction Equipment					619,780	279,680	
-	Motor Grader, 94 ps	hrs	6.00	34,650	14,850	207,900	89,100	EQ27
-	Vibrator Roller, 12 t	hrs	8.00	46,550	19,950	372,400	159,600	EQ24
-	Water Tanker	hrs	4.00	9,870	4,230	39,480	16,920	EQ20
-	Minor Tools (10% of Labour Cost)	L.S.	1.00				14,060	
(2)	Labour						140,600	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
-	Operator	M/D	1.75		19,200		33,600	LA2
-	Driver	M/D	0.50		14,400		7,200	LA6
(3)	Construction Material					729,600	6,566,400	
-	Crusher Run	m ³	0	3,500	31,500			B-4
-	Gravel	m ³	364.8	2,000	18,000	729,600	6,566,400	B-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				67,469	349,334	
2.	INDIRECT COST	15 % of DIRECT COST				212,527	1,100,402	

Total				1,629,376		8,436,416		
Unit Cost				5,360		27,751		33,111
- Daily Production : 38.0 cu.m./hour x 8.0 hrs/day = - Shrinkage and loss factor of gravel is assumed at 0.20.								
Crusher run	0 %	364.8 x	304 m ³ /day	0 =	304 x 1.2	364.8 m ³		
Gravel	100 %	364.8 x	1 =	1 =	364.8 m ³			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-8
 Description : Bituminous Surface Course (Hot Mix), 50 mm thick
 Unit : ton
 Quantity for Estimation : 169.0 ton

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					8,761,103	13,353,350	
(1)	Construction Equipment					795,620	340,980	
-	Asphalt Finisher	hrs	8.00	28,980	12,420	231,840	99,360	EQ42
-	Tire Roller, 8/12 ton	hrs	6.40	25,550	10,950	163,520	70,080	EQ25
-	Water Tanker	hrs	8.00	9,870	4,230	78,960	33,840	EQ20
-	Air Compressor	hrs	8.00	11,410	4,890	91,280	39,120	EQ31
-	Tandem Roller	hrs	3.50	27,440	11,760	96,040	41,160	EQ26
-	Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Wheel loader	hrs	3.00	38,920	16,680	116,760	50,040	EQ8
(2)	Labour						198,704	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Operator	M/D	2.62		19,200		50,304	LA2
-	Driver	M/D	1.25		14,400		18,000	LA6
-	Asphalt Worker	M/D	2.00		15,300		30,600	LA15
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					7,548,288	12,177,792	
-	Asphalt Concrete(Hot Mix)	ton	168.96		66,000			C-3
-	Sand	m ³	57.6		9,900			B-2
-	Course Aggregate	m ³	38.4		11,880			B-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				417,195	635,874	
2.	INDIRECT COST	15 % of DIRECT COST				1,314,166	2,003,002	
Total				10,075,269		15,356,352		
Unit Cost				59,631		90,888		150,519
- Daily Production				Asphalt Finisher -- 160 m ² /hour, 160 x 8 hrs x 0.05 = 64 m ² /day Tire Roller -- 200 m ² /hour, 200 x 8 hrs = 1,600 m ² /day = 80.0 m ² /day				
- Material				Asphalt -- 64 m ³ x 2.20 ton/m ³ x 1.2 = 168.96 ton Course Aggregate -- 1,600 x 0.02 x 1.2 = 38.4 m ³				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-9
 Description : Bituminous Prime Coat
 Unit : ltr
 Quantity for Estimation : 457.6 ltr

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Air Compressor	hrs	8.00	11,410	4,890	91,280	39,120	EQ31
-	Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
(2)	Labour							
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Driver	M/D	0.22		14,400		3,200	LA6
-	Asphalt Worker	M/D	2.00		15,300		30,600	LA15
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material							
-	Prime Coat	ltr	457.6	400	600	183,040	274,560	C-5
(4)	Miscellaneous Cost;	5 % of (1) to (3)				14,577	21,103	
2.	INDIRECT COST	15 % of DIRECT COST				45,918	66,474	

Total				352,035		509,637		
Unit Cost				769		1,114		1,883
- Daily Production	:	20 m ² x 8 men x 2 set = 320 m ²						
- Material	:	Prime Coat - 1.3 liter per m ²						
		Total liter - 1.3 liter x 320 m ² x 1.1 =				457.6 liter		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RW-10
 Description : Bituminous Tack Coat
 Unit : he
 Quantity for Estimation : 151.4 he

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Air Compressor	hrs	8.00	11,410	4,890	91,280	39,120	EQ31
-	Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
(2)	Labour							
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Driver	M/D	0.22		14,400		3,200	LA6
-	Asphalt Worker	M/D	2.00		15,300		30,600	LA15
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material							
-	Tack Coat	he	151.36	480	720	72,653	108,979	C-4
(4)	Miscellaneous Cost;	5 % of (1) to (3)				9,058	12,824	
2.	INDIRECT COST	15 % of DIRECT COST				28,532	40,395	
Total						218,742	309,699	
Unit Cost						1,445	2,046	3,491
- Daily Production						20 m ² x 4 men x 8 hr x 2 set = 320 m ²		
- Material						Tack Coat -- 0.43 liter per m ²		
						Total liter -- 0.43 liter x 320 m ² x 1.1 =		
						151.36 liter		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-1
Description : Drain Pipe, PVC Pipe Dia. 50 mm
Unit : m
Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					23,625	62,878	
(1)	Construction Equipment					-	671	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				671	
(2)	Labour						6,713	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.38		9,600		3,648	LA17
(3)	Construction Material					22,500	52,500	
-	PVC Pipe, 50 mm	m	10.00	2,250	5,250	22,500	52,500	G-4
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,125	2,994	
2.	INDIRECT COST	15 % of DIRECT COST				3,544	9,432	
Total				27,169		72,310		
Unit Cost				2,717		7,231		9,948

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ••

Reference No. : PW-2
Description : Drain Pipe, PVC Pipe Dia. 75 mm
Unit : m
Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					33,075	84,928	
(1)	Construction Equipment					-	671	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				671	
(2)	Labour						6,713	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.38		9,600		3,648	LA17
(3)	Construction Material					31,500	73,500	
-	PVC Pipe, 75 mm	m	10.00	3,150	7,350	31,500	73,500	G-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,575	4,044	
2.	INDIRECT COST	15 % of DIRECT COST				4,961	12,739	
Total							97,667	
Unit Cost							9,767	13,570

Reference No.	:	PW-3
Description	:	PVC Pipe, Dia.100 mm
Unit	:	m
Quantity for Estimation	:	10 m

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-4
Description : PVC Pipe, Dia.150 mm
Unit : m
Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					134,663	324,737	
(1)	Construction Equipment							
-	Minor Tools, (10% of Labour Cost)	L.S.	1				911	911
(2)	Labour						9,113	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.63		9,600		6,048	LA17
(3)	Construction Material					128,250	299,250	
-	PVC Pipe, 150 mm	m	10.00	12,825	29,925	128,250	299,250	G-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				6,413	15,464	
2.	INDIRECT COST	15 % of DIRECT COST				20,199	48,711	
Total						154,862	373,448	
Unit Cost						15,486	37,345	52,831

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-5
 Description : PVC Pipe, Dia. 200 mm
 Unit : m
 Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					219,713	523,187	
(1)	Construction Equipment							
-	Minor Tools, (10% of Labour Cost)	L.S.	1				911	911
(2)	Labour						9,113	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.63		9,600		6,048	LA17
(3)	Construction Material					209,250	488,250	
-	PVC Pipe, 200 mm	m	10.00		48,825	209,250	488,250	G-12
(4)	Miscellaneous Cost;	5 % of (1) to (3)				10,463	24,914	
2.	INDIRECT COST	15 % of DIRECT COST				32,957	78,478	
Total				252,669		601,666		
Unit Cost				25,267		60,167		85,433

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : PW-6
 Description : Weep Hole, PVC Pipe Dia.50 mm with Filter Cloth(Geotextile)
 Unit : nos
 Quantity for Estimation : 10 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					24,334	64,532	
(1)	Construction Equipment					-	671	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				671	
(2)	Labour						6,713	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.38		9,600		3,648	LA17
(3)	Construction Material					23,175	54,075	
-	PVC Pipe, 50 mm	m	7.50	2,250				
-	Geotextile	m ²	2.80	2,250		16,875	39,375	G-4
						6,300	14,700	G-7
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,159	3,073	
2.	INDIRECT COST	15 % of DIRECT COST				3,650	9,680	
Total								
Unit Cost						27,984	74,211	
Materials for Weep Hole :								
			PVC Pipe, 50 mm	0.75 m/nos.		2,798	7,421	10,220
			Geotextile	0.7 x 0.4 = 0.28 m ² /nos.				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-7
 Description : Air Vent Pipe, PVC Dia. 75 mm
 Unit : set
 Quantity for Estimation : 1 set

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					12,569	21,077	
(1)	Construction Equipment					-	431	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				431	
(2)	Labour						4,313	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.13		9,600		1,248	LA17
(3)	Construction Material					11,970	15,330	
-	PVC Pipe, 75 mm	m	2.00	3,150	7,350	6,300	14,700	G-3
-	Miscellaneous Steel	kg	2.00	2,835	315	5,670	630	E-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				599	1,004	
2.	INDIRECT COST	15 % of DIRECT COST				1,885	3,162	

Total	14,454	24,239	
Unit Cost	14,454	24,239	38,693

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-8
 Description : Air Valve, Dia.25 mm
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					527,594	137,494	
(1)	Construction Equipment					-	556	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				556	
(2)	Labour						5,561	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.26		9,600		2,496	LA17
(3)	Construction Material					502,470	124,830	
-	Air Valve, 25 mm	nos.	1.00	496,800	124,200	496,800	124,200	F-1
-	Miscellaneous Steel	kg	2.00	2,835	315	5,670	630	E-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				25,124	6,547	
2.	INDIRECT COST	15 % of DIRECT COST				79,139	20,624	
Total						606,733	158,118	
Unit Cost						606,733	158,118	764,850

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-9
Description : Pipe Culvert, Dia.1000 mm, 6.0 m long
Unit : m
Quantity for Estimation : 6 m

: Pipe Supply and Installation

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					695,246	1,056,353	
(1)	Construction Equipment					11,739	7,342	
-	Truck with Crane, 4 ton	hrs	1.3					
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	9,030	3,870	11,739	5,031	EQ15
							2,311	
(2)	Labour						23,109	
-	Foreman	M/D	0.14		19,200		2,688	LA1
-	Plumber	M/D	0.61		15,300		9,333	LA10
-	Common Labour	M/D	0.90		9,600		8,640	LA17
-	Driver	M/D	0.17		14,400		2,448	LA6
(3)	Construction Material					650,400	975,600	
-	Concrete Pipe, Dia.1000 mm	m	6.00	108,400	162,600	650,400	975,600	C-25
(4)	Miscellaneous Cost;	5 % of (1) to (3)				33,107	50,303	
2.	INDIRECT COST	15 % of DIRECT COST				104,287	158,453	

Total	799,533	1,214,806	
Unit Cost	133,255	202,468	335,723

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-10
 Description : Pipe Culvert, Dia.800 mm, 6.0 m long
 Unit : m
 Quantity for Estimation : 6 m

: Pipe Supply and Installation

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Truck with Crane, 4 ton	hrs	1.3		3,870			EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00					
				9,030		11,739		5,031 2,311
(2)	Labour							
-	Foreman	M/D	0.14		19,200			2,688 LA1
-	Plumber	M/D	0.61		15,300			9,333 LA10
-	Common Labour	M/D	0.90		9,600			8,640 LA17
-	Driver	M/D	0.17		14,400			2,448 LA6
							23,109	
(3)	Construction Material							
-	Concrete Pipe, Dia.800 mm	m	6.00		104,400	417,600	626,400	
					69,600			
(4)	Miscellaneous Cost;	5 % of (1) to (3)				21,467	32,843	
2.	INDIRECT COST	15 % of DIRECT COST				67,621	103,454	
Total						518,427	793,147	
Unit Cost						86,404	132,191	218,596

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-11
 Description : Pipe Culvert, Dia.600 mm, 6.0 m long
 Unit : m
 Quantity for Estimation : 6 m
 : Pipe Supply and Installation

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					259,286	402,413	
(1)	Construction Equipment					11,739	7,342	
-	Truck with Crane, 4 ton	hrs	1.3					EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	9,030	3,870	11,739	5,031	
							2,311	
(2)	Labour						23,109	
-	Foreman	M/D	0.14		19,200		2,688	LA1
-	Plumber	M/D	0.61		15,300		9,333	LA10
-	Common Labour	M/D	0.90		9,600		8,640	LA17
-	Driver	M/D	0.17		14,400		2,448	LA6
(3)	Construction Material					235,200	352,800	
-	Concrete Pipe, Dia.600 mm	m	6.00	39,200	58,800	235,200	352,800	C-23
(4)	Miscellaneous Cost;	5 % of (1) to (3)				12,347	19,163	
2.	INDIRECT COST	15 % of DIRECT COST				38,893	60,362	

Total	298,179	462,775
Unit Cost	49,696	77,129
		126,826

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-12
Description : Pipe Culvert, Dia. 300 mm, 6.0 m long
Unit : m
Quantity for Estimation : 6 m
: Pipe Supply and Installation

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					85,406	141,593	
(1)	Construction Equipment					11,739	7,342	
-	Truck with Crane, 4 ton	hrs	1.3	9,030	3,870	11,739	5,031	EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00				2,311	
(2)	Labour						23,109	
-	Foreman	M/D	0.14		19,200		2,688	LA1
-	Plumber	M/D	0.61		15,300		9,333	LA10
-	Common Labour	M/D	0.90		9,600		8,640	LA17
-	Driver	M/D	0.17		14,400		2,448	LA6
(3)	Construction Material					69,600	104,400	
-	Concrete Pipe, Dia. 300 mm	m	6.00	11,600	17,400	69,600	104,400	C-20
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,067	6,743	
2.	INDIRECT COST	15 % of DIRECT COST				12,811	21,239	
Total						98,217	162,832	
Unit Cost						16,369	27,139	43,508

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-13
 Description : Weep Hole Dia. 100 mm with Filter Cloth (Geotextile) and Counterflow Prevention Valve
 Unit : nos
 Quantity for Estimation : 10 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					532,460	137,297	
(1)	Construction Equipment					-	671	
-	Minor Tools, (10% of Labour Cost)	L.S.	1				671	
(2)	Labour						6,713	
-	Foreman	M/D	0.06		19,200		1,152	LA1
-	Plumber	M/D	0.13		15,300		1,913	LA10
-	Common Labour	M/D	0.38		9,600		3,648	LA17
(3)	Construction Material					507,105	123,375	
-	PVC Pipe, 100 mm	m	7.50	6,210	14,490	46,575	108,675	G-2
-	Geotextile	m ²	2.80	2,250	5,250	6,300	14,700	G-7
-	Prevention Valve Dia. 100 mm	nos.	10.00	45,423	-	454,230	-	F-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				25,355	6,538	
2.	INDIRECT COST	15 % of DIRECT COST				79,869	20,595	
Total						612,329	157,891	
Unit Cost						61,233	15,789	77,022
Materials for :								
				PVC Pipe, 100 mm	0.75 m/nos.			
				Geotextile	0.7 x 0.4 = 0.28 m ² /nos.			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-14
 Description : Water Pipe, Dia. 800mm, including air valve, flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					67,694,141	15,783,464	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					EQ15
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					64,398,370	14,893,330	
-	Steel Pipe Dia. 800	m	54.50	719,460				
-	Expansion Joint Dia. 800	nos.	2.00	12,292,700	79,940	39,210,570	4,356,730	E-5
-	Air Valve Dia. 75	nos.	1.00	602,400	5,268,300	24,585,400	10,536,600	F-22
(4)	Miscellaneous Cost;	5 % of (1) to (3)			903,600	602,400	903,600	F-8
						3,223,531	751,594	
2.	INDIRECT COST	15 % of DIRECT COST				10,154,121	2,367,520	
Total						77,848,262	18,150,983	
Unit Cost						77,848,262	18,150,983	95,999,245
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : PW-15
 Description : Water Pipe, Dia. 600mm, including air valve, flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					105,974,390	15,499,985	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					EQ15
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					100,855,750	14,623,350	
-	Steel Pipe Dia. 600	m	142.60	627,750	69,750	89,517,150	9,946,350	E-6
-	Expansion Joint Dia. 600	nos.	2.00	5,456,500	2,338,500	10,913,000	4,677,000	F-21
-	Air Valve Dia. 50	nos.	1.00	425,600	638,400	425,600	638,400	F-9
(4)	Miscellaneous Cost;	5 % of (1) to (3)				5,046,400	738,095	
2.	INDIRECT COST	15 % of DIRECT COST				15,896,158	2,324,998	
Total						121,870,548	17,824,982	
Unit Cost						121,870,548	17,824,982	139,695,530
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-16
 Description : Water Pipe, Dia. 300mm, including flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Water Pipe Bridge, WB3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					21,708,120	4,085,067	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					EQ15
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					20,602,160	3,752,000	
-	Steel Pipe Dia. 300	m	38.20					
-	Expansion Joint Dia. 300	nos.	2.00	369,000	41,000	14,095,800	1,566,200	E-8
-	Support and Fence (steel)	kg	496.00	2,550,100	1,092,900	5,100,200	2,185,800	F-18
				2,835	315	1,406,160	156,240	E-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,033,720	194,527	
2.	INDIRECT COST	15 % of DIRECT COST				3,256,218	612,760	
Total								
Unit Cost						24,964,338	4,697,827	
Materials for :						24,964,338	4,697,827	29,662,165

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-17
 Description : Water Pipe, Dia. 300mm, including air valve, flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					24,589,047	4,511,262	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1		3,870	72,240	30,960	EQ15
(2)	Labour						9,780	
-	Foreman	M/D	0.50				97,800	
-	Plumber	M/D	2.00		19,200		9,600	LA1
-	Common Labour	M/D	6.00		15,300		30,600	LA10
					9,600		57,600	LA17
(3)	Construction Material					23,345,900	4,157,900	
-	Steel Pipe Dia. 300	m	48.10					
-	Expansion Joint Dia. 300	nos.	2.00	369,000	41,000	17,748,900	1,972,100	E-8
-	Air Valve, Dia 25 mm	nos.	1.00	2,550,100	1,092,900	5,100,200	2,185,800	F-18
				496,800	124,200	496,800	124,200	F-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,170,907	214,822	
2.	INDIRECT COST	15 % of DIRECT COST				3,688,357	676,689	
Total								
Unit Cost						28,277,404	5,187,951	
Materials for :						28,277,404	5,187,951	33,465,355

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-18
 Description : Water Pipe, Dia. 600mm, including air valve, flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					43,685,896	8,579,041	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					EQ15
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					41,533,375	8,031,975	
-	Steel Pipe Dia. 600	m	48.10	627,750	69,750	30,194,775	3,354,975	E-6
-	Expansion Joint Dia. 600	nos.	2.00	5,456,500	2,338,500	10,913,000	4,677,000	F-21
-	Air Valve Dia. 50	nos.	1.00	425,600	638,400	425,600	638,400	F-9
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,080,281	408,526	
2.	INDIRECT COST	15 % of DIRECT COST				6,552,884	1,286,856	
Total								
Unit Cost						50,238,780	9,865,897	
Materials for:						50,238,780	9,865,897	60,104,677

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-19
 Description : Water Pipe with Bridge, Dia. 100mm, including flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					9,537,171	2,503,998	
(1)	Construction Equipment					18,060	17,520	
-	Truck with Crane, 4 ton	hr	2					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					
(2)	Labour							
-	Foreman	M/D	0.50					
-	Plumber	M/D	2.00					
-	Common Labour	M/D	6.00					
(3)	Construction Material					9,064,960	2,269,440	
-	Steel Pipe Dia. 100	m	60.80	83,700				
-	Expansion Joint Dia. 100	nos.	2.00	1,988,000	852,000	5,088,960	565,440	E-11
						3,976,000	1,704,000	F-15
(4)	Miscellaneous Cost;	5 % of (1) to (3)				454,151	119,238	
2.	INDIRECT COST	15 % of DIRECT COST				1,430,576	375,600	
Total						10,967,747	2,879,598	
Unit Cost						10,967,747	2,879,598	13,847,344
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-20
 Description : Water Pipe with Bridge, Dia. 125mm x 4, including flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					54,310,683	12,080,166	
(1)	Construction Equipment					18,060	17,520	
-	Truck with Crane, 4 ton	hr	2					
-	Minor Tools, (10% of Labour Cost)	L.S.	1	9,030	3,870	18,060	7,740	EQ15
(2)	Labour						9,780	
-	Foreman	M/D	0.50				97,800	
-	Plumber	M/D	2.00		19,200		9,600	LA1
-	Common Labour	M/D	6.00		15,300		30,600	LA10
					9,600		57,600	LA17
(3)	Construction Material					51,706,400	11,389,600	
-	Steel Pipe Dia. 125	m	243.20	139,500	15,500	33,926,400	3,769,600	E-10
-	Expansion Joint Dia. 125	nos.	8.00	2,222,500	952,500	17,780,000	7,620,000	F-16
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,586,223	575,246	
2.	INDIRECT COST	15 % of DIRECT COST				8,146,602	1,812,025	
Total								
Unit Cost						62,457,285	13,892,191	
Materials for :						62,457,285	13,892,191	76,349,476

pipe length is 60.8 m x 4 = 243.2 m

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-21
 Description : Water Pipe with Bridge, Dia. 150mm, including flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					15,801,996	3,510,843	
(1)	Construction Equipment					36,120	25,260	
-	Truck with Crane, 4 ton	hr	4					EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1	9,030	3,870	36,120	15,480	
							9,780	
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					15,013,400	3,220,600	
-	Steel Pipe Dia. 150	m	60.80	166,500	18,500	10,123,200	1,124,800	E-9
-	Expansion Joint Dia. 150	nos.	2.00	2,445,100	1,047,900	4,890,200	2,095,800	F-17
(4)	Miscellaneous Cost;	5 % of (1) to (3)				752,476	167,183	
2.	INDIRECT COST	15 % of DIRECT COST				2,370,299	526,626	
Total						18,172,295	4,037,469	
Unit Cost						18,172,295	4,037,469	22,209,765
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-22
 Description : Water Pipe with Bridge, Dia. 300mm, including air valve flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,490,699	5,049,870	
(1)	Construction Equipment					54,180	33,000	
-	Truck with Crane, 4 ton	hr	6	9,030	3,870	54,180	23,220	EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1				9,780	
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					28,032,200	4,678,600	
-	Steel Pipe Dia. 300	m	60.80	369,000	41,000	22,435,200	2,492,800	E-8
-	Expansion Joint Dia. 300	nos.	2.00	2,550,100	1,092,900	5,100,200	2,185,800	F-18
-	Air valve, 25 mm	nos.	1.00	496,800	124,200	496,800	124,200	F-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,404,319	240,470	
2.	INDIRECT COST	15 % of DIRECT COST				4,423,605	757,481	
Total								
Unit Cost						33,914,304	5,807,351	
Materials for :								
						33,914,304	5,807,351	39,721,654

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : PW-23
 Description : Water Pipe with Bridge, Dia. 350mm, including air valve flexible joint
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 Floodway F-5

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					28,252,014	5,224,905	
(1)	Construction Equipment					54,180	33,000	
-	Truck with Crane, 4 ton	hr	6					
-	Minor Tools, (10% of Labour Cost)	L.S.	1		3,870	54,180	23,220	EQ15
(2)	Labour						9,780	
-	Foreman	M/D	0.50				97,800	
-	Plumber	M/D	2.00		19,200		9,600	LAI
-	Common Labour	M/D	6.00		15,300		30,600	LAI10
					9,600		57,600	LAI17
(3)	Construction Material					26,852,500	4,845,300	
-	Steel Pipe Dia. 350	m	51.60	393,750				
-	Expansion Joint Dia. 350	nos.	2.00	3,019,100	43,750	20,317,500	2,257,500	E-32
-	Air valve, 25 mm	nos.	1.00	496,800	1,293,900	6,038,200	2,587,800	F-19
					124,200	496,800	124,200	F-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,345,334	248,805	
2.	INDIRECT COST					4,237,802	783,736	
		15 % of DIRECT COST						
Total						32,489,816	6,008,641	
Unit Cost						32,489,816	6,008,641	38,498,457
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PW-24
Description : Water Pipe with Bridge, Dia. 400mm, including air valve flexible joint
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					37,625,322	7,564,977	
(1)	Construction Equipment					72,240	40,740	
-	Truck with Crane, 4 ton	hr	8					
-	Minor Tools, (10% of Labour Cost)	L.S.	1					EQ15
(2)	Labour						97,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Plumber	M/D	2.00		15,300		30,600	LA10
-	Common Labour	M/D	6.00		9,600		57,600	LA17
(3)	Construction Material					35,761,400	7,066,200	
-	Steel Pipe Dia. 400	m	60.80	418,500	46,500	25,444,800	2,827,200	E-7
-	Expansion Joint Dia. 400	nos.	2.00	4,945,500	2,119,500	9,891,000	4,239,000	F-20
-	Air valve, 50 mm	nos.	1.00	425,600	638,400	425,600	638,400	F-9
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,791,682	360,237	
2.	INDIRECT COST	15 % of DIRECT COST				5,643,798	1,134,747	
Total								
						43,269,120	8,699,724	
Unit Cost						43,269,120	8,699,724	51,968,844
Materials for :								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-1
 Description : Elastomeric Bearing Pad, 406 x 280 x 67 mm
 Unit : L.S.
 Quantity for Estimation : 10 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,830,938	2,726,592	
(1)	Construction Equipment					8,610	13,563	
-	Ordinary Truck	hrs	1.00					
-	Misc. Tools (10% of Labour)	L.S.	1.00	8,610	3,690	8,610	3,690	EQ11
						-	9,873	
(2)	Labour					-	98,731	
-	Foreman	M/D	0.60		19,200	-	11,520	LA1
-	Skill Labour	M/D	2.65		11,500	-	30,475	LA16
-	Common Labour	M/D	5.91		9,600	-	56,736	LA17
(3)	Construction Material					1,735,140	2,484,460	
-	Bearing Pad	nos.	10.00	93,750	218,750	937,500	2,187,500	G-10
-	Anchor Bolt	kg	18.96	33,750	3,750	639,900	71,100	E-24
-	Other Materials	L.S.	1.00			157,740	225,860	
	*10 % of above							
(4)	Miscellaneous Cost;	5 % of (1) to (3)				87,188	129,838	
2.	INDIRECT COST	15 % of DIRECT COST				274,641	408,989	
Total				2,105,578		3,135,581		
Unit Cost				210,558		313,558		524,116
Hourly production				1.14				
				4.9 men per 8 hr = 0.945 m ²				
				0.406 x 0.28 x 10 =				
				1.14/0.945 m ² x 4.9 men = 5.91				

•• BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ••

Reference No.	:	BD-2
Description	:	Elastomeric Bearing Pad, 480 x 300 x 67 mm
Unit	:	L.S.
Quantity for Estimation	:	10 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Ordinary Truck	hrs	1.00	8,610	3,690	8,610	3,690	EQ11
-	Misc.Tools (10% of Labour)	L.S.	1.00			-	12,473	
(2)	Labour							
-	Foreman	M/D	0.76			-	124,733	
-	Skill Labour	M/D	3.35		19,200	-	14,592	LA1
-	Common Labour	M/D	7.46		11,500	-	38,525	LA16
					9,600	-	71,616	LA17
(3)	Construction Material							
-	Bearing Pad	nos.	10.00	120,000	280,000	2,023,890	3,158,210	
-	Anchor Bolt	kg	18.96	33,750	3,750	1,200,000	2,800,000	G-11
-	Other Materials	L.S.	1.00			639,900	71,100	E-24
	*10 % of above					183,990	287,110	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				101,625	164,955	
2.	INDIRECT COST	15 % of DIRECT COST				320,119	519,609	
Total						2,454,244	3,983,671	
Unit Cost						245,424	398,367	643,791
Hourly production				:	4.9 men per 8 hr. = 0.945 m ² 0.48 x 0.30 x 10 = 1.44/0.945 m ² x 4.9 men = 7.46			
							1.44	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-3
Description : Expansion Joint, Steel Profile
Unit : L.S.
Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					243,612	92,872	
(1)	Construction Equipment					9,030	8,765	
-	Truck with Crane, 4 ton	hrs	1.00					
-	Misc.Tools (10% of Labour)	L.S.	1.00	9,030	3,870	9,030	3,870	EQ15
						-	4,895	
(2)	Labour					-	48,950	
-	Foreman	M/D	0.50		19,200	-	9,600	LA1
-	Welder	M/D	0.50		17,300	-	8,650	LA5
-	Skill Labour	M/D	1.00		11,500	-	11,500	LA16
-	Common Labour	M/D	2.00		9,600	-	19,200	LA17
(3)	Construction Material					222,982	30,734	
-	Expansion Joint, Steel Profile	m	10.00	6,345	705	63,450	7,050	E-21
-	Anchor Steel Dia. 21 mm	kg	71.40	1,485	165	106,029	11,781	E-1
-	Welding Rod	kg	5.00	7,800	1,950	39,000	9,750	E-25
-	Other Materials	L.S.	1.00			14,503	2,153	
	*10 % of above							
(4)	Miscellaneous Cost;	5 % of (1) to (3)				11,601	4,422	
2.	INDIRECT COST	15 % of DIRECT COST				36,542	13,931	

Total	280,154	106,802
Unit Cost	28,015	10,680
Hourly production	: Steel Dia. 21 mm 0.5 m x 10 m / 0.2 m pitch = 25 m, 25 m x 2.72 kg/m x 1.05 = 71.4 kg	
		38,696

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-4
 Description : Precast Prestressed Concrete Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge P-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A including Erection	m ³	178.75	673,600	1,010,400	120,406,000	180,609,000	C-32
(2)	Prestressing	pc	4		210,000	0	840,000	

Total						120,406,000	181,449,000	
Unit Cost						120,406,000	181,449,000	301,855,000

Tensioning 1-seg., 5.6 m = 13.5 ton
 13.5 ton / 2.45 = 5.51 m³
 then 1/5.51 = 0.182 pc

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-5
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 m³
 For Bridge P-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	36	73,040	109,560	2,617,023	3,925,535	C-6
(2)	Reinforced Bar	kg	8,450	1,954	427	16,515,567	3,605,822	CN-5
2.	INDIRECT COST		15 % of DIRECT COST (1) +(2)			2,869,889	933,427	

Total						22,002,479	8,464,784	
Unit Cost						22,002,479	8,464,784	30,467,262
Tensioning	1-seg., 5.6 m = 13.5 ton 13.5 ton / 2.45 = 5.51 m ³							then 1/5.51 = 0.182 pc

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-6
 Description : Static Load Test
 Unit : L.S.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Static Load Test	m ³	1		1,200,000	-	1,200,000	
(2)								
2.	INDIRECT COST		15 % of DIRECT COST (1)			-	180,000	

Total	-	1,380,000	
Unit Cost	-	1,380,000	1,380,000

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-7
 Description : Temporary Bridge for P-1
 Unit : m²
 Quantity for Estimation : 214.5 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	Coconut Tree, Dia. 250 L=10.0 m	nos.	78.00	5,000	45,000	390,000	3,510,000	D-7
(2)	Structure Steel	kg	21,810	3,594	7,457	78,394,423	162,631,393	MT-6
(3)	Timber	m ³	20.45	37,500	337,500	766,875	6,901,875	D-3
(4)	Reinforcing Bar	kg	340.00	1,954	427	664,513	145,082	CN-5
(5)	Bolt 130 nos x 1.04 x 0.45 = 60.84	kg	60.84	33,750	3,750	2,053,350	228,150	E-24
2.	INDIRECT COST		15 % of DIRECT COST (1) +(3) +(5)			481,534	1,128,004	

Total	82,750,694	174,544,504
Unit Cost	385,784	813,727
		1,199,511

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BD-7-1
 Description : Temporary Bridge, width 3.0 m
 Unit : m²
 Quantity for Estimation : 1.0 L.S

Item	Description	unit	Quantity	ratio	Unit Cost		Amount		Reference
					F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
MFC-2	length								
(1) P-1	120	m ²	360.0	100%	385,784	813,727	138,882,284	292,941,825	BD7P1
MFC-3									
(2) P-7*	70	m ²	105.0	50%	385,784	813,727	40,507,333	85,441,366	BD7P7
(3) P-9	80	m ²	240.0	100%	385,784	813,727	92,588,190	195,294,550	BD7P9
MFC-4									
(4) P-11*	70	m ²	210.0	50%	385,784	813,727	81,014,666	170,882,731	BD7P11
(5) P-13*	50	m ²	300.0	100%	385,784	813,727	115,735,237	244,118,187	BD7P13
MFC-7									
(6) F-8	50	m ²	150.0	100%	385,784	813,727	57,867,618	122,059,094	BD7F8
Total									
							526,595,328	1,110,737,753	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-1
 Description : Handrail H = 1.2 m, Galvanized Steel Pipe, Dia. 75 mm & 50 mm
 Unit : lin.m.
 Quantity for Estimation : 1 lin.m.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					374,945	87,677	
(1)	Construction Equipment					24,780	13,692	
-	Truck with Crane, 4 t	hrs	1.00					
-	Welding Machine	hrs	3.00	9,030	3,870	9,030	3,870	EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	5,250	2,250	15,750	6,750	EQ48
							3,072	
(2)	Labour						30,720	
-	Foreman	M/D	0.10		19,200		1,920	LA1
-	Welder	M/D	0.50		17,300		8,650	LA5
-	Skilled Labour	M/D	0.50		11,500		5,750	LA16
-	Common Labour	M/D	1.50		9,600		14,400	LA17
(3)	Construction Material					332,310	39,090	
-	Galv. Steel Pipe, Dia. 75 mm	m	5.60	40,500	4,500	226,800	25,200	E-17
-	Galv. Steel Pipe, Dia. 50 mm	m	3.60	24,975	2,775	89,910	9,990	E-16
-	Welding Rod	kg	2.00	7,800	1,950	15,600	3,900	E-25
(4)	Miscellaneous Cost;	5 % of (1) to (3)				17,855	4,175	
2.	INDIRECT COST	15 % of DIRECT COST				56,242	13,152	
Total						431,186	100,829	
Unit Cost						431,186	100,829	532,015
Galv. Steel Pipe, Dia. 75 mm				(1.7 x 2 + 1.1 x 2) =	5.6 m			
Galv. Steel Pipe, Dia. 50 mm				1.2 m x 3 =	3.6 m			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-2
 Description : Installation of Steel Ladder, Dia.22 mm
 Unit : kg
 Quantity for Estimation : 30 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					61,625	90,253	
(1)	Construction Equipment					14,140	15,836	
-	Bar Cutting Machine	hrs	2.00	770	330	1,540	660	EQ51
-	Bar Bending Machine	hrs	1.00	2,100	900	2,100	900	EQ52
-	Engine Welder	hrs	2.00	5,250	2,250	10,500	4,500	EQ48
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00				9,776	
(2)	Labour					-	65,170	
-	Foreman	M/D	0.10		19,200		1,920	LA1
-	Steel Worker	M/D	1.50		15,300		22,950	LA11
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					44,550	4,950	
-	Steel Bar, Dia.22 mm	kg	30.00	1,485	165	44,550	4,950	E-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,935	4,298	
2.	INDIRECT COST	15 % of DIRECT COST				9,244	13,538	
Total						70,868	103,791	
Unit Cost						2,362	3,460	5,822

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : MT-3
 Description : Handrail, Galvanized Steel Pipe, H = 1.0 m
 Unit : kg
 Quantity for Estimation : 1112 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					3,265,196	438,831	
(1)	Construction Equipment					12,810	14,405	
-	Bar Cutting Machine	hrs	3.00	770	330	2,310	990	EQ51
-	Engine Welder	hrs	2.00	5,250	2,250	10,500	4,500	EQ48
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00				8,915	
(2)	Labour					-	59,430	
-	Foreman	M/D	0.40		19,200		7,680	LA1
-	Steel Worker	M/D	1.50		15,300		22,950	LA11
-	Welder	M/D	1.00		17,300		17,300	LA5
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material					3,096,900	344,100	
-	Galvanized Steel Pipe dia. 50 mm	m	124.00	24,975	2,775	3,096,900	344,100	E-16
-	Galvanized Steel Pipe dia. 100 mm	m	37.20	54,000	6,000	2,008,800	223,200	E-18
(4)	Miscellaneous Cost;	5 % of (1) to (3)				155,486	20,897	
2.	INDIRECT COST	15 % of DIRECT COST				489,779	65,825	
Total				3,754,975		504,656		
Unit Cost				3,376		454		3,830
Daily Produce : Handrail 12 m per man-day				12 m x 5 men = 60 m				
Galvanized Steel Pipe dia. 50 mm				2 m	31 loc. x 2 =	124 m	5.31 kg/m	658.4 kg
Galvanized Steel Pipe dia. 100 mm				1.2 m	31 locations =	37 m	12.2 kg/m	453.8 kg
							Total weight	1,112.3 kg

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : MT-4
 Description : Pipe Support for Steel
 Unit : set
 Quantity for Estimation : 1 set

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,655,404	262,961	
(1)	Construction Equipment					36,015	20,731	
-	Welding Machine	hrs	6.00	5,250	2,250	31,500	13,500	EQ48
-	Truck with Crane, 4 t	hrs	0.50	9,030	3,870	4,515	1,935	EQ15
-	Minor Tools, (10% of Labour Cost)	L.S.					5,296	
(2)	Labour						52,965	
-	Foreman	M/D	0.13		19,200		2,400	LA1
-	Steel Worker	M/D	0.13		15,300		1,913	LA11
-	Welder	M/D	0.75		17,300		12,975	LA5
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	2.00		9,600		19,200	LA17
-	Painter	M/D	0.25		15,300		3,825	LA13
-	Operator	M/D	0.06		19,200		1,152	LA2
(3)	Construction Material					1,540,560	179,265	
-	Steel Plate	kg	666.00	2,025	225	1,348,650	149,850	E-4
-	Bolt & Nut	kg	5.50	33,750	3,750	185,625	20,625	E-24
-	Paint	kg	1.10	750	6,750	825	7,425	J-7
-	Welding Rod	kg	0.70	7,800	1,950	5,460	1,365	E-25
(4)	Miscellaneous Cost;	5 % of (1) to (3)				78,829	10,000	
2.	INDIRECT COST	15 % of DIRECT COST				248,311	39,444	
Total								
Unit Cost						1,903,714	302,405	2,206,119

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : MT-5
 Description : Steel Plate with manufacturing
 Unit : kg
 Quantity for Estimation : 5 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					10,631	8,668	
(1)	Labour						7,130	
-	Skilled Labour	M/D	0.62		11,500		7,130	LA16
(2)	Construction Material					10,125	1,125	
-	Steel plate	kg	5	2,025	225	10,125	1,125	E-4
(3)	Miscellaneous Cost;	5 % of (1) to (2)				506	413	
2.	INDIRECT COST					1,595	1,300	
			15 % of DIRECT COST					

Total	12,226	9,968
Unit Cost	2,445	1,994
		4,439

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No.	:	MT-6
Description	:	Structure Steel with manufacturing
Unit	:	kg
Quantity for Estimation	:	5 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Labour							
-	- Skilled Labour	M/D	0.93					LA16
-	- Common Labour	M/D	1.93	11,500 9,600			10,695 18,528	LA17
(2)	Construction Material							
-	- Structure Steel	kg	5	2,835	315		1,575	E-3
-	- Other materials cost of above 5 %	L.S.				709	79	
(3)	Miscellaneous Cost;	5 % of (1) to (2)				744	1,544	
2.	INDIRECT COST	15 % of DIRECT COST				2,344	4,863	
Total						17,972	37,284	
Unit Cost						3,594	7,457	11,051

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-7
Description : Steel Wire Work
Unit : kg
Quantity for Estimation : 30 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					64,617	106,764	
(1)	Construction Equipment					1,540	11,880	
-	Bar Cutting Machine	hrs	2.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	770	330	1,540	660	EQ51
							11,220	
(2)	Labour					-	74,800	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Steel Worker	M/D	1.00		15,300		15,300	LA11
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	4.00		9,600		38,400	LA17
(3)	Construction Material					60,000	15,000	
-	Steel Wire	kg	30.00	2,000	500	60,000	15,000	E-23
(4)	Miscellaneous Cost;	5 % of (1) to (3)				3,077	5,084	
2.	INDIRECT COST	15 % of DIRECT COST				9,693	16,015	

Total	74,310	122,779
Unit Cost	2,477	4,093
		6,570

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : MT-8
Description : Flap Gate, Dia. 600 mm
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					2,184,819	3,481,506	
(1)	Construction Equipment					18,060	35,640	
-	Truck with Crane, 4 ton	hrs	2.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	9,030	3,870	18,060	7,740	EQ15
							27,900	
(2)	Labour						186,000	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Steel Worker	M/D	3.00		15,300		45,900	LA11
-	Skilled Labour	M/D	3.00		11,500		34,500	LA16
-	Common Labour	M/D	10.00		9,600		96,000	LA17
(3)	Construction Material					2,062,720	3,094,080	
-	Flap Gate Dia. 600 mm	L.S.	1.00	1,875,200	2,812,800	1,875,200	2,812,800	F-7
-	Other materials (10 % of the above)					187,520	281,280	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				104,039	165,786	
2.	INDIRECT COST	15 % of DIRECT COST				327,723	522,226	
Total								
						2,512,542	4,003,732	
Unit Cost						2,512,542	4,003,732	6,516,274

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-9
 Description : Slide Gate 2.0 m x 1.5 m x 1
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					5,404,518	8,425,011	
(1)	Construction Equipment					36,120	60,060	
-	Truck with Crane, 4 ton	hrs	4.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	9,030	3,870	36,120	15,480	EQ15
							44,580	
(2)	Labour						297,200	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Steel Worker	M/D	5.00		15,300		76,500	LA11
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	15.00		9,600		144,000	LA17
(3)	Construction Material					5,111,040	7,666,560	
-	Slide Gate 2.0 x 1.5	L.S.	1.00	4,646,400	6,969,600	4,646,400	6,969,600	F-11
-	Other materials (10 % of the above)					464,640	696,960	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				257,358	401,191	
2.	INDIRECT COST	15 % of DIRECT COST				810,678	1,263,752	
Total				6,215,196		9,688,763		
Unit Cost				6,215,196		9,688,763		15,903,958

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-10
Description : Slide Gate 2.0 m x 1.5 m x 2
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					10,321,164	15,972,348	
(1)	Construction Equipment					72,240	102,000	
-	Truck with Crane, 4 ton	hrs	8.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	9,030	3,870	72,240	30,960	EQ15
							71,040	
(2)	Labour						473,600	
-	Foreman	M/D	1.50		19,200		28,800	LA1
-	Steel Worker	M/D	8.00		15,300		122,400	LA11
-	Skilled Labour	M/D	8.00		11,500		92,000	LA16
-	Common Labour	M/D	24.00		9,600		230,400	LA17
(3)	Construction Material					9,757,440	14,636,160	
-	Slide Gate 2.0 x 1.5	L.S.	2.00					
-	Other materials (5 % of the above)			4,646,400	6,969,600	9,292,800	13,939,200	F-11
						464,640	696,960	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				491,484	760,588	
2.	INDIRECT COST	15 % of DIRECT COST				1,548,175	2,395,852	
Total								
						11,869,339	18,368,200	
Unit Cost						11,869,339	18,368,200	30,237,539

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-11
 Description : Slide Gate 1.5 m x 1.5 m x 1
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					4,096,134	6,462,435	
(1)	Construction Equipment					36,120	60,060	
-	Truck with Crane, 4 ton	hrs	4.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	9,030	3,870	36,120	15,480	EQ15
							44,580	
(2)	Labour					-	297,200	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Steel Worker	M/D	5.00		15,300		76,500	LA11
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	15.00		9,600		144,000	LA17
(3)	Construction Material					3,864,960	5,797,440	
-	Slide Gate 1.5 x 1.5	L.S.	1.00	3,513,600	5,270,400	3,513,600	5,270,400	F-12
-	Other materials (10 % of the above)					351,360	527,040	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				195,054	307,735	
2.	INDIRECT COST	15 % of DIRECT COST				614,420	969,365	
Total				4,710,554		7,431,800		
Unit Cost				4,710,554		7,431,800		12,142,354

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-12
Description : Slide Gate 1.0 m x 1.25 m x 2
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					6,395,046	9,910,803	
(1)	Construction Equipment					36,120	60,060	
-	Truck with Crane, 4 ton	hrs	4.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00	9,030	3,870	36,120	15,480	EQ15
							44,580	
(2)	Labour					-	297,200	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Steel Worker	M/D	5.00		15,300		76,500	LA11
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	15.00		9,600		144,000	LA17
(3)	Construction Material					6,054,400	9,081,600	
-	Slide Gate 1.0 x 1.25	L.S.	2.00	2,752,000	4,128,000	5,504,000	8,256,000	F-13
-	Other materials (10 % of the above)					550,400	825,600	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				304,526	471,943	
2.	INDIRECT COST	15 % of DIRECT COST				959,257	1,486,620	
Total								11,397,423
Unit Cost								11,397,423
								18,751,726

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-13
 Description : Slide Gate 1.0 m x 1.0 m x 2
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					5,581,926	8,691,123	
(1)	Construction Equipment					36,120	60,060	
-	Truck with Crane, 4 ton	hrs	4.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00		3,870	36,120	15,480	EQ15
(2)	Labour						297,200	
-	Foreman	M/D	1.00		19,200		19,200	LA1
-	Steel Worker	M/D	5.00		15,300		76,500	LA11
-	Skilled Labour	M/D	5.00		11,500		57,500	LA16
-	Common Labour	M/D	15.00		9,600		144,000	LA17
(3)	Construction Material					5,280,000	7,920,000	
-	Slide Gate 1.0 x 1.0	L.S.	2.00					
-	Other materials (10 % of the above)			2,400,000	3,600,000	4,800,000	7,200,000	F-14
(4)	Miscellaneous Cost;	5 % of (1) to (3)				265,806	413,863	
2.	INDIRECT COST	15 % of DIRECT COST				837,289	1,303,668	
Total				6,419,215		9,994,791		
Unit Cost				6,419,215		9,994,791		16,414,006

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-14
 Description : Slide Gate 1.0 m x 1.0 m, for fishpond
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Construction Material							
	Slide Gate 1.0 x 1.0					1,304,777	2,706,795	
-	Structure Steel Manufacturing	kg.	330.00	3,594	7,457	1,186,160	2,460,723	MT-6
-	Other materials					118,616	246,072	
	(10 % of the above)							
(2)	Miscellaneous Cost;		5 % of (1)			65,239	135,340	
Total				1,370,015		2,842,135		
Unit Cost				1,370,015		2,842,135		4,212,150

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-15
 Description : Entrance Gate
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.						286,065	366,299	
(1)	Excavation	m ³	1.63	2,876	1,841	4,688	3,001	EW-2
(2)	Crusher Run Bedding	m ³	0.23	7,270	47,207	1,672	10,858	MS-1
(3)	Concrete, Type C1	m ³	0.53	79,200	118,800	41,976	62,964	CN-25
(4)	Backfill with Selected Soil	m ³	1.06	2,931	3,203	3,107	3,396	EW-9
(5)	Rainforcing Steel Bar	kg	26.20	1,954	427	51,207	11,180	CN-5
(6)	Steel Plate Works	kg	62.58	2,445	1,994	153,020	124,758	MT-5
(7)	Concrete, Type D	m ³	0.20	72,850	109,275	14,570	21,855	CN-23
(8)	Formwork FW1	m ²	3.68	4,300	34,861	15,825	128,288	CN-3
(2)	Miscellaneous Cost;	5 % of (1)				14,303	18,315	
Total							300,368	384,614
Unit Cost							300,368	684,982

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : MT-16
 Description : Steel Pipe for Inlet Pipe, Dia. 200 mm
 Unit : m
 Quantity for Estimation : 7 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,867,966	335,391	
(1)	Construction Equipment					36,120	29,865	
-	Truck with Crane, 4 ton	hrs	4.00					
-	Minor Tools, (15% of Labour Cost)	L.S.	1.00		3,870	36,120	15,480	EQ15
							14,385	
(2)	Labour					-	95,900	
-	Foreman	M/D	0.50		19,200		9,600	LA1
-	Steel Worker	M/D	1.00		15,300		15,300	LA11
-	Skilled Labour	M/D	2.00		11,500		23,000	LA16
-	Common Labour	M/D	5.00		9,600		48,000	LA17
(3)	Construction Material					1,742,895	193,655	
-	Steel Pipe Dia. 200 mm	m	7.00		25,150	1,584,450	176,050	E-33
-	Other materials (10 % of the above)					158,445	17,605	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				88,951	15,971	
2.	INDIRECT COST	15 % of DIRECT COST				280,195	50,309	
Total							2,148,161	385,700
Unit Cost							306,880	55,100
								361,980

Reference No.	:	MT-17
Description	:	Metal Work for Truss Bridge
Unit	:	LS
Quantity for Estimation	:	1 LS

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : FD-1
Description : Log Pile Dia. 150 mm, 3m with Piling
Unit : m
Quantity for Estimation : 90 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					59,289	379,891	
(1)	Construction Equipment					34,440	29,300	
-	Ordinary Truck, 4 t	hrs	4.00	8,610	3,690	34,440	14,760	EQ11
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	14,540	0	14,540	
(2)	Labour					0	145,400	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Driver	M/D	0.50	0	14,400	0	7,200	LA6
-	Skilled Labour	M/D	2.00	0	11,500	0	23,000	LA16
-	Common Labour	M/D	10.00	0	9,600	0	96,000	LA17
(3)	Construction Material					22,025	187,101	
-	Log Pile , dia. 150 mm	m	90.00	220	1,980	19,800	178,200	D-1
-	Oil	lit.	29.28	76	304	2,225	8,901	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,823	18,090	
2.	INDIRECT COST	15 % of DIRECT COST				8,893	56,984	
Total								
						68,182	436,875	
Unit Cost						758	4,854	5,612

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-2-1
Description : PC Pile Dia. 300 mm, Type AB, 12m, Piling
Unit : m
Quantity for Estimation : 171.9 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					3,368,180	6,047,837	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					2,175,150	5,175,824	
-	PC Pile Dia. 300mm	m	171.94	12,300	28,700	2,114,866	4,934,687	C-13
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				160,390	287,992	
2.	INDIRECT COST	15 % of DIRECT COST				505,227	907,176	
Total								
Unit Cost						3,873,407	6,955,012	
Piling circle time for Dia 300 mm L= 12.0 m is =						22,528	40,450	62,978
			8 hr/	33.5 min-pile =	33.5 min			
			12 m *	14.3 pile =	14.3 pile			
				171.9 m	171.9 m			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-3
Description : PC Pile Dia. 400 mm, Type AB, 12m, Piling
Unit : m
Quantity for Estimation : 160.4 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					4,634,858	9,003,419	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					3,381,510	7,990,664	
-	PC Pile Dia. 400mm	m	160.45	20,700	48,300	3,321,226	7,749,526	C-15
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;		5 % of (1) to (3)			220,708	428,734	
2.	INDIRECT COST		15 % of DIRECT COST			695,229	1,350,513	
Total						5,330,086	10,353,931	
Unit Cost						33,221	64,532	97,753
Piling circle time for Dia 300 mm L= 12.0 m is =								
8 hr/				35.9 min				
12 m *				13.4 pile				
				160.4 m				

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-4
 Description : PC Pile Dia. 400 mm, Type B, 12m, Piling
 Unit : m
 Quantity for Estimation : 160.4 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					4,938,100	9,710,984	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					3,670,312	8,664,536	
-	PC Pile Dia. 400mm	m	160.45	22,500	52,500	3,610,028	8,423,398	C-14
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				235,148	462,428	
2.	INDIRECT COST	15 % of DIRECT COST				740,715	1,456,648	
Total				5,678,815		11,167,632		
Unit Cost				35,394		69,604		104,998

Piling circle time for Dia 300 mm L= 12.0 m is =
 8 hr/ 35.9 min-pile =
 12 m * 13.4 pile =
 160.4 m

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-5
 Description : PC Pile Dia. 600 mm, Type AB, 12m, Piling
 Unit : m
 Quantity for Estimation : 138.1 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour							
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material							
-	PC Pile Dia. 600mm	m	138.13	42,600	99,400	5,884,317	13,730,072	C-17
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				348,862	727,761	
2.	INDIRECT COST	15 % of DIRECT COST				1,098,915	2,292,449	
Total								
Unit Cost				8,425,019		17,575,440		
Piling circle time for Dia 300 mm L= 12.0 m is =				60,994		127,239		188,232
8 hr/ 12 m *				41.7 min		11.5 pile		
				41.7 min-pile =		138.1 m		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-6
Description : RC Pile 200 x 200 mm, 6.5m, Piling
Unit : m
Quantity for Estimation : 118.2 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					2,092,320	2,084,377	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					960,046	1,401,101	
-	Reinforced Concrete	m ³	4.74	189,823	244,718	899,761	1,159,963	CN-9
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				99,634	99,256	
2.	INDIRECT COST	15 % of DIRECT COST				313,848	312,657	
Total							2,406,168	2,397,034
Unit Cost							20,360	20,283
Piling circle time for 200 mm x 200 mm L= 6.5 m is =							RC Concrete = 0.2 x 0.2 x 6.5 = 0.26 m ³	
8 hr/ 6.5m *							0.26 m ³ x 18.2 pile = 4.74 m ³	
26.4 min							26.4 min	
18.2 pile							18.2 pile	
118.2 m							118.2 m	
							40,642	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-7
Description : Steel Pipe Pile Dia. 600 mm, 12m, Piling
Unit : m
Quantity for Estimation : 195.3 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					67,573,062	8,247,026	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					63,322,657	7,270,290	
-	SP Pile Dia. 600mm	m	195.25	324,000	36,000	63,262,373	7,029,153	E-13
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				3,217,765	392,716	
2.	INDIRECT COST	15 % of DIRECT COST				10,135,959	1,237,054	
Total				77,709,022		9,484,080		
Unit Cost				397,989		48,573		446,562
Piling circle time for Dia 600 mm L= 12.0 m is =				29.5 min		16.3 pile		
8 hr/ 12 m *				16.3 min-pile =		195.3 m		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-8
 Description : Steel Sheet Pile 4 m Type II, Piling
 Unit : m²
 Quantity for Estimation : 91.44 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					26,814,039	3,731,310	
(1)	Construction Equipment					1,053,360	470,250	
-	Vibro Hammer 24ton	hrs	8.00	7,840	3,360	62,720	26,880	EQ36
-	Crawler Crane 50ton	hrs	8.00	102,620	43,980	820,960	351,840	EQ28
-	Diesel Engine Generator 100 KVA	hrs	6.00	28,280	12,120	169,680	72,720	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	18,810	0	18,810	
(2)	Labour					0	188,100	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	2.00	0	19,200	0	38,400	LA2
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	10.00	0	9,600	0	96,000	LA17
(3)	Construction Material					24,483,820	2,895,279	
-	Steel Sheet Type II	t	10.97	2,227,500	247,500	24,438,857	2,715,429	E-20
-	Diesel Oil	lit.	160.56	76	304	12,203	48,810	A-2
-	Gasoline	lit.	234.00	140	560	32,760	131,040	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,276,859	177,681	
2.	INDIRECT COST	15 % of DIRECT COST				4,022,106	559,697	
Total						30,836,144	4,291,007	
Unit Cost						337,228	46,927	384,155
Steel Sheet 48 kg/m				228.6 m x 48 kg/m / 1000 =	10.97 ton			
Piling circle time for Type II L= 4.0 m is =				8 hr/ 4 m *	8.4 min			
				8.4 min-pile =	57.1 pile			
				57.1 pile =	228.6 m =			91.44 m ²

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-9
 Description : PC Pile Dia. 300 mm, Type AB, L=12m, Piling (6 m)
 Unit : m
 Quantity for Estimation : 204.3 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	13,050	0	13,050	
(2)	Labour							
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	19,200	0	19,200	LA2
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material							
-	PC Pile Dia. 300mm	m	204.26	12,300	28,700	2,512,340	5,862,128	C-13
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				180,263	334,469	
2.	INDIRECT COST	15 % of DIRECT COST				567,829	1,053,577	
Total								
Unit Cost				4,353,357		8,077,421		
Piling circle time for Dia 300 mm L= 12.0 m is =				21,313		39,546		60,859
8 hr/ 12 m *				28.2 min		17.0 pile		
				28.2 min-pile =		17.0 pile		
				17.0 pile =		204.3 m		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-10
 Description : Steel Pipe Pile Dia. 400 mm, 25m, Piling, 2 joints and wedding
 Unit : m
 Quantity for Estimation : 151.1 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					35,139,006	4,643,242	
(1)	Construction Equipment					1,032,640	455,420	
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	12,860	0	12,860	
(2)	Labour					0	128,600	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator/Welder	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	6.00	0	9,600	0	57,600	LA17
(3)	Construction Material					32,433,080	3,838,115	
-	SP Pile Dia. 400mm	m	151.13	214,200	23,800	32,372,796	3,596,977	E-14
-	Diesel Oil	lit.	218.48	76	304	16,604	66,418	A-2
-	Gasoline	lit.	312.00	140	560	43,680	174,720	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,673,286	221,107	
2.	INDIRECT COST	15 % of DIRECT COST				5,270,851	696,486	
Total						40,409,857	5,339,728	
Unit Cost						267,379	35,331	302,710

Piling circle time for Dia 400 mm L= 25.0 m is =
 8 hr/ 25 m * 79.4 min-pile = 79.4 min
 6.0 pile = 6.0 pile
 151.1 m

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-11
 Description : Concrete Sheet Pile 5 m , Piling
 Unit : m²
 Quantity for Estimation : 120 m²
 W=0.995 m, t= 0.11m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					15,611,991	22,568,238	
(1)	Construction Equipment					1,053,360	470,250	
-	Vibro Hammer 24ton	hrs	8.00	7,840	3,360	62,720	26,880	EQ36
-	Crawler Crane 50ton	hrs	8.00	102,620	43,980	820,960	351,840	EQ28
-	Diesel Engine Generator 100 KVA	hrs	6.00	28,280	12,120	169,680	72,720	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	18,810	0	18,810	
(2)	Labour					0	188,100	
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	2.00	0	19,200	0	38,400	LA2
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	10.00	0	9,600	0	96,000	LA17
(3)	Construction Material					13,815,203	20,835,210	
-	Concrete Sheet Pile	m	240.00	57,376	86,064	13,770,240	20,655,360	C-31
-	Diesel Oil	lit.	160.56	76	304	12,203	48,810	A-2
-	Gasoline	lit.	234.00	140	560	32,760	131,040	A-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				743,428	1,074,678	
2.	INDIRECT COST	15 % of DIRECT COST				2,341,799	3,385,236	
Total				17,953,789		25,953,474		
Unit Cost				149,615		216,279		365,894
Piling circle time for Concrete sheet pile L= 5.0 m is =				10 min				
8 hr/				48.0 pile				
5 m "				240.0 m =	120 m ²			

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PD-12
 Description : RC Pile 400 x 400 mm, 15m, Piling
 Unit : m
 Quantity for Estimation : 180.5 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Diesel Pile Hammer 2.5t	hrs	8.00	19,950	8,550	159,600	68,400	EQ35
-	Crawler Crane 35 ton	hrs	8.00	80,850	34,650	646,800	277,200	EQ29
-	Diesel Engine Generator 100 KVA	hrs	8.00	28,280	12,120	226,240	96,960	EQ32
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00	0	16,700	0	16,700	
(2)	Labour							
-	Foreman	M/D	1.00	0	19,200	0	19,200	LA1
-	Operator	M/D	1.00	0	17,300	0	17,300	LA5
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	10.00	0	9,600	0	96,000	LA17
(3)	Construction Material							
-	Reinforced Concrete	m ³	28.80	189,823	244,718	5,527,190	7,289,015	
-	Diesel Oil	lit.	218.48	76	304	5,466,905	7,047,877	CN-9
-	Gasoline	lit.	312.00	140	560	16,604	66,418	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				43,680	174,720	A-1
						327,991	395,764	
2.	INDIRECT COST	15 % of DIRECT COST				1,033,173	1,246,656	
Total				7,920,994		9,557,694		
Unit Cost				43,896		52,966		96,861
Piling circle time for 400 mm x 400 mm L= 15.0 m is =				RC Concrete = 0.4 x 0.4 x 15 = 2.4 m ³				
8 hr/				39.9 min		2.4 m ³ x 12.0 pile = 28.8 m ³		
15.0m •				12.0 pile =		180.5 m		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-1
 Description : Supply and Planting Acacia Petandra until grow
 Unit : tree
 Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	252,868	
(1)	Construction Equipment					27,090	16,660	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25		19,200		4,800	LA1
-	Driver	M/D	0.38		14,400		5,400	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					1,417	173,667	
-	Acacia Petandra	tree	24.00	0		0	168,000	I-1
-	Oil	lit	18.64	76	7,000	1,417	5,667	A-2
-	Other materials of above materials	5 %			304	71	8,683	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	12,041	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	37,930	
Total						34,422	290,798	
Unit Cost						1,434	12,117	13,551
- Daily Production								
- 5 men/hr x 3 trees x 8 hr = 24 tree/day.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : PT-2
 Description : Supply and Planting Fillisium until grow
 Unit : tree
 Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	341,068	
(1)	Construction Equipment					27,090	16,660	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25		19,200		4,800	LA1
-	Driver	M/D	0.38		14,400		5,400	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					1,417	257,667	
-	Fillisium	tree	24.00	0		0	252,000	I-2
-	Oil	lit	18.64	76	10,500	1,417	5,667	A-2
-	Other materials of above materials	5 %			304	71	12,883	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	16,241	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	51,160	
Total						34,422	392,228	
Unit Cost						1,434	16,343	17,777
- Daily Production								
- 5 men/hr x 3 trees x 8 hr = 24 tree/day.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-3
Description : Supply and Planting Bougainvillea until grow
Unit : tree
Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25	0	19,200		4,800	LA1
-	Driver	M/D	0.38	0	14,400		5,400	LA6
-	Skilled Labour	M/D	1.00	0	11,500		11,500	LA16
-	Common Labour	M/D	3.00	0	9,600		28,800	LA17
(3)	Construction Material					1,417	125,667	
-	Bougainvillea	tree	24.00	0	5,000	0	120,000	I-3
-	Oil	lte	18.64	76	304	1,417	5,667	A-2
-	Other materials of above materials	5 %				71	6,283	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	9,641	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	30,370	
Total						34,422	232,838	
Unit Cost						1,434	9,702	11,136

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-4
 Description : Supply and Planting Cemara Kipas until grow
 Unit : tree
 Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Water Tanker	hrs	1.00	9,870	4,230	29,932	958,468	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	27,090	16,660	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25	0	19,200		4,800	LA1
-	Driver	M/D	0.38	0	14,400		5,400	LA6
-	Skilled Labour	M/D	1.00	0	11,500		11,500	LA16
-	Common Labour	M/D	3.00	0	9,600		28,800	LA17
(3)	Construction Material					1,417	845,667	
-	Cemara Kipas	tree	24.00	0	35,000	0	840,000	I-4
-	Oil	lte	18.64	76	304	1,417	5,667	A-2
-	Other materials of above materials	5 %				71	42,283	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	45,641	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	143,770	
Total				34,422		1,102,238		
Unit Cost				1,434		45,927		47,361

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-5
Description : Supply and Planting Cemara Lilin until grow
Unit : tree
Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	958,468	
(1)	Construction Equipment					27,090	16,660	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25		19,200		4,800	LA1
-	Driver	M/D	0.38		14,400		5,400	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					1,417	845,667	
-	Cinella Lilin	tree	24.00	0		0	840,000	I-5
-	Oil	lit	18.64	76	35,000	1,417	5,667	A-2
-	Other materials of above materials	5 %			304	71	42,283	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	45,641	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	143,770	
Total						34,422	1,102,238	
Unit Cost						1,434	45,927	47,361
- Daily Production								
- 3 men/hr x 3 trees x 8 hr = 24 tree/day.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-6
Description : Supply and Planting Palembang Hijiaw until grow
Unit : tree
Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	454,468	
(1)	Construction Equipment					27,090	16,660	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25	0	19,200		4,800	LA1
-	Driver	M/D	0.38	0	14,400		5,400	LA6
-	Skilled Labour	M/D	1.00	0	11,500		11,500	LA16
-	Common Labour	M/D	3.00	0	9,600		28,800	LA17
(3)	Construction Material					1,417	365,667	
-	Tanjung	tree	24.00	0	15,000	0	360,000	I-6
-	Oil	lit	18.64	76	304	1,417	5,667	A-2
-	Other materials of above materials	5 %				71	18,283	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	21,641	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	68,170	
Total						34,422	522,638	
Unit Cost						1,434	21,777	
- Daily Production								23,211
- 5 men/hr x 3 trees x 8 hr = 24 tree/day.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-7
Description : Supply and Planting Tanjung until grow
Unit : tree
Quantity for Estimation : 24.0 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	341,068	
(1)	Construction Equipment					27,090	16,660	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	5,050	
(2)	Labour					0	50,500	
-	Foreman	M/D	0.25		19,200		4,800	LA1
-	Driver	M/D	0.38		14,400		5,400	LA6
-	Skilled Labour	M/D	1.00		11,500		11,500	LA16
-	Common Labour	M/D	3.00		9,600		28,800	LA17
(3)	Construction Material					1,417	257,667	
-	Palem Raja	tree	24.00	0		0	252,000	1-7
-	Oil	lit	18.64	76	304	1,417	5,667	A-2
-	Other materials of above materials	5 %				71	12,883	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	16,241	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	51,160	
Total								
Unit Cost						34,422	392,228	
- Daily Production						1,434	16,343	17,777
- 5 men/hr x 3 trees x 8 hr = 24 tree/day.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : PT-8
Description : Supply and Planting Cendrawasih/Tawain lila until grow
Unit : tree
Quantity for Estimation : 5,000 tree

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					29,932	1,096,648	
(1)	Construction Equipment					27,090	57,260	
-	Water Tanker	hrs	1.00	9,870	4,230	9,870	4,230	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	17,220	7,380	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00			0	45,650	
(2)	Labour					0	456,500	
-	Foreman	M/D	0.50	0	19,200		9,600	LA1
-	Driver	M/D	0.38	0	14,400		5,400	LA6
-	Skilled Labour	M/D	5.00	0	11,500		57,500	LA16
-	Common Labour	M/D	40.00	0	9,600		384,000	LA17
(3)	Construction Material					1,417	530,667	
-	Cendrawasih/Tawain Lila	tree	5,000	0		0	525,000	I-8
-	Oil	lit	18.64	76	304	1,417	5,667	A-2
-	Other materials of above materials	5 %				71	26,533	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	52,221	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	164,497	
Total						34,422	1,261,145	
Unit Cost						7	252	259

Number of tree = 20 m2 per person / day, 20m2 / 0.16m2 = 125 tree / day

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-9
 Description : Supply and Planting Soka until grow
 Unit : tree
 Quantity for Estimation : 5,000 tree

Item	Description	unit	Quantity	Unit Cost			Reference
				F.C. (Rp.)	L.C. (Rp.)	Amount	
1.	DIRECT COST						
(1)	Construction Equipment						
-	Water Tanker	hrs	1.00	9,870	4,230	29,932	EQ20
-	Ordinary Truck, 4 ton	hrs	2.00	8,610	3,690	27,090	EQ11
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00	0	0	0	
(2)	Labour						
-	Foreman	M/D	0.50	0	19,200	0	LA1
-	Driver	M/D	0.38	0	14,400	0	LA6
-	Skilled Labour	M/D	5.00	0	11,500	0	LA16
-	Common Labour	M/D	40.00	0	9,600	0	LA17
(3)	Construction Material						
-	Soka	tree	5,000	0	250	1,417	1-9
-	Oil	lit	18.64	76	304	0	A-2
-	Other materials of above materials	5 %				1,417	
-						71	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,425	
2.	INDIRECT COST	15 % of DIRECT COST				4,490	
							278,685
Total							2,136,583
Unit Cost							427
Number of tree = 20 m2 per person / day, 20m2 / 0.16m2 = 125 tree / day							434

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : PT-10
 Description : Filling of Fertilized Soil
 Unit : kg
 Quantity for Estimation : 75 kg

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Construction Equipment							
-	Ordinary Truck, 4 ton	hrs	4.00			38,499	276,193	
-	Minor Tools (10 % of Labour Cost)	L.S.	1.00	8,610	3,690	34,440	14,760	EQ11
						0	13,580	
(2)	Labour					0	135,800	
-	Foreman	M/D	0.50	0	19,200		9,600	LA1
-	Driver	M/D	0.50	0	14,400		7,200	LA6
-	Skilled Labour	M/D	2.00	0	11,500		23,000	LA16
-	Common Labour	M/D	10.00	0	9,600		96,000	LA17
(3)	Construction Material					2,225	98,901	
-	Fertilized Soil	kg	75.00	0	1,200	0	90,000	1-10
-	Oil	lit	29.28	76	304	2,225	8,901	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,833	13,152	
2.	INDIRECT COST	15 % of DIRECT COST				5,775	41,429	
Total						44,273	317,622	
Unit Cost						590	4,235	4,825

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MEC****

Reference No. : RU-1
Description : Inflatable Rubber-made Dam including Anchoring, Machine etc.
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					1,250,459,910	451,437	
(1)	Construction Equipment					214,200	122,540	
-	Truck with Crane, 4 t	hrs	15.00	9,030	3,870	135,450	58,050	EQ15
-	Welding Machine	hrs	15.00	5,250	2,250	78,750	33,750	EQ48
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00				30,740	
(2)	Labour					0	307,400	
-	Foreman	M/D	5.00	0	19,200	0	96,000	LA1
-	Welder	M/D	5.00	0	17,300	0	86,500	LA5
-	Operator	M/D	2.00	0	19,200	0	38,400	LA2
-	Mechanic	M/D	5.00	0	17,300	0	86,500	LA4
-	Skilled Labour	M/D	3.00	0	11,500	0	34,500	LA16
-	Common Labour	M/D	25.00	0	9,600	0	240,000	LA17
(3)	Construction Material					1,190,700,000	0	
-	Rubber Body	L.S.	1.00	595,350,000	0	595,350,000	0	H-1
-	Fixing Materials	L.S.	1.00	529,200,000	0	529,200,000	0	H-2
-	Spare and Pipeline	L.S.	1.00	66,150,000	0	66,150,000	0	H-3
-	Operation Equipment	L.S.	1.00	132,300,000	0	132,300,000	0	H-4
(4)	Miscellaneous Cost;	5 % of (1) to (3)				59,545,710	21,497	
2.	INDIRECT COST	15 % of DIRECT COST				187,568,987	67,716	
Total								
						1,438,028,897	519,153	
Unit Cost						1,438,028,897	519,153	1,438,548,049
Install for main body (transport) 5 days x 3hr = 15 hr								
Install for Machine assume 5 days								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : RU-2
 Description : Control House, 40 m2
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					7,116,090	7,906,974	
(1)	Construction Equipment					214,200	154,190	
-	Truck with Crane, 4 t	hrs	15.00	9,030	3,870	135,450	58,050	EQ15
-	Welding Machine	hrs	15.00	5,250	2,250	78,750	33,750	EQ48
-	Minor Tools, (10% of Labour Cost)	L.S.	1.00				62,390	
(2)	Labour					0	623,900	
-	Foreman	M/D	2.00		19,200	0	38,400	LA1
-	Carpenter	M/D	5.00		17,300	0	86,500	LA8
-	Skilled Labour	M/D	10.00		11,500	0	115,000	LA16
-	Common Labour	M/D	40.00		9,600	0	384,000	LA17
(3)	Construction Material					6,563,029	6,752,361	
-	Water Proofing Coat	m ²	105.0	10,200	10,200	1,071,000	1,071,000	J-10
-	Concrete Type C1	m ³	13.5	63,360	95,040	855,360	1,283,040	C-8
-	Concrete Type E	m ³	7.0	53,440	80,160	374,080	561,120	C-11
-	Re-bar	kg	400.0	1,485	165	594,000	66,000	E-1
-	Brick	pc	2,500.0	10	90	25,000	225,000	J-2
-	Gravel	m ³	14.0	2,000	18,000	28,000	252,000	B-5
-	Fence	m	34.0	82,320	20,580	2,798,880	699,720	E-26
-	Door, Fly Mesh...	nos	1.0	12,320	110,880	12,320	110,880	D-5
-	Window with Accessory	m ²	5.0	4,000	36,000	20,000	180,000	J-8
-	Roof Tile	m ²	40.0	1,850	16,650	74,000	666,000	J-6
-	Wall Tile	m ²	65.0	1,750	15,750	113,750	1,023,750	J-4
-	Other Materials 10 % of above	L.S.	1.0			596,639	613,851	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				338,861	376,523	
2.	INDIRECT COST	15 % of DIRECT COST				1,067,414	1,186,046	
Total						8,183,504	9,093,020	
Unit Cost						8,183,504	9,093,020	17,276,524
Construction of control house (transport) 5 days x 3hr = 15 hr								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : RU-3
 Description : Steel Girder for Inspection Bridge
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	Work Item							
(1)	Structure Steel	kg	32,666	3,594	7,457	117,415,507	243,581,710	MT-6
(2)	Bearing Pad, 406 x 280 x 67	nos.	4	210,558	313,558	842,231	1,254,232	BD-1
(3)	other miscellaneous works (5 % of above)					5,912,887	12,241,797	
Total				124,170,626		257,077,739		
Unit Cost				124,170,626		257,077,739		381,248,365

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-1
 Description : Coffering, per 10 m
 Unit : m
 Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					134,546	1,175,466	
(1)	Equipment					18,942	8,118	
-	Ordinary Truck	hr	2	8,610	3,690	17,220	7,380	EQ11
-	Other Equipment Cost of Above (10 %)	L.S.	1			1,722	738	
(2)	Labour						128,600	
-	Foreman	M/D	0.5		19,200		9,600	LA1
-	Skill Labour	M/D	2		11,500		23,000	LA16
-	Common Labour	M/D	10		9,600		96,000	LA17
(3)	Materials					109,197	982,773	
-	Plywood	m ²	25	1,400	12,600	35,000	315,000	D-4
-	Timber	m ³	0.3	37,500	337,500	11,250	101,250	D-3
-	Soil	m ³	43.2	1,100	9,900	47,520	427,680	B-2
-	Log pile Dia. 100 mm	m	50	110		5,500	49,500	D-2
-	Other materials (10 %) of above Cost	L.S.	1			9,927	89,343	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				6,407	55,975	
2.	INDIRECT COST	15 % of DIRECT COST				20,182	176,320	
Total				154,728		1,351,785		
Unit Cost				15,473		135,179		150,651

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-2
 Description : Dewatering, Type A, (2.5 m³ /min)
 Unit : set
 Quantity for Estimation : 1 set
 for four (4) hours working per day

Item	Description	unit	Quantity	Unit Cost		Amount		Reference	
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)		
1.	DIRECT COST					47,077	50,022		
(1)	Equipment					42,252	18,108		
-	Diesel Engine Generator, 15KVA	hr	4	5,880	2,520	23,520	10,080	EQ34	
-	Submerged Pump, 7.5 kw, 1 set	hr	4	2,450	1,050	9,800	4,200	EQ46	
-	Submerged Pump, 0.75 kw, 1set	hr	4	1,400	600	5,600	2,400	EQ47	
-	Other Equipment Cost	L.S.	1			3,332	1,428		
	of Above(10 %)								
(2)	Labour						19,200		
-	Common Labour	M/D	2		9,600		19,200	LA17	
(3)	Materials					2,583	10,332		
-	Diesel Oil	lte.	34.0	76	304	2,583	10,332	A-2	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				2,242	2,382		
2.	INDIRECT COST	15 % of DIRECT COST				7,062	7,503		
Total								54,138	57,525
Unit Cost								54,138	57,525
									111,663
Sumerged Pump 7.5 kw, Dia. 150 mm, 2 m ³ /min per set									
Sumerged Pump 0.75 kw, Dia. 50 mm, 0.5 m ³ /min per set									

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : OT-3
 Description : Dewatering, Type B, (6.5 m³/min)
 Unit : set
 Quantity for Estimation : 1 set
 for four (4) hours working per day

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Equipment							
-	Diesel Engine Generator, 35KVA	hr	4	10,570	4,530	42,280	18,120	EQ33
-	Submerged Pump, 7.5 kw, 3 set	hr	12	2,450	1,050	29,400	12,600	EQ46
-	Submerged Pump, 0.75 kw, 1set	hr	4	1,400	600	5,600	2,400	EQ47
-	Other Equipment Cost	L.S.	1			7,168	3,072	
	of Above(10 %)							
(2)	Labour							
-	Common Labour	M/D	2		17,300		34,600	LA3
(3)	Materials							
-	Diesel Oil	lit.	48.5	76	304	3,686	14,746	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,407	4,277	
2.	INDIRECT COST	15 % of DIRECT COST				13,881	13,472	
Total						106,422	103,287	
Unit Cost						106,422	103,287	209,709

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : OT-4
 Description : Demolition and Removal of Existing Structures
 Unit : m³
 Quantity for Estimation : 100 m³
 Type A, (more than 50 m³)

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					586,116	508,855	
(1)	Equipment					530,880	227,520	
-	Concrete Breaker, 600 kg	hr	8	20,370	8,730	162,960	69,840	EQ44
-	Back hoe, 0.6 m ³	hr	8	45,990	19,710	367,920	157,680	EQ5
-	Dump Truck, 6 ton	hr	16	11,550	4,950	184,800	79,200	EQ10
(2)	Labour						147,800	
-	Foreman	M/D	1		19,200		19,200	LA1
-	Operator	M/D	2		19,200		38,400	LA2
-	Diver	M/D	2		14,400		28,800	LA6
-	Skill Labour	M/D	2		11,500		23,000	LA16
-	Common Labour	M/D	4		9,600		38,400	LA17
(3)	Materials					27,326	109,304	
-	Diesel Oil	lit.	359.6	76	304	27,326	109,304	A-2
(3)	Miscellaneous Cost;	5 % of (1) to (2)				27,910	24,231	
2.	INDIRECT COST	15 % of DIRECT COST				87,917	76,328	
3.	Removal of Existing Structure 40 % of 1.	L.S.	1			269,613	234,073	
Total						943,647	819,257	
Unit Cost						9,436	8,193	17,629
Hauling distance within 500 m.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : OT-5
 Description : Demolition and Removal of Existing Structures
 Unit : m³
 Quantity for Estimation : 25 m³
 Type B, (less than 50 m³)

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					237,855	254,953	
(1)	Equipment					217,700	93,300	
-	Pneumatic Hand Breaker	hr	6	1,400	600	8,400	3,600	EQ45
-	Back hoe, 0.4 m ³	hr	2	30,100	12,900	60,200	25,800	EQ6
-	Dump Truck, 6 ton	hr	4	11,550	4,950	46,200	19,800	EQ10
-	Ordinary Truck	hr	4	8,610	3,690	34,440	14,760	EQ11
-	Engine Compressor, 3.5 m ³ /min	hr	6	11,410	4,890	68,460	29,340	EQ31
(2)	Labour						114,200	
-	Foreman	M/D	1		19,200		19,200	LA1
-	Operator	M/D	1		19,200		19,200	LA2
-	Diver	M/D	1		14,400		14,400	LA6
-	Skill Labour	M/D	2		11,500		23,000	LA16
-	Common Labour	M/D	4		9,600		38,400	LA17
(3)	Materials					8,828	35,313	
-	Diesel Oil	lit.	116.2	76	304	8,828	35,313	A-2
(4)	Miscellaneous Cost;	5 % of (1) to (2)				11,326	12,141	
2.	INDIRECT COST	15 % of DIRECT COST				35,678	38,243	
3.	Removal of Existing Structure 40 % of 1.	L.S.	1			109,413	117,279	
Total						382,946	410,475	
Unit Cost						15,318	16,419	31,737
Hauling distance within 500 m.								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-6
 Description : Palm Fiber Filter, 20 mm thick
 Unit : m²
 Quantity for Estimation : 45 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST							
(1)	Labour							
-	Skilled Labour	M/D	1		11,500		11,500	LA16
-	Common Labour	M/D	3		9,600		28,800	LA17
(2)	Construction Material							
-	Palm Fiber	m ²	45	2,000	18,000		810,000	J-1
-	Other materials cost of above 5 %	L.S.				4,500	40,500	
(3)	Miscellaneous Cost;	5 % of (1) to (2)				4,725	44,540	
2.	INDIRECT COST	15 % of DIRECT COST				14,884	140,301	
						114,109	1,075,641	
Total						2,536	23,903	26,439
Unit Cost								
15 m ² per man per days								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-7
 Description : Furnish Water Level Staff Gauge, Type A (attach to the concrete)
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					85,545	215,921	
(1)	Equipment					9,471	4,059	
-	Ordinary Truck	hr	1	8,610	3,690	8,610	3,690	EQ11
-	Other Equipment Cost (10 %)	L.S.	1			861	369	
(2)	Installation						33,580	
-	Skilled Labour	M/D	1		11,500		11,500	LA16
-	Common Labour	M/D	2		9,600		19,200	LA17
-	Diver	M/D	0.2		14,400		2,880	LA6
(3)	Material and Tools					72,000	168,000	
-	Staff Gauge	nos.	1	60,000	140,000	60,000	140,000	J-11
-	Miscellaneous materials (20 % of above)	L.S.	1			12,000	28,000	E-3
(4)	Miscellaneous Cost;	5 % of (1) to (3)				4,074	10,282	
2.	INDIRECT COST	15 % of DIRECT COST				12,832	32,388	
Total						98,376	248,309	
Unit Cost						98,376	248,309	346,685

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : OT-8
Description : Furnish Water Level Staff Gauge, Type B (attach to the steel)
Unit : L.S.
Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					464,288	244,305	
(1)	Equipment					19,866	8,514	
-	Truck with Crane, 4ton	hr	2					
-	Other Equipment Cost	L.S.	1	9,030	3,870	18,060	7,740	EQ15
	(10 %)					1,806	774	
(2)	Installation						43,900	
-	Skilled Labour	M/D	1		11,500		11,500	LA16
-	Common Labour	M/D	3		9,600		28,800	LA17
-	Diver	M/D	0.25		14,400		3,600	LA6
(3)	Material and Tools					422,313	180,257	
-	Staff Gauge	nos.	1					
-	Miscellaneous Steel	kg	127.8	60,000	140,000	60,000	140,000	J-11
-	Other Materials	L.S.	1	2,835	315	362,313	40,257	E-3
	(10 % of Above)					42,231	18,026	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				22,109	11,634	
2.	INDIRECT COST	15 % of DIRECT COST				69,643	36,646	
Total						533,931	280,950	
Unit Cost						533,931	280,950	814,881
Steel I= 200 x 200 X 10, 6.0 m								

Reference No.	:	OT-9
Description	:	Observation House with Install (without machine cost)
Unit	:	pc.
Quantity for Estimation	:	1 pc.

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-10
 Description : Well with brick wall, 10 m
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					151,410	1,030,680	
(1)	Construction Equipment					-	23,800	
-	Other Equipment (20 % of Labour cost)					-	23,800	
(2)	Labour						119,000	
-	Foreman	M/D	1		19,200		19,200	LA2
-	Skilled Labour	M/D	2		11,500		23,000	LA16
-	Common Labour	M/D	8		9,600		76,800	LA17
(3)	Construction Material					144,200	838,800	
-	Brick Block	pc	8,300	10	90	83,000	747,000	J-2
-	Cement	bag	18	3,400	5,100	61,200	91,800	C-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)				7,210	49,080	
2.	INDIRECT COST	15 % of DIRECT COST				22,712	154,602	
3.	Excavation(common)	m ³	25	2,876	1,841	71,906	46,028	EW-2
Total							246,028	1,231,310
Unit Cost							246,028	1,231,310
								1,477,337

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-11
 Description : Concrete Block Pavement for Landing Stage
 Unit : m²
 Quantity for Estimation : 10 m²

Item	Description	unit	Quantity	Unit Cost			Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)		L.C. (Rp.)	
1.	DIRECT COST						9,659	148,324	
(1)	Construction Equipment						-	16,120	
-	Other Equipment (20 % of Labour cost)						-	16,120	
(2)	Labour							80,600	
-	Foreman	M/D	1		19,200			19,200	LA2
-	Skilled Labour	M/D	2		11,500			23,000	LA16
-	Common Labour	M/D	4		9,600			38,400	LA17
(3)	Construction Material						9,199	44,541	
-	Brick Block	pc	400		90		4,000	36,000	J-2
-	Cement	bag	1.5		5,100		5,100	7,650	C-1
-	Sand	m ³	0.075		11,880		99	891	B-1
(4)	Miscellaneous Cost;	5 % of (1) to (3)					460	7,063	
2.	INDIRECT COST	15 % of DIRECT COST					1,449	22,249	
								11,108	170,573
Total								1,111	18,168
Unit Cost								17,057	

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-12
 Description : Mooring Post, Block Type
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Construction cost					8,924	11,717	
-	Concrete C2	m ³	0.0126	75,600	113,400			CN-26
-	Re-Bar	kg	3.524	1,954	427	953	1,429	CN-5
-	Form, FW1	m ²	0.252	4,300	34,861	6,887	1,504	CN-3
						1,084	8,785	
(2)	Miscellaneous Cost;	5 % of (1) to (3)				446	586	
Total						9,370	12,303	
Unit Cost						9,370	12,303	21,673

Reference No.	:	OT-13
Description	:	Mooring Post, Pile Type, L= 7.0 m, Dia. 200 *200 mm
Unit	:	nos.
Quantity for Estimation	:	1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount	Reference
				F.C. (Rp.)	L.C. (Rp.)		
1.							
(1)	Construction cost					142,519	141,978
-	RC Pile	m	7.0	20,360	20,283	142,519	141,978
(2)	Miscellaneous Cost;	15 % of (1) to (3)				21,378	21,297
							PD-6
Total						163,897	163,275
Unit Cost						163,897	163,275
							327,172

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-14
 Description : Name Plate
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					5,040	69,539	
(1)	Construction Equipment					-	3,838	
-	Other Equipment (20 % of Labour cost)					-	3,838	
(2)	Labour						19,190	
-	Foreman	M/D	0.2		19,200		3,840	LA2
-	Skilled Labour	M/D	0.5		11,500		5,750	LA16
-	Common Labour	M/D	1		9,600		9,600	LA17
(3)	Construction Material					4,800	43,200	
-	Name Plate (marble)	m ²	0.12	40,000	360,000	4,800	43,200	J-23
-								
(4)	Miscellaneous Cost;	5 % of (1) to (3)				240	3,311	
2.	INDIRECT COST	15 % of DIRECT COST				756	10,431	
Total						5,796	79,970	
Unit Cost						5,796	79,970	85,766

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-15
 Description : Maintenance Marker Post
 Unit : nos.
 Quantity for Estimation : 10 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					273,000	453,033	
(1)	Construction Equipment					-	6,910	
-	Other Equipment (20 % of Labour cost)					-	6,910	
(2)	Labour						34,550	
-	Foreman	M/D	0.5		19,200		9,600	LA2
-	Skilled Labour	M/D	0.5		11,500		5,750	LA16
-	Common Labour	M/D	2		9,600		19,200	LA17
(3)	Construction Material					260,000	390,000	
-	Marker Post	nos.	10.00	26,000	39,000	260,000	390,000	J-20
(4)	Miscellaneous Cost;	5 % of (1) to (3)				13,000	21,573	
2.	INDIRECT COST	15 % of DIRECT COST				40,950	67,955	
Total				313,950		520,988		
Unit Cost				31,395		52,099		83,494

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-16
Description : Roofed Bench
Unit : nos.
Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					37,464	308,663	
(1)	Construction Equipment					-	14,200	
-	Other Equipment (20 % of Labour cost)					-	14,200	
(2)	Labour						71,000	
-	Foreman	M/D	0.5		19,200		9,600	LA2
-	Skilled Labour	M/D	2		11,500		23,000	LA16
-	Common Labour	M/D	4		9,600		38,400	LA17
(3)	Construction Material					35,680	208,764	
-	Timber	m ³	0.20	37,500	337,500	7,500	67,500	D-3
-	Anchor	kg	8.512	1,485	165	12,640	1,404	E-2
-	Roof Tile	m ²	8.4	1,850	16,650	15,540	139,860	J-6
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,784	14,698	
2.	INDIRECT COST	15 % of DIRECT COST				5,620	46,299	
Total						43,084	354,962	
Unit Cost						43,084	354,962	398,046

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-17
 Description : Information Board
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Excavation	m ³	1.44	2,876	1,841	4,142	2,651	EW-2
(2)	Backfill with Selected Soil	m ³	1.18	2,931	3,203	3,459	3,780	EW-9
(3)	Crusher Run Bedding	m ³	0.08	7,270	47,207	582	3,777	MS-1
(4)	Concrete, Type D	m ³	0.17	72,850	109,275	12,385	18,577	CN-23
(5)	Concrete, Type C2	m ³	0.17	75,600	113,400	12,852	19,278	CN-26
(6)	Reinforcing Steel Bar	kg	46.82	1,954	427	91,507	19,979	CN-5
(7)	Formwork, FW1	m ²	5.88	4,300	34,861	25,285	204,981	CN-3
(8)	Steel Plate	kg	9.62	2,445	1,994	23,523	19,178	MT-5
(9)	Panting	m ²	4.01	906	9,489	3,632	38,050	OT-18

Total	177,366	330,251
Unit Cost	177,366	330,251
		507,617

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-18
 Description : Painting
 Unit : m²
 Quantity for Estimation : 20 m²

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					15,750	165,023	
(1)	Construction Equipment					-	2,015	
-	Other Equipment (10 % of Labour cost)					-	2,015	
(2)	Labour						20,150	
-	Foreman	M/D	0.25		19,200		4,800	LA2
-	Skilled Labour	M/D	0.5		11,500		5,750	LA16
-	Common Labour	M/D	1		9,600		9,600	LA17
(3)	Construction Material					15,000	135,000	
-	Paint	m ³	20.00	750	6,750	15,000	135,000	J-7
(4)	Miscellaneous Cost;	5 % of (1) to (3)				750	7,858	
2.	INDIRECT COST	15 % of DIRECT COST				2,363	24,753	
Total						18,113	189,777	
Unit Cost						906	9,489	10,394

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-19
 Description : Surface Caulking, 15 mm x 15 mm
 Unit : m
 Quantity for Estimation : 10 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					7,056	39,390	
(1)	Construction Equipment					-	2,494	
-	Other Equipment (10 % of Labour cost)					-	2,494	
(2)	Labour						24,940	
-	Foreman	M/D	0.2		19,200		3,840	LA2
-	Skilled Labour	M/D	1		11,500		11,500	LA16
-	Common Labour	M/D	1		9,600		9,600	LA17
(3)	Construction Material					6,720	10,080	
-	Asphalt Caulking	m ³	20.00	320	480	6,400	9,600	C-2
-	Misc. Materials	5%				320	480	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				336	1,876	
2.	INDIRECT COST	15 % of DIRECT COST				1,058	5,908	
						8,114	45,298	
Total						811	4,530	5,341
Unit Cost								

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-20
 Description : Concrete Drain Ditch U - 300 mm x 300 mm
 Unit : m
 Quantity for Estimation : 1 m

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Concrete, Type C2	m ³	0.12	75,600	113,400	9,072	13,608	CN-26
(2)	Sand Bedding	m ³	0.03	2,931	3,203	88	96	EW-9
(3)	Reinforcing Steel Bar	kg	10	1,954	427	19,544	4,267	CN-5
(4)	Formwork, FW1	m ²	1.4	4,300	34,861	6,020	48,805	CN-3

Total	34,725	66,776
Unit Cost	34,725	66,776
		101,501

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-21
 Description : Foundation Improvement with Cement
 Unit : m³
 Quantity for Estimation : 4 m³

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.	DIRECT COST					26,240	123,605	
(1)	Construction Equipment					-	7,294	
-	Other Equipment (10 % of Labour cost)					-	7,294	
(2)	Labour						72,940	
-	Foreman	M/D	0.2		19,200		3,840	LA2
-	Skilled Labour	M/D	1		11,500		11,500	LA16
-	Common Labour	M/D	6		9,600		57,600	LA17
(3)	Construction Material					24,990	37,485	
-	Cement	bag	7.00		5,100	23,800	35,700	C-1
-	Misc. Materials	5%		3,400		1,190	1,785	
(4)	Miscellaneous Cost;	5 % of (1) to (3)				1,250	5,886	
2.	INDIRECT COST	15 % of DIRECT COST				3,936	18,541	
Total						30,175	142,146	
Unit Cost						7,544	35,536	43,080

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC****

Reference No. : OT-22
 Description : Temporary Channel
 Unit : nos.
 Quantity for Estimation : 1 nos.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Excavation	m ³	23,241	2,876	1,841	66,846,984	42,789,084	EW-2
(2)	Gabion Mattress	m ³	1,353	85,210	47,689	115,289,225	64,523,737	MS-6
(3)	Coffering	m	330	15,473	135,179	5,106,019	44,608,918	OT-1
(4)	Embankment	m ³	25,566	3,022	2,286	77,247,915	58,450,040	EW-7

Total	264,490,143	210,371,778
Unit Cost	264,490,143	210,371,778
		474,861,921

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : OT-23
 Description : Installation of Railway
 Unit : LS
 Quantity for Estimation : 1 LS

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
1.								
(1)	Installation of Railway	m	64	-	2,400,000	-	153,600,000	

Total	0	153,600,000	
Unit Cost	0	153,600,000	153,600,000

Reference No.	:	BDP-1-1
Description	:	Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
Unit	:	L.S.
Quantity for Estimate:	:	1 L.S.

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-1-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge P-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	165.81	339,200	339,200	56,242,752	56,242,752	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 8,436,413 8,436,413

Total	64,679,165	64,679,165
Unit Cost	64,679,165	129,358,330

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP1-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	35.83	280,000	280,000	10,032,400	10,032,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,504,860 1,504,860

Total	11,537,260	11,537,260
Unit Cost	11,537,260	23,074,520

Quantity for Estimatic:

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-2-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-2

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	12.71	339,200	339,200	4,311,232	4,311,232	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 646,685 646,685

Total	4,957,917	4,957,917
Unit Cost	4,957,917	9,915,834

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP2-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-2

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	44.23	280,000	280,000	12,384,400	12,384,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,857,660 1,857,660

Total	14,242,060	14,242,060
Unit Cost	14,242,060	28,484,120

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-3-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m'	195.26	673,600	1,010,400	131,527,136	197,290,704	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 19,729,070 29,593,606

Total	151,256,206	226,884,310
Unit Cost	151,256,206	226,884,310
		378,140,516

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-3-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	5.70	339,200	339,200	1,933,440	1,933,440	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 290,016 290,016

Total	2,223,456	2,223,456
Unit Cost	2,223,456	4,446,912

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP3-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	23.88	280,000	280,000	6,686,400	6,686,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,002,960 1,002,960

Total	7,689,360	7,689,360
Unit Cost	7,689,360	15,378,720

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-S-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-5

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m'	179.76	673,600	1,010,400	121,086,336	181,629,504	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 18,162,950 27,244,426

Total	139,249,286	208,873,930
Unit Cost	139,249,286	208,873,930
		348,123,216

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-5-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-5

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	3.37	339,200	339,200	1,143,104	1,143,104	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 171,466 171,466

Total	1,314,570	1,314,570
Unit Cost	1,314,570	2,629,139

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP5-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation: 1 L.S.
 For Bridge P-5

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	16.8	280,000	280,000	4,704,000	4,704,000	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 705,600 705,600

Total	5,409,600	5,409,600
Unit Cost	5,409,600	10,819,200

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-6-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-6

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	29.96	673,600	1,010,400	20,181,056	30,271,584	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 3,027,158 4,540,738

Total	23,208,214	34,812,322
Unit Cost	23,208,214	34,812,322
		58,020,536

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-7-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-7

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	209.72	673,600	1,010,400	141,267,392	211,901,088	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 21,190,109 31,785,163

Total	162,457,501	243,686,251
Unit Cost	162,457,501	243,686,251
		406,143,752

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-7-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation: 1 L.S.
 For Bridge P-7

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	4.32	339,200	339,200	1,465,344	1,465,344	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 219,802 219,802

Total	1,685,146	1,685,146
Unit Cost	1,685,146	3,370,291

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP7-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-7

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	21.84	280,000	280,000	6,115,200	6,115,200	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 917,280 917,280

Total	7,032,480	7,032,480
Unit Cost	7,032,480	14,064,960

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-9-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate : 1 L.S.
 For Bridge P-9

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	

(1)	PC Concrete Type A	m'	359.52	673,600	1,010,400	242,172,672	363,259,008	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 36,325,901 54,488,851

Total	278,498,573	417,747,859
Unit Cost	278,498,573	417,747,859
		696,246,432

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-9-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate : 1 L.S.
 For Bridge P-9

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	7.92	339,200	339,200	2,686,464	2,686,464	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 402,970 402,970

Total	3,089,434	3,089,434
Unit Cost	3,089,434	6,178,867

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP9-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate : 1 L.S.
 For Bridge P-9

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	

(1)	PC Concrete Type A	m ³	40.04	280,000	280,000	11,211,200	11,211,200	C-33

2.	INDIRECT COST	15 % of DIRECT COST (1)				1,681,680	1,681,680	

Total						12,892,880	12,892,880	
Unit Cost						12,892,880	12,892,880	25,785,760

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-11-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-11

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	359.52	673,600	1,010,400	242,172,672	363,259,008	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 36,325,901 54,488,851

Total	278,498,573	417,747,859
Unit Cost	278,498,573	417,747,859
		696,246,432

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-11-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate : 1 L.S.
 For Bridge P-11

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	

(1)	PC Concrete Type A	m ²	7.92	339,200	339,200	2,686,464	2,686,464	C-34

2.	INDIRECT COST	15 % of DIRECT COST (1)				402,970	402,970	

Total						3,089,434	3,089,434	
Unit Cost						3,089,434	3,089,434	6,178,867

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP11-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimating : 1 L.S.
 For Bridge P-11

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	40.04	280,000	280,000	11,211,200	11,211,200	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,681,680 1,681,680

Total	12,892,880	12,892,880
Unit Cost	12,892,880	25,785,760

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-13-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-13

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m'	359.52	673,600	1,010,400	242,172,672	363,259,008	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 36,325,901 54,488,851

Total	278,498,573	417,747,859
Unit Cost	278,498,573	417,747,859
		696,246,432

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP-13-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-13

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ²	7.92	339,200	339,200	2,686,464	2,686,464	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 402,970 402,970

Total	3,089,434	3,089,434
Unit Cost	3,089,434	6,178,867

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDP13-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimate: 1 L.S.
 For Bridge P-13

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	

(1)	PC Concrete Type A	m ²	40.04	280,000	280,000	11,211,200	11,211,200	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,681,680 1,681,680

Total	12,892,880	12,892,880
Unit Cost	12,892,880	25,785,760

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-1-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge F-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	82.08	673,600	1,010,400	55,289,088	82,933,632	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 8,293,363 12,440,045

Total	63,582,451	95,373,677
Unit Cost	63,582,451	95,373,677
		158,956,128

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-1-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	4.80	339,200	339,200	1,628,160	1,628,160	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 244,224 244,224

Total	1,872,384	1,872,384
Unit Cost	1,872,384	1,872,384
		3,744,768

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF1-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge F-1

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	13.63	280,000	280,000	3,816,400	3,816,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 572,460 572,460

Total	4,388,860	4,388,860
Unit Cost	4,388,860	8,777,720

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-2-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	98.50	673,600	1,010,400	66,349,600	99,524,400	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 9,952,440 14,928,660

Total	76,302,040	114,453,060
Unit Cost	76,302,040	114,453,060
		190,755,100

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-2-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	6.25	339,200	339,200	2,120,000	2,120,000	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 318,000 318,000

Total	2,438,000	2,438,000
Unit Cost	2,438,000	4,876,000

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF2-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	17.58	280,000	280,000	4,922,400	4,922,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 738,360 738,360

Total	5,660,760	5,660,760
Unit Cost	5,660,760	11,321,520

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-3-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	98.50	673,600	1,010,400	66,349,600	99,524,400	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 9,952,440 14,928,660

Total	76,302,040	114,453,060
Unit Cost	76,302,040	114,453,060
		190,755,100

Reference No.	:	BDF-3-2
Description	:	Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
Unit	:	L.S.
Quantity for Estimation	:	1 L.S.

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**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF3-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge F-3

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	17.58	280,000	280,000	4,922,400	4,922,400	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 738,360 738,360

Total	5,660,760	5,660,760
Unit Cost	5,660,760	5,660,760
		11,321,520

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-4-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	49.25	673,600	1,010,400	33,174,800	49,762,200	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 4,976,220 7,464,330

Total	38,151,020	57,226,530
Unit Cost	38,151,020	57,226,530
		95,377,550

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-4-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	1.90	339,200	339,200	644,480	644,480	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 96,672 96,672

Total	741,152	741,152
Unit Cost	741,152	1,482,304

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF4-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	5.86	280,000	280,000	1,640,800	1,640,800	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 246,120 246,120

Total	1,886,920	1,886,920
Unit Cost	1,886,920	3,773,840

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-5-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	164.16	673,600	1,010,400	110,578,176	165,867,264	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 16,586,726 24,880,090

Total	127,164,902	190,747,354
Unit Cost	127,164,902	190,747,354
		317,912,256

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-5-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	10.80	339,200	339,200	3,663,360	3,663,360	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 549,504 549,504

Total	4,212,864	4,212,864
Unit Cost	4,212,864	8,425,728

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF5-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 LS
 For Bridge F-5

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	30.67	280,000	280,000	8,587,600	8,587,600	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 1,288,140 1,288,140

Total	9,875,740	9,875,740
Unit Cost	9,875,740	19,751,480

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-6-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	21.67	673,600	1,010,400	14,596,912	21,895,368	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 2,189,537 3,284,305

Total	16,786,449	25,179,673
Unit Cost	16,786,449	25,179,673
Note : concrete volume is 22.0 % of bridge F2		41,966,122

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-6-2
Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
Unit : L.S.
Quantity for Estimation : 1 L.S.
For Bridge F-6

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	1.38	339,200	339,200	468,096	468,096	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 70,214 70,214

Total	538,310	538,310
Unit Cost	538,310	538,310
Note : concrete volume is 22.0 % of bridge F2		
		1,076,621

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF6-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	3.87	280,000	280,000	1,083,600	1,083,600	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 162,540 162,540

Total	1,246,140	1,246,140
Unit Cost	1,246,140	1,246,140
Note : concrete volume is 22.0 % of bridge F2		2,492,280

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-7-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	97.63	673,600	1,010,400	65,763,568	98,645,352	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 9,864,535 14,796,803

Total	75,628,103	113,442,155
Unit Cost	75,628,103	113,442,155
Note : Concrete Volume is as same as F2.		
		189,070,258

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-7-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	0.57	339,200	339,200	193,344	193,344	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 29,002 29,002

Total	222,346	222,346
Unit Cost	222,346	222,346
Note : Concrete Volume is as same as F2.		444,691

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF7-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge F-7

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	3,539	280,000	280,000	990,920	990,920	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 148,638 148,638

Total	1,139,558	1,139,558
Unit Cost	1,139,558	1,139,558
Note : Concrete Volume is as same as F2.		2,279,116

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-8-1
 Description : Precast Prestressed Concrete Main Beam, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.
 For Bridge F-8

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	40.39	673,600	1,010,400	27,206,704	40,810,056	C-32

2. INDIRECT COST 15 % of DIRECT COST (1) 4,081,006 6,121,508

Total	31,287,710	46,931,564
Unit Cost	31,287,710	46,931,564
Note : concrete volume is 41.0 % of bridge F2		78,219,274

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF-8-2
 Description : Precast Prestressed Concrete Diaphragm, Type A, including Tensioning and Erection
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	2.56	339,200	339,200	868,352	868,352	C-34

2. INDIRECT COST 15 % of DIRECT COST (1) 130,253 130,253

Total	998,605	998,605
Unit Cost	998,605	1,997,210
Note : concrete volume is 41.0 % of bridge F2		

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC ****

Reference No. : BDF8-3
 Description : Precast Prestressed Concrete Panel, Type A
 Unit : L.S.
 Quantity for Estimation : 1 L.S.

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
(1)	PC Concrete Type A	m ³	7.21	280,000	280,000	2,018,800	2,018,800	C-33

2. INDIRECT COST 15 % of DIRECT COST (1) 302,820 302,820

Total	2,321,620	2,321,620
Unit Cost	2,321,620	2,321,620
Note : concrete volume is 41.0 % of bridge F2		4,643,240

**** BREAKDOWN OF CONSTRUCTION UNIT COST ****

Reference No. : BD-8-1
 Description : Coffering and Dewatering, Percut River
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
P-1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	160	15,473	135,179	2,475,645	21,628,566	OT-1
						3,558,409	22,779,066	BD8P1
P-2								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Coffering	m	100	15,473	135,179	1,547,278	13,517,854	OT-1
						3,712,806	15,818,853	BD8P2
P-3								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						2,939,498	17,371,924	BD8P3
P-5								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						2,939,498	17,371,924	BD8P5
P-6								
1	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
2	Coffering	m	40	15,473	135,179	618,911	5,407,142	OT-1
						1,430,984	6,270,016	BD8P6
P-7								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						4,022,262	18,522,424	BD8P7
P-9								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	220	15,473	135,179	3,404,013	29,739,278	OT-1
						7,697,987	34,106,016	BD8P9
P-11								
1	Dewatering, Type A	set/day	30	54,138	57,525	1,624,146	1,725,750	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						5,609,327	20,012,913	BD8P11
P-13								
1	Dewatering, Type A	set/day	30	54,138	57,525	1,624,146	1,725,750	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	180	15,473	135,179	2,785,101	24,332,137	OT-1
						6,537,694	28,123,625	BD8P13

Construction period at P-2, P-7 are starting at the end of rainy season, which considering twice of other bridge's.
 large bridge 20 set/day
 small bridge 15 set/day

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : BD-8-2
 Description : Coffering and Dewatering, Floodway and Deli
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
F-1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						1,082,764	1,150,500 BD8F1	
F-2								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						2,165,527	2,301,000 BD8F2	
F-3								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						1,082,764	1,150,500 BD8F3	
F-4								
1	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						812,073	862,875 BD8F4	
F-5								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						2,165,527	2,301,000 BD8F5	
F-6								
1	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						812,073	862,875 BD8F6	
F-7								
1	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						812,073	862,875 BD8F7	
F-8								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	10	106,422	103,287	1,064,224	1,032,869	OT-3
3	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						4,003,721	18,404,794 BD8F8	
WB1	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
	Coffering	m	40	15,473	135,179	618,911	5,407,142	OT-1
						1,430,984	6,270,016 BD8WB1	
WB2	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
WB3	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2
WB4	Dewatering, Type A	set/day	15	54,138	57,525	812,073	862,875	OT-2

Construction period at F-2, F-5 are starting at the end of rainy season, which considering twice of other bridge's.
 large bridge 20 set/day
 small bridge 15 set/day

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : BD-9
 Description : Demolishment of Existing Facilities at Bridge Work
 Unit : L.S
 Quantity for Estimation : L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
MFC-2								
P-1	Demolish & Remolish Type A	m ³	80	9,436	8,193	754,918	655,405	BD9P1
P-2	Demolish & Remolish Type A	m ³	400	9,436	8,193	3,774,589	3,277,026	BD9P2
P-3	Demolish & Remolish Type A	m ³	120	9,436	8,193	1,132,377	983,108	BD9P3
MFC-3								
P-5	Demolish & Remolish Type A	m ³	280	9,436	8,193	2,642,212	2,293,918	BD9P5
P-6	Demolish & Remolish Type B	m ³	40	15,318	16,419	612,713	656,760	BD9P6
P-7	Demolish & Remolish Type A	m ³	300	9,436	8,193	2,830,941	2,457,770	BD9P7
P-9	Demolish & Remolish Type A	m ³	300	9,436	8,193	2,830,941	2,457,770	BD9P9
MFC-4								
P-11	Demolish & Remolish Type A	m ³	320	9,436	8,193	3,019,671	2,621,621	BD9P11
P-13	Demolish & Remolish Type A	m ³	420	9,436	8,193	3,963,318	3,440,877	BD9P13
WB1	Demolish & Remolish Type A	m ³	100	9,436	8,193	943,647	819,257	BD9WB1
MFC-7								
F-8	Demolish & Remolish Type A	m ³	60	9,436	8,193	566,188	491,554	BD9F8
Total							22,505,328	19,663,512

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-1 ****

Reference No. : TE-1
 Description : Coffering and Dewatering, MFC-1
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Coffering	m	100	15,473	135,179	1,547,278	13,517,854	OT-1
						2,630,042	14,668,354	TEABI
C1.1								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Coffering	m	50	15,473	135,179	773,639	6,758,927	OT-1
						2,939,167	9,059,927	TEACI
D1.1								
1	Dewatering, Type A	set/day	45	54,138	57,525	2,436,218	2,588,625	OT-2
2	Dewatering, Type B	set/day	40	106,422	103,287	4,256,894	4,131,477	OT-3
3	Coffering	m	110	15,473	135,179	1,702,006	14,869,639	OT-1
						8,395,119	21,589,741	TEADI
E1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	20	15,473	135,179	309,456	2,703,571	OT-1
						309,456	2,703,571	TEAEI

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-2 ****

Reference No. : TE-2
 Description : Coffering and Dewatering, MFC-2
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TEBBI
C1.1								
1	Dewatering, Type A	set/day	70	54,138	57,525	3,789,673	4,026,749	OT-2
2	Coffering	m	130	15,473	135,179	2,011,462	17,573,210	OT-1
						5,801,135	21,599,959	TEBCI
D1.1								
1	Dewatering, Type A	set/day	89	54,138	57,525	4,818,298	5,119,724	OT-2
2	Dewatering, Type B	set/day	10	106,422	103,287	1,064,224	1,032,869	OT-3
3	Coffering	m	280	15,473	135,179	4,332,380	37,849,991	OT-1
						10,214,902	44,002,584	TEBDI
E1.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	40	15,473	135,179	618,911	5,407,142	OT-1
						1,701,675	6,557,641	TEBEI
F1.1								
1	Dewatering, Type A	set/day	60	54,138	57,525	3,248,291	3,451,499	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	150	15,473	135,179	2,320,918	20,276,781	OT-1
						7,697,656	25,794,019	TEBF1
F1.3								
1	Demolition/Removal, Type A	set/day	1200	9,436	8,193	11,323,766	9,831,079	OT-4
2	Demolition/Removal, Type B	set/day	0	15,318	16,419	0	0	OT-5
						11,323,766	9,831,079	TEBF3

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-3 ****
 Reference No. : TE-3
 Description : Coffering and Dewatering, MFC-3
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TECBI
C1.1								
1	Dewatering, Type A	set/day	130	54,138	57,525	7,037,964	7,478,249	OT-2
2	Dewatering, Type B	set/day	130	106,422	103,287	13,834,906	13,427,300	OT-3
3	Coffering	m	940	15,473	135,179	14,544,417	127,067,826	OT-1
						35,417,288	147,973,375	TECCI
D1.1								
1	Dewatering, Type A	set/day	60	54,138	57,525	3,248,291	3,451,499	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	290	15,473	135,179	4,487,107	39,201,776	OT-1
						7,735,399	42,653,276	TECDI
E1.1								
1	Dewatering, Type A	set/day	90	54,138	57,525	4,872,437	5,177,249	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	230	15,473	135,179	3,558,740	31,091,064	OT-1
						8,431,177	36,268,313	TECEI
H1.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	30	106,422	103,287	3,192,671	3,098,608	OT-3
3	Coffering	m	200	15,473	135,179	3,094,557	27,035,708	OT-1
						7,369,991	31,284,815	TECII

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-4 ****

Reference No. : TE-4
 Description : Coffering and Dewatering, MFC-4
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TEDBI
C1.1								
1	Dewatering, Type A	set/day	120	54,138	57,525	6,496,582	6,902,999	OT-2
2	Dewatering, Type B	set/day	40	106,422	103,287	4,256,894	4,131,477	OT-3
3	Coffering	m	800	15,473	135,179	12,378,227	108,142,831	OT-1
						23,131,704	119,177,306	TEDCI
D1.1								
1	Dewatering, Type A	set/day	48	54,138	57,525	2,598,633	2,761,200	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	240	15,473	135,179	3,713,468	32,442,849	OT-1
						6,312,101	35,204,049	TEDDI
E1.1								
1	Dewatering, Type A	set/day	120	54,138	57,525	6,496,582	6,902,999	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	320	15,473	135,179	4,951,291	43,257,132	OT-1
						11,447,873	50,160,131	TEDEI
II.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TEDII

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-5 ****
 Reference No. : TE-5
 Description : Coffering and Dewatering, MFC-5
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	10	54,138	57,525	541,382	575,250	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	0	15,473	135,179	0	0	OT-1
						2,669,829	2,640,988	TEEB1
C1.1								
1	Dewatering, Type A	set/day	10	54,138	57,525	541,382	575,250	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	30	15,473	135,179	464,184	4,055,356	OT-1
						1,005,565	4,630,606	TEEC1
D1.1								
1	Dewatering, Type A	set/day	10	54,138	57,525	541,382	575,250	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	20	15,473	135,179	309,456	2,703,571	OT-1
						850,838	3,278,821	TEED1
E1.1								
1	Dewatering, Type A	set/day	30	54,138	57,525	1,624,146	1,725,750	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	35	15,473	135,179	541,547	4,731,249	OT-1
						2,165,693	6,456,999	TEEE1
II.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	30	106,422	103,287	3,192,671	3,098,608	OT-3
3	Coffering	m	200	15,473	135,179	3,094,557	27,035,708	OT-1
						7,369,991	31,284,815	TEEI1

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-6 ****

Reference No. : TE-6
 Description : Coffering and Dewatering, MFC-6
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TEFB1
C1.1								
1	Dewatering, Type A	set/day	60	54,138	57,525	3,248,291	3,451,499	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	400	15,473	135,179	6,189,114	54,071,415	OT-1
						9,437,405	57,522,915	TEFC1
E1.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	20	15,473	135,179	309,456	2,703,571	OT-1
						1,392,219	3,854,071	TEFE1
I1.1								
1	Dewatering, Type A	set/day	60	54,138	57,525	3,248,291	3,451,499	OT-2
2	Dewatering, Type B	set/day	60	106,422	103,287	6,385,341	6,197,215	OT-3
3	Coffering	m	200	15,473	135,179	3,094,557	27,035,708	OT-1
						12,728,189	36,684,422	TEFI1

**** BREAKDOWN OF CONSTRUCTION UNIT COST FOR MFC-7 ****

Reference No. : TE-7
 Description : Coffering and Dewatering, MFC-7
 Unit :
 Quantity for Estimation : 1 L.S

Item	Description	unit	Quantity	Unit Cost		Amount		Reference
				F.C. (Rp.)	L.C. (Rp.)	F.C. (Rp.)	L.C. (Rp.)	
B1.1								
1	Dewatering, Type A	set/day	0	54,138	57,525	0	0	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	0	15,473	135,179	0	0	OT-1
						0	0	TEGBI
C1.1								
1	Dewatering, Type A	set/day	20	54,138	57,525	1,082,764	1,150,500	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	120	15,473	135,179	1,856,734	16,221,425	OT-1
						2,939,498	17,371,924	TEGCI
E1.1								
1	Dewatering, Type A	set/day	5	54,138	57,525	270,691	287,625	OT-2
2	Dewatering, Type B	set/day	0	106,422	103,287	0	0	OT-3
3	Coffering	m	0	15,473	135,179	0	0	OT-1
						270,691	287,625	TEGEI
G1.1								
1	Dewatering, Type A	set/day	60	54,138	57,525	3,248,291	3,451,499	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	80	15,473	135,179	1,237,823	10,814,283	OT-1
						6,614,561	16,331,521	TEGGI
H1.1								
1	Dewatering, Type A	set/day	40	54,138	57,525	2,165,527	2,301,000	OT-2
2	Dewatering, Type B	set/day	20	106,422	103,287	2,128,447	2,065,738	OT-3
3	Coffering	m	100	15,473	135,179	1,547,278	13,517,854	OT-1
						5,841,253	17,884,592	TEGHI

APPENDIX 9

CONSTRUCTION EQUIPMENT RENTAL COST

TABLE FOR ESTIMATION OF EQUIPMENT BASIC PRICE

Price in 1995 by escalation 4 % / year n=1995-1991=4
 $P_n = P_{n0} + P_{n0}x\{(1+i)^n - 1\}$ P1995=P1991+P1991x((1+0.04)^4-1),
 i in % = 4 % = 0.04

Constructives Equipment	Capacity/ Specification/ Purpose	Power Purpose	Operating weight/ Capacity Specification to be used	Horse Power Purpose to be used	Price in 1991 Rp	Type	Economic Life (Year)	Yearly Working (hour)	Basic Price Est.1995 Rp	REMARK (FABRICATED)
1. Bulldozer A	15 ton	145 PS	15,000 kg	155	268,000,000	D75A-1	5	2,000	313,522,094	KOMATSU
2. Bulldozer B	12 ton	100 PS		110	177,000,000	D50A-16	5	2,000	207,064,965	KOMATSU
3. Bulldozer C	6 ton			66	108,000,000	D31A-17	5	2,000	126,344,724	KOMATSU
4. Bulldozer with Ripper	21 ton	224 PS	23,770 kg	225	430,000,000	D85A-21	5	2,000	503,039,181	KOMATSU
5. Back hoe/ Excavator A	0.60 m³	120 PS	18,930 kg/0.8 m³	125	238,000,000	PC200-5	5	2,000	278,426,337	KOMATSU
6. Back hoe/ Excavator B	0.40 m³	88 PS	10,780 kg/0.44 m³	80	152,000,000	PC100-5	5	2,000	177,818,591	KOMATSU
7. Crawler-type Loader	1.20 m³	53 PS	143,000,000	95	143,000,000	951C	5	2,000	167,289,774	CATERPILLAR
8. Wheel-type Loader	1.20 m³	81 PS	169,000,000	80	169,000,000	920	5	2,000	196,536,238	CATERPILLAR
9. Dump Truck A	8 ton	253 PS	91,000,000	-	91,000,000	T DZ 50	5	2,000	106,457,129	ISUZU
10. Dump Truck B	4 ton	182 PS	40,000,000	-	40,000,000	TSB-60	5	2,000	46,794,342	ISUZU
11. Ordinary Truck	4 ton	183 PS	26,000,000	-	26,000,000	TL-D-56	5	2,000	30,416,323	ISUZU
12. Wheel Crane A	10 ton	100 PS	88,000,000	-	88,000,000	KR-122	5	2,000	102,947,553	HINO JAPAN
13. Wheel Crane B	4.9 ton	160 PS	5 ton	-	52,000,000	TSB-45	5	2,000	95,928,402	ISUZU JAPAN
14. Truck with Crane A	6 ton	199 PS	50,000,000	-	50,000,000	TKO-60	5	2,000	58,492,928	
15. Truck with Crane B	162 PS	162 PS	30,000,000	-	30,000,000	TS-3	5	2,000	35,095,257	
16. Trailer A	32 ton	320 PS	145,000,000	-	145,000,000	VOZ-44(HD) TUKAR	10	1,000	189,629,491	LIAT NO.13 LAINDIRAWAH
17. Trailer B	20 ton	320 PS	92,000,000	-	92,000,000	F-2100	10	1,000	107,626,988	
18. Concrete Pump Truck	4.5 ton	290 PS	75,000,000	-	75,000,000	TCJ-50	2	2,000	87,739,392	ISUZU **
19. Water Tanker	55 m³/hr	164 PS	181,000,000	-	181,000,000	NCP-900	3	2,000	211,744,399	
20. Trencher (Hand compactor)	4 m³	4 PS	33,000,000	-	33,000,000	TXD-40	5	2,000	38,605,332	ISUZU **
21. Vibrator Roller A	8 ton	8 PS	6,000,000	15	6,000,000	BS-60Y	4	1,000	7,019,151	WACKER JAPAN**
22. Vibrator Roller B	4 ton	27.3 PS	24,000,000	-	24,000,000	SV-10	4	1,000	28,076,605	
23. Vibrator Roller C	12 ton	91 PS	95,000,000	-	95,000,000	SV-40	4	2,000	111,136,563	SAKAI**
24. Trencher 8/12 ton	8-15 ton	99 PS	230,000,000	-	230,000,000	SV-900	4	2,000	269,067,469	SAKAI**
25. Tandem Roller	8/12 ton	94 PS	130,000,000	-	130,000,000	PK-15	5	2,000	160,270,623	AVELING BARFORDING
26. Motor Grader	2.8 m	50 PS	9,050 kg/0.71 m	100	118,000,000	TS-150	5	2,000	132,081,613	GALION USA
27. Crawler Crane A	35 ton	156 PS	362,000,000	-	362,000,000	GD313A-1	6	1,400	423,408,799	USA**
28. Crawler Crane B	117 PS	117 PS	286,000,000	-	286,000,000	F&H550	6	1,400	334,579,548	HALLA KOREA
29. Crawler Crane C	16 ton	96 PS	141,000,000	-	141,000,000	2572 BC	6	1,400	164,950,057	
30. Portable Engine Compressor	3.5 m³/min	36 PS	36,000,000	45	36,000,000	EC-50 Z	6	1,200	42,114,908	KOMATSU
31. Diesel Engine Generator A	100 KVA	120 PS	68,000,000	131 Hp/97.9 kw	68,000,000	3304(CAT)	6	1,600	79,550,382	CATERVILLAR**
32. Diesel Engine Generator B	35 KVA	42 PS	26,000,000	130 Hp/103 kw	26,000,000	EG175-21(501H2) KOMATSU	6	1,600	34,416,323	DANYO JAPAN
33. Diesel Engine Generator C	15 KVA	20 PS	15,000,000	42.4 Hp/31.6 kw	15,000,000	EG 40-1(60HZ)	6	1,600	17,547,878	DANYO JAPAN
34. Diesel Pile Hammer	2.5 ton	102 PS	43,000,000	44 KVA/32.2 kw	43,000,000	DCA-21-1 DANYO	4	1,400	50,303,918	KOMATSU
35. Vibro Pile Hammer	2/24 ton	30 kw	9,000,000	27 KVA/21.6 kw	9,000,000	EG 33-1(50HZ)	4	1,400	10,528,727	COBELCO JAPAN**
36. Concrete Vibrator	0.5 m³	1 kw	2,000,000	30 KVA/24 kw	2,000,000	335-A	4	1,400	2,358,868	YANADA JAPAN
37. Portable Concrete Mixer A	0.2 m³	110 kw	17,000,000	40 KVA/32 kw	17,000,000	DIA-0-13CM	3	1,600	23,971,717	DYNAPAC USA
38. Asphalt Finisher	30 ton/hr	33 PS	476,000,000	110 KVA/88 kw	476,000,000	SM-500	3	1,600	67,851,796	INDONESIA**
39. Concrete Breaker A	600 kg	108 PS	135,000,000	40 KVA/32 kw	135,000,000	BDM-50PSE	3	1,600	157,930,906	BUKANA INDONESIA
40. Concrete Breaker B	20 kg	8 PS	44,000,000	2.4 m (4-6) ton	44,000,000	MF-30-2	5	1,600	116,985,856	MITSUBISHI**
41. Pneumatic Hand Breaker	D 150 mm	7.5 kw	10 L/S(600 l/min)	4,000 liter	44,000,000	BAD-4000	3	1,200	51,473,777	BUKANA INDONESIA
42. Submersible Pump	D 50 mm	0.75 kw	6 L/S(360 l/min)	8	3,000,000	600CTM	3	1,200	3,509,576	KR1200/hr
43. Engine Welder	250 amp.	19.1 PS	250 amp.	7.5 kw	6,000,000	PNEULPAYE ILBREAKER	3	1,200	7,019,151	TRIGUMI JAPAN
44. Chain Saw	0.8 m³	1.7 PS	223,000,000	-	223,000,000	TK2-55L	5	1,200	5,849,293	TAKASACO JAPAN
45. Bar Cutting Machine	25 ton	200 PS	164,000,000	0.7	4,000,000	250 MK	6	1,200	10,528,727	BRITISH
46. Bar Bending Machine			4,700,000		4,700,000	250 MK	2	2,000	4,679,434	STHIL GERMANY
47. Dredger			13,000,000		13,000,000	250 MK	5	2,000	260,878,459	HITACHI JAPAN
48. Bar Bending Machine			210,200,000		210,200,000	250 MK	5	2,000	255,380,124	SWFAUSTRAILIA
49. Dredger			164,000,000		164,000,000	250 MK	5	2,000	196,536,238	GERMAN

Table EQ - 3 Hourly Equipment Cost													
EQUIPMENT : Bulldozer C		CAPACITY : 6 ton		LIFE TIME		WORKING PERIOD		5 Year		5 Years(N1)			
TYPE : D31A-17		HOUSE POWER : 71		ANNUAL USE		INTEREST RATE		2,000 Hours		18 %/Year		(N2)	
				TAX		INSURANCE RATE		0 %/Year		1 %/Year		(I2)	
				REPAIRING VALUE		DEPRECIATION		20 %/Year		10 %		(I3)	
A DEPRECIATION VALUE													
1 DELIVERED PRICE								= Rp		126,344,724.00 (A)			
2 LESS TIRE/PIPE REPLACEMENT COST								= Rp				(B)	
3 DELIVERED PRICE LESS TIRE								= Rp		126,344,724.00 (C)			
4 LESS RESALE VALUE TRADE IN				(C=A-B)				= Rp		126,344,724.00 (C)			
5 NET VALUE FOR DEPRECIATION				10 %*Rp		126,344,724.00		= Rp		12,634,472.40 (D)			
				(E=C-D)				= Rp		113,710,251.60 (E)			
B OWNING COST													
6 DEPRECIATION				Rp.		113,710,251.60 /		10,000.00 = Rp		11,371.03			
7 INTEREST INSURANCE & TAX													
Factor				F=(N1+1)/(2N1)									
-Interest				0.600 *		18 %*Rp		2,000.00 = Rp		6,822.62			
-Insurance				0.600 *		1 %*Rp		2,000.00 = Rp		379.03			
-tax				0.600 *		0 %*Rp		2,000.00 = Rp		0.00			
8 TOTAL HOURLY OWNING COST (Sub Total I)								= Rp		18,572.67			
C OPERATION & MAINTENANCE COST													
9 FUEL													
10 LUBRICANTS, FILTER & GREASE						9.80 *Rp		400.00 = Rp		3,919.20			
-Engine						0.16 *Rp		4,500.00 = Rp		705.46			
-Transmission						0.00 *Rp		4,500.00 = Rp		0.00			
-Final Drive						0.00 *Rp		4,500.00 = Rp		0.00			
-Hydraulic						0.00 *Rp		4,500.00 = Rp		0.00			
-Grease						0.24 *Rp		4,000.00 = Rp		979.80		1,685.26 (F1)	
-Filter						0.50 *Rp		1,685.26 = Rp		842.63			
11 TIRES				50 %*(F1)		/		= Rp					
12 REPAIRING				20 %*Rp		126,344,724.00 /		2,000.00 = Rp		12,634.47			
13 SPECIAL ITEM													
-Tips/Cutting Edge				*Rp		/		= Rp		0.00			
-Shank Protector				*Rp		/		= Rp		0.00			
14 TOTAL HOURLY OPERATING COST (Sub Total II)								= Rp		19,081.56			
TOTAL HOURLY OWNING + OPERATION (Sub Total I + Sub Total II)								= Rp		37,654.23			
& MAINTENANCE COST													

[illegible]

[illegible]

Table EQ - 11 Hourly Equipment Cost													
EQUIPMENT : Ordinary Truck													
CAPACITY : 4 ton													
TYPE : TDL-56													
HOUSE POWER : 180													

Table EQ - 14 Hourly Equipment Cost													
EQUIPMENT	CAPACITY	TYPE	HOUSE POWER									LIFE TIME	
												WORKING PERIOD	ANNUAL USE
												10,000 hr=	5 Years(N1)
												2,000 Hours	(N2)
												18 %/Year	(N1)
												0 %/Year	(N2)
												1 %/Year	(N3)
												20 %/Year	
												10 %	
A DEPRECIATION VALUE													
1	DELIVERED PRICE											= Rp	58,492,928.00 (A)
2	LESS TIRE/PIPE REPLACEMENT COST											= Rp	(B)
3	DELIVERED PRICE LESS TIRE											= Rp	58,492,928.00 (C)
4	LESS RESALE VALUE TRADE IN											= Rp	5,849,292.80 (D)
5	NET VALUE FOR DEPRECIATION											= Rp	52,643,635.20 (E)
B OWNING COST													
6	DEPRECIATION											= Rp	5,264.36
7	INTEREST INSURANCE & TAX											= Rp	
	Factor												
	-Interest												
	-Insurance												
	-Tax												
8	TOTAL HOURLY OWNING COST (Sub Total I)											= Rp	8,598.46
C OPERATION & MAINTENANCE COST													
9	FUEL												
10	LUBRICANTS FILTER & GREASE												
	-Engine												
	-Transmission												
	-Final Drive												
	-Hydraulic												
	-Grease												
	-Filter												
11	TIRES												
12	REPAIRING												
13	SPECIAL ITEM												
	-Tips/Cutting Edge												
	-Shank Protector												
14	TOTAL HOURLY OPERATING COST (Sub Total II)											= Rp	10,850.09
TOTAL HOURLY OWNING, OPERATION (Sub Total I + Sub Total II) & MAINTENANCE COST													
												= Rp	19,448.55

Table EQ - 16 Hourly Equipment Cost													
EQUIPMENT : Trailer A		LIFE TIME		WORKING PERIOD		ANNUAL USE		INTEREST RATE		TAX		INSURANCE RATE	
CAPACITY : 35 ton		10,000 hr=		10 Year		1,000 Hours		18 %/Year		0 %/Year		1 %/Year	
TYPE : VOZ-441		10 Years(N1)		(N2)		(N2)		(N1)		(N2)		(N3)	
HOUSE POWER : 320													
A DEPRECIATION VALUE													
1 DELIVERED PRICE													
2 LESS TIRE/PIPE REPLACEMENT COST													
3 DELIVERED PRICE LESS TIRE													
4 LESS RESALE VALUE TRADE IN													
5 NET VALUE FOR DEPRECIATION													
B OWNING COST													
6 DEPRECIATION													
7 INTEREST INSURANCE & TAX													
Factor													
-Interest													
-Insurance													
-Tax													
8 TOTAL HOURLY OWNING COST (Sub Total I)													
C OPERATION & MAINTENANCE COST													
9 FUEL													
10 LUBRICANTS, FILTER & GREASE													
-Engine													
-Transmission													
-Final Drive													
-Hydraulic													
-Grease													
-Filter													
11 TIRES													
12 REPAIRING													
13 SPECIAL ITEM													
-Tips/Cutting Edge													
-Shank Protector													
14 TOTAL HOURLY OPERATING COST (Sub Total II)													
TOTAL HOURLY OWNING, OPERATION (Sub Total I + Sub Total II)													
& MAINTENANCE COST													

Table EQ - 17 Hourly Equipment Cost									
EQUIPMENT CAPACITY TYPE HOUSE POWER	: Trailer B : 20 ton. : E-2100 : 320						LIFE TIME WORKING PERIOD ANNUAL USE INTEREST RATE TAX INSURANCE RATE REPAIRING VALUE DEPRECIATION	10,000 hr= 10 Year 1,000 Hours 18 %/Year 0 %/Year 1 %/Year 10 %/Year 10 %	10 Years(N1)
A	DEPRECIATION VALUE								
1	DELIVERED PRICE						= Rp	107,626,988.00 (A)	
2	LESS TIRE/PIPE REPLACEMENT COST						= Rp	(B)	
3	DELIVERED PRICE LESS TIRE						= Rp	107,626,988.00 (C)	
4	LESS RESALE VALUE TRADE IN						= Rp	10,762,698.80 (D)	
5	NET VALUE FOR DEPRECIATION						= Rp	96,864,289.20 (E)	
B	OWNING COST								
6	DEPRECIATION						10,000.00 = Rp	9,686.43	
7	INTEREST INSURANCE & TAX								
	Factor	F=(N1+1)/(2N1)							
	-Interest	F*11*A/N2					1,000.00 = Rp	10,655.07	
	-Insurance	F*12*A/N2					1,000.00 = Rp	591.95	
	-Tax	F*13*A/N2					1,000.00 = Rp	0.00	
8	TOTAL HOURLY OWNING COST (Sub Total I)						= Rp	20,933.45	
C	OPERATION & MAINTENANCE COST								
9	FUEL								
10	LUBRICANTS, FILTER & GREASE						17.92 *Rp	400.00 = Rp	
	-Engine						0.29 *Rp	4,500.00 = Rp	
	-Transmission						0.00 *Rp	4,500.00 = Rp	
	-Final Drive						0.00 *Rp	4,500.00 = Rp	
	-Hydraulic						0.00 *Rp	4,500.00 = Rp	
	-Grease						0.45 *Rp	4,000.00 = Rp	
	-Filter						0.50 *Rp	3,082.24 = Rp	
11	TIRES						50 %*(F1) *Rp	1,792.00	3,082.24 (F1)
12	REPAIRING						10 %*Rp	1,541.12	
13	SPECIAL ITEM								
	-Tips/Cutting Edge						*Rp	0.00	
	-Shank Protector						*Rp	0.00	
14	TOTAL HOURLY OPERATING COST (Sub Total II)						= Rp	22,554.06	
	TOTAL HOURLY OWNING + OPERATION (Sub Total I + Sub Total II) & MAINTENANCE COST						= Rp	43,487.51	

[illegible]

Table EQ - 21 Hourly Equipment Cost									
EQUIPMENT	: Tamper (Hand compactor)								
CAPACITY	: 80 kg								
TYPE	: IBS-60Y								
HOUSE POWER	: 4								
A		DEPRECIATION VALUE							
1	DELIVERED PRICE								
2	LESS TIRE/PIPE REPLACEMENT COST								
3	DELIVERED PRICE LESS TIRE								
4	LESS RESALE VALUE TRADE IN	(C=A-B)							
5	NET VALUE FOR DEPRECIATION	10 %*Rp	7,019,151.00						
B		OWNING COST							
6	DEPRECIATION								
7	INTEREST INSURANCE & TAX	Rp.	6,317,235.90	/					
	Factor	F=(N1+1)/(2N1)							
	-Interest	0.625 *							
	-insurance	F*12*AN2	7,019,151.00	/					
	-tax	F*13*AN2	7,019,151.00	/					
8	TOTAL HOURLY OWNING COST (Sub Total I)								
C		OPERATION & MAINTENANCE COST							
9	FUEL								
10	LUBRICANTS, FILTER & GREASE								
	-Engine		0.91	*Rp					
	-Transmission								
	-Final Drive								
	-Hydraulic								
	-Grease								
	-Filter								
11	TIRES								
12	REPAIRING								
13	SPECIAL ITEM								
	-Tips/Cutting Edge								
	-Shank Protector								
14	TOTAL HOURLY OPERATING COST (Sub Total II)								
		TOTAL HOURLY OWNING , OPERATION (Sub Total I + Sub Total II)							
		& MAINTENANCE COST							

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Table BQ - 31 Hourly Equipment Cost																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													

Table BQ - 32 Hourly Equipment Cost												
EQUIPMENT : Diesel Engine Generator A												
CAPACITY : 100KVA												
TYPE : 3304												
HOUSE POWER : 120												

Table BQ - 36 Hourly Equipment Cost													
EQUIPMENT :	Vibro Pile Hammer												
CAPACITY :	23/24 ton												
TYPE :													
HOUSE POWER :	30												
A	DEPRECIATION VALUE												
	1 DELIVERED PRICE												
	2 LESS TIRE/PIPE REPLACEMENT COST												
	3 DELIVERED PRICE LESS TIRE												
	4 LESS RESALE VALUE TRADE IN												
	5 NET VALUE FOR DEPRECIATION												
B	OWNING COST												
	6 DEPRECIATION												
	7 INTEREST INSURANCE & TAX												
	Factor												
	-Interest												
	-Insurance												
	-tax												
	8 TOTAL HOURLY OWNING COST (Sub Total I)												
C	OPERATION & MAINTENANCE COST												
	9 FUEL												
	10 LUBRICANTS, FILTER & GREASE												
	-Engine												
	-Transmission												
	-Final Drive												
	-Hydraulic												
	-Grease												
	-Filter												
	11 TIRES												
	12 REPAIRING												
	13 SPECIAL ITEM												
	-Tips/Cutting Edge												
	-Shank Protector												
	14 TOTAL HOURLY OPERATING COST (Sub Total II)												
	TOTAL HOURLY OWNING, OPERATION (Sub Total I + Sub Total II)												
	& MAINTENANCE COST												

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Table BQ - 46 Hourly Equipment Cost									
EQUIPMENT CAPACITY TYPE HOUSE POWER	: Submersible Pump A : D 150 mm : HK2-55L : 7.5						LIFE TIME WORKING PERIOD ANNUAL USE INTEREST RATE TAX INSURANCE RATE REPAIRING VALUE DEPRECIATION	6,000 hr = 5 Year 1,200 Hours 18 %/Year 0 %/Year 1 %/Year 10 %/Year 10 %	5 Years(NI)
A	DEPRECIATION VALUE								
1	DELIVERED PRICE						= Rp	7,019,151.00 (A)	
2	LESS TIRE/PIPE REPLACEMENT COST						= Rp	(B)	
3	DELIVERED PRICE LESS TIRE						= Rp	7,019,151.00 (C)	
4	LESS RESALE VALUE TRADE IN						= Rp	701,915.10 (D)	
5	NET VALUE FOR DEPRECIATION						= Rp	6,317,235.90 (E)	
B	OWNING COST								
6	DEPRECIATION					Rp.	6,000.00 = Rp	1,052.87	
7	INTEREST INSURANCE & TAX								
	Factor	F=(N1+1)/(2N1)	0.600						
	-Interest	F*11*A/N2	0.600 *	18 %*Rp	7,019,151.00 /		1,200.00 = Rp	631.72	
	-Insurance	F*12*A/N2	0.600 *	1 %*Rp	7,019,151.00 /		1,200.00 = Rp	35.10	
	-Tax	F*13*A/N2	0.600 *	0 %*Rp	7,019,151.00 /		1,200.00 = Rp	0.00	
8	TOTAL HOURLY OWNING COST (Sub Total I)						= Rp	1,719.69	
C	OPERATION & MAINTENANCE COST								
9	FUEL								
10	LUBRICANTS, FILTER & GREASE						1.82 *Rp	400.00 = Rp	726.00
	-Engine						0.03 *Rp	4,500.00 = Rp	130.68
	-Transmission						0.00 *Rp	4,500.00 = Rp	0.00
	-Final Drive						0.00 *Rp	4,500.00 = Rp	0.00
	-Hydraulic						0.00 *Rp	4,500.00 = Rp	0.00
	-Grease						0.05 *Rp	4,000.00 = Rp	181.50
	-Filter						0.50 *Rp	312.18 = Rp	156.09
11	TIRES					50 %*(F1) *Rp	/	= Rp	312.18 (F1)
12	REPAIRING					10 %*Rp	7,019,151.00 /	1,200.00 = Rp	584.93
13	SPECIAL ITEM						/	= Rp	
	-Tips/Cutting Edge					*Rp	/	= Rp	0.00
	-Shank Protector					*Rp	/	= Rp	0.00
14	TOTAL HOURLY OPERATING COST (Sub Total II)						= Rp	1,779.20	
	TOTAL HOURLY OWNING . OPERATION (Sub Total I + Sub Total II) & MAINTENANCE COST						= Rp	3,498.89	

Table BQ-53 Hourly Equipment Cost												
EQUIPMENT CAPACITY TYPE HOUSE POWER	: Portal Crane : 25 ton											
A	DEPRECIATION VALUE											
1	DELIVERED PRICE											
2	LESS TIRE/PIPE REPLACEMENT COST											
3	DELIVERED PRICE LESS TIRE											
4	LESS RESALE VALUE TRADE IN											
5	NET VALUE FOR DEPRECIATION											
B	OWNING COST											
6	DEPRECIATION											
7	INTEREST INSURANCE & TAX											
	Factor											
	-Interest											
	-Insurance											
	-Tax											
8	TOTAL HOURLY OWNING COST (Sub Total I)											
C	OPERATION & MAINTENANCE COST											
9	FUEL											
10	LUBRICANTS, FILTER & GREASE											
	-Engine											
	-Transmission											
	-Final Drive											
	-Hydraulic											
	-Grease											
	-Filter											
11	TIRES											
12	REPAIRING											
13	SPECIAL ITEM											
	-Tips/Cutting Edge											
	-Shank Protector											
14	TOTAL HOURLY OPERATING COST (Sub Total II)											
TOTAL HOURLY OWNING, OPERATION (Sub Total I + Sub Total II) & MAINTENANCE COST												

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