

Figures

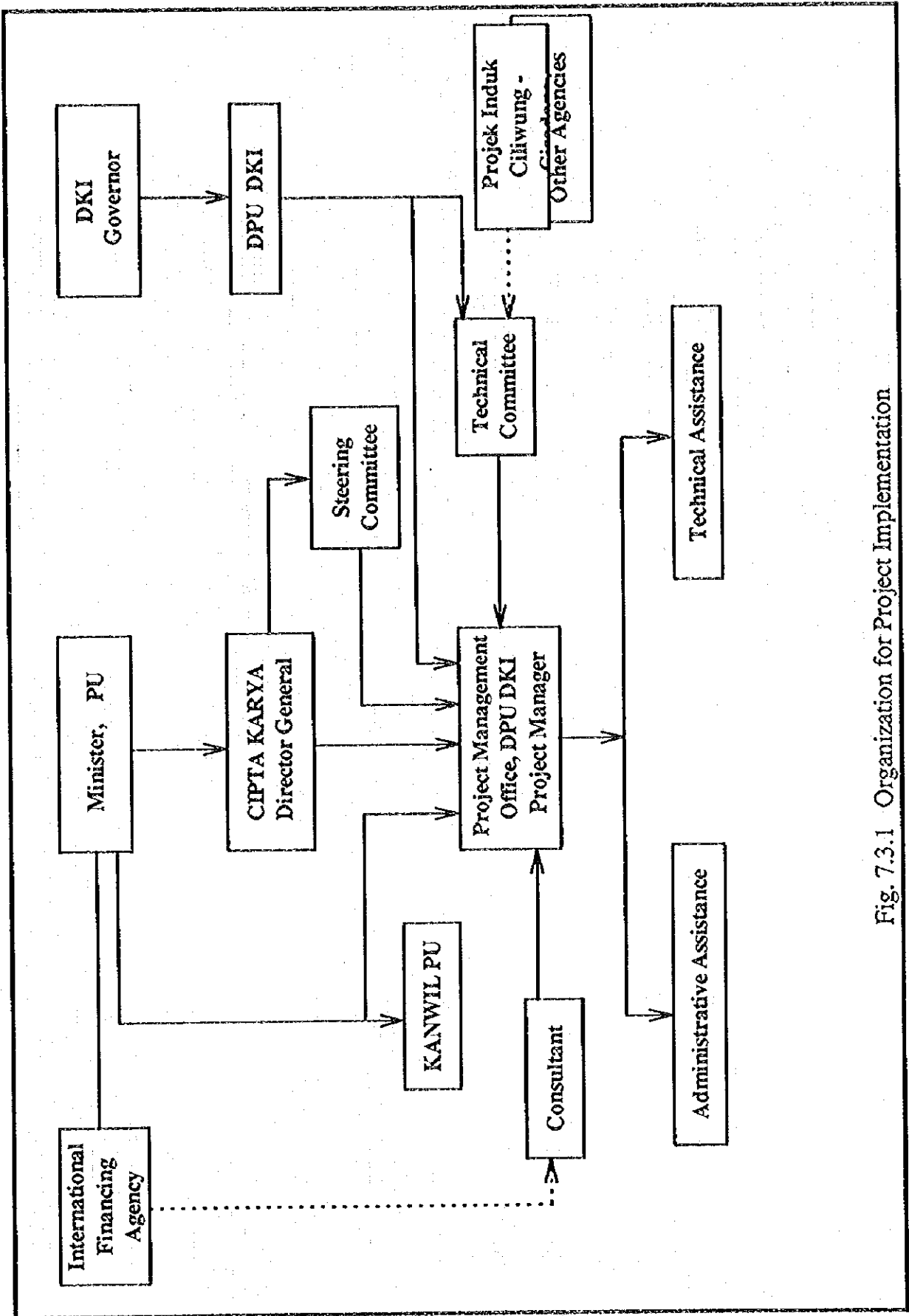


Fig. 7.3.1 Organization for Project Implementation

Fig. 7.3.2 Overall Implementation Schedule

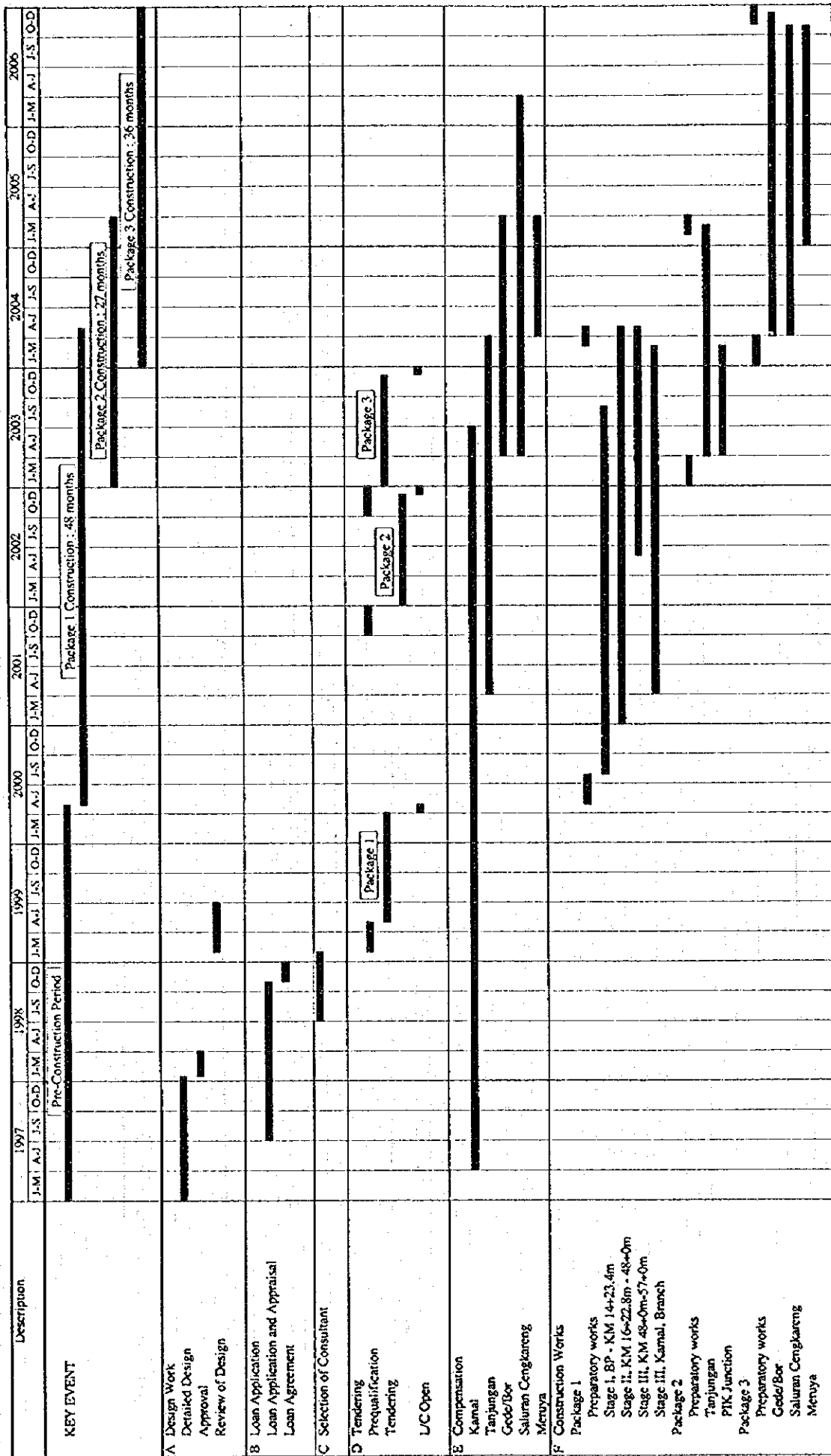


Fig. 7.5.1 LOCATION OF STRUCTURE IN PACKAGE I (1/2)

Package I : Kamal drainage channel (main)

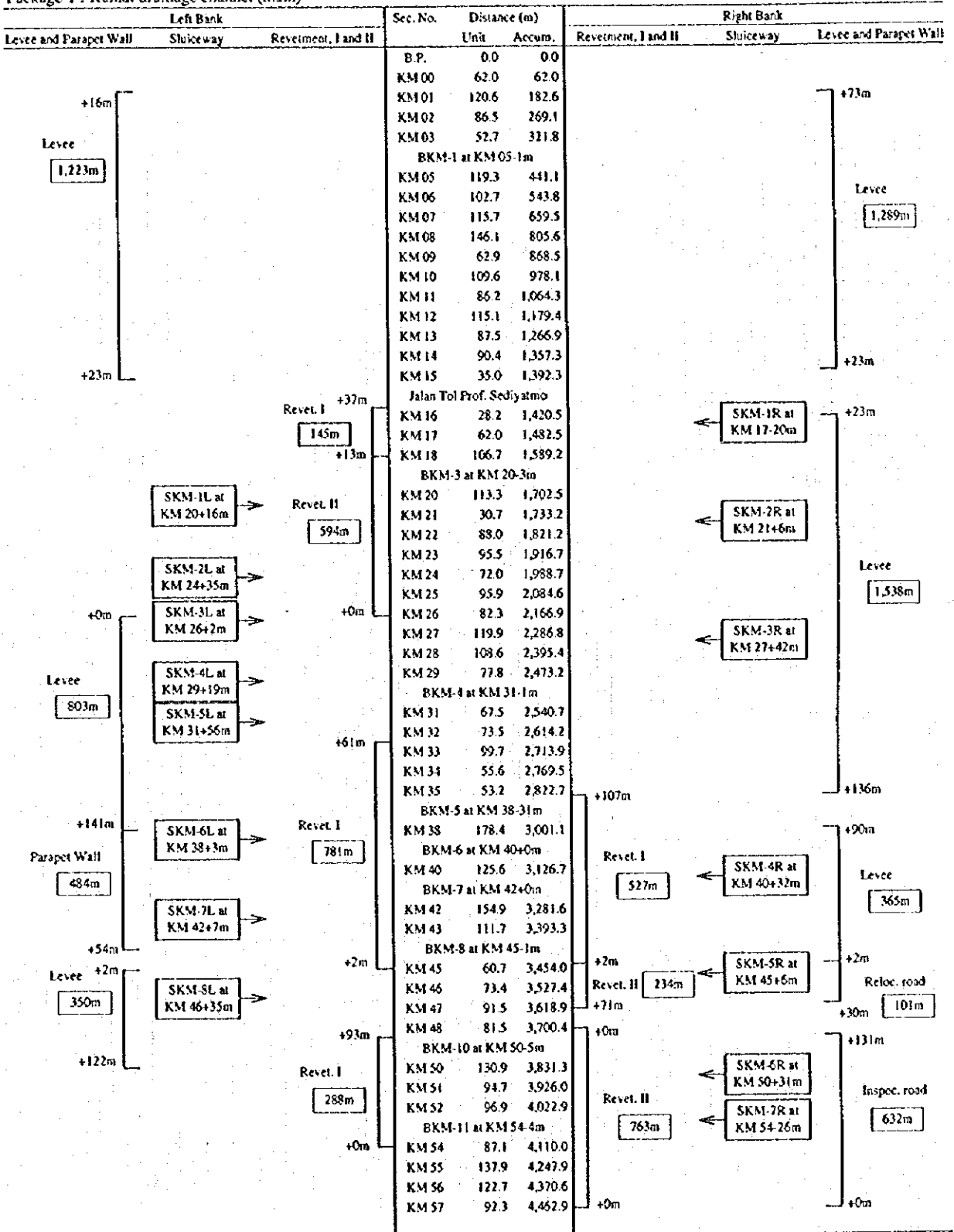


Fig. 7.5.1 LOCATION OF STRUCTURE IN PACKAGE 1 (2/2)

Package I : Kamal drainage channel (branch)

Left Bank			Sec. No.	Distance (m)		Right Bank		
Levee and Parapet Wall	Suiceway	Revetment, I and II		Unit	Accum.	Revetment, I and II	Suiceway	Levee and Parapet Wall
			KE 00					
			BKE-1 at KM 01-1m					
			KE 01	36.6	36.6			
			KE 02	97.4	134.0			
			KE 03	138.3	272.3			
				62.7	335.0			
			KE 04	37.7	372.7			
			BKE-2 at KM 07-24m					
			KE 07	114.1	486.8			
			KE 08	81.5	568.3			
			BKE-3 at KM 10-2m					
			KE 10	57.9	626.2			
			KE 11	88.1	714.3			
			KE 12	71.6	785.9			
			BKE-4 at KM 12+2m					
			KE 13	108.8	894.7			
			KE 14	50.0	944.7			
			BKE-5 at KM 14+1m					
			KE 15	75.4	1,020.1			
			BKE-6 at KM 15+0m					
			BKE-7 at KM 16-2m					
			KE 16	87.6	1,107.7			
			KE 17	66.4	1,174.1			
			BKE-8 at KM 17+6m					
			BKE-9 at KM 18-2m					
			KE 18	91.3	1,265.4			
			KE 19	111.5	1,376.9			
			BKE-10 at KM 20-2m					
			KE 20	45.0	1,421.9			
			KE 21	75.1	1,497.0			
			BKE-11 at KM 21+2m					
			BKE-13 at KM 23-3m					
			KE 23	39.7	1,536.7			
			KE 24	100.7	1,637.4			
			KE 25	81.1	1,718.5			
			BKE-14 at KM 25+1m					
			KE 26	151.8	1,870.3			
			BKE-15 at KM 26+1m					
			BKE-16 at KM 26+31m					
			BKE-17 at KM 27-36m					
			KE 27	117.8	1,988.1			
			KE 28	70.6	2,058.7			
			BKE-18 at KM 28+2m					
			KE 29	73.3	2,132.0			
			KE 30	166.5	2,298.5			
			BKE-19 at KM 30+3m					
			KE 31	175.9	2,474.4			
			BKE-20 at KM 32-4m					
			KE 32	105.9	2,580.3			
			KE 33	174.4	2,754.7			
			Concrete Ditch, 452 m, KE 30+4m -33+0m					

Fig. 7.5.2 LOCATION OF STRUCTURE IN PACKAGE 2 (1/2)

Package 2 : Tanjung drainage channel

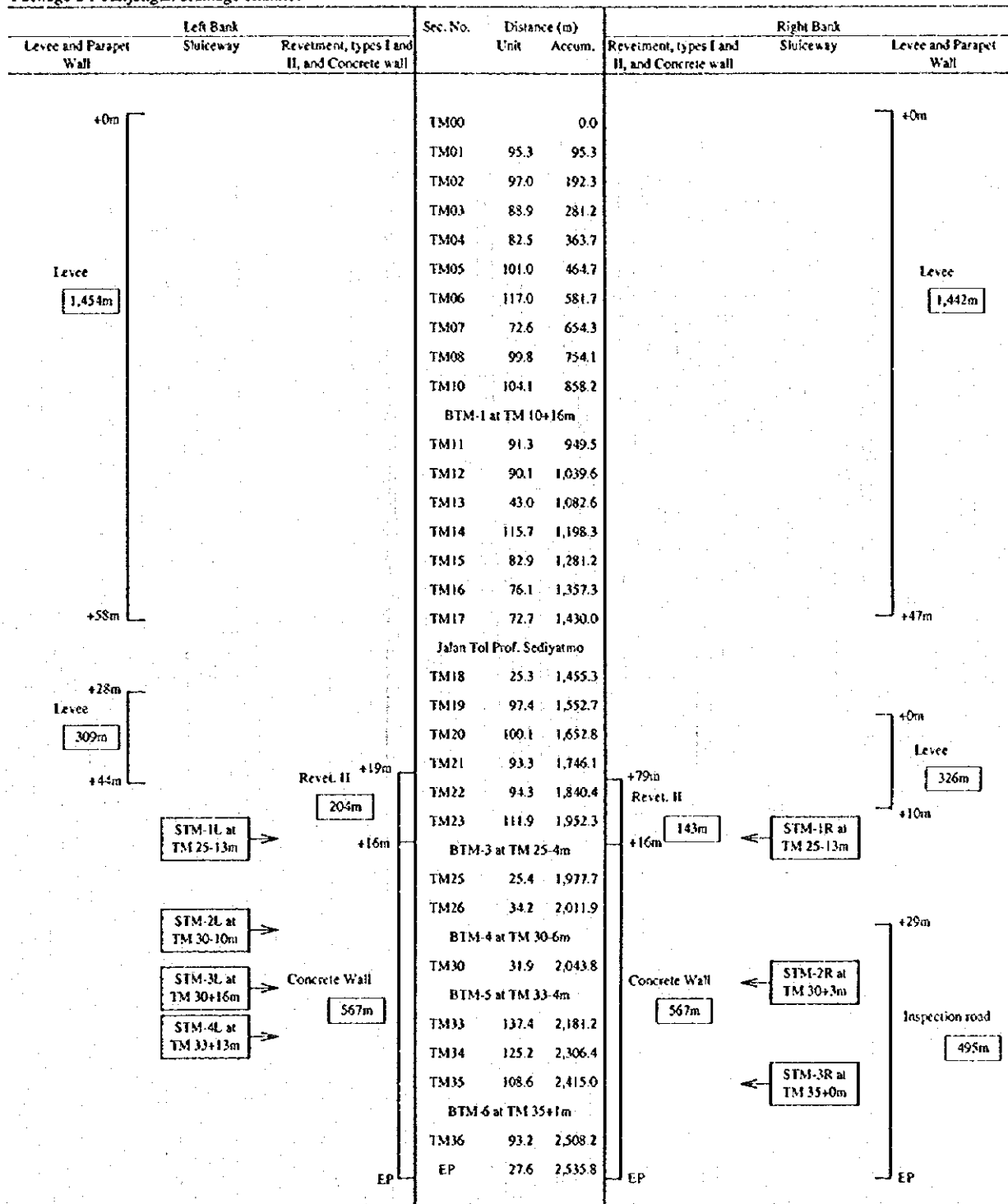


Fig. 7.5.2 LOCATION OF STRUCTURE IN PACKAGE 2 (2/2)

Package 2 : PIK Junction drainage channel

Left Bank		Sec. No.	Distance (m)		Right Bank	
Sluiceway	Concrete culvert		Unit	Accum.	Concrete culvert	Sluiceway
	BP	BP			BP	
		NM26	55.8	55.8		
		NM27	83.0	138.8		
		NM28	84.4	223.2		
		NM29	97.5	320.7		
		NM30	90.9	411.6		
		BNM-1 at NM 32-13m				
		NM32	43.8	455.4		
		NM33	95.3	550.7		
		BNM-2 at NM 33+7m				
		BNM-3 at NM 34-2m				
		NM34	114.4	665.1		
		BNM-4 at NM 34+38m				
	EP	EP	100.3	765.4	EP	

Concrete ditch

765m

Concrete ditch

765m

SNM-1R at NM 34+0m

←

Fig. 7.5.3 LOCATION OF STRUCTURE IN PACKAGE 3 (1/3)

Package 3 : Saluran Cengkareng drainage channel

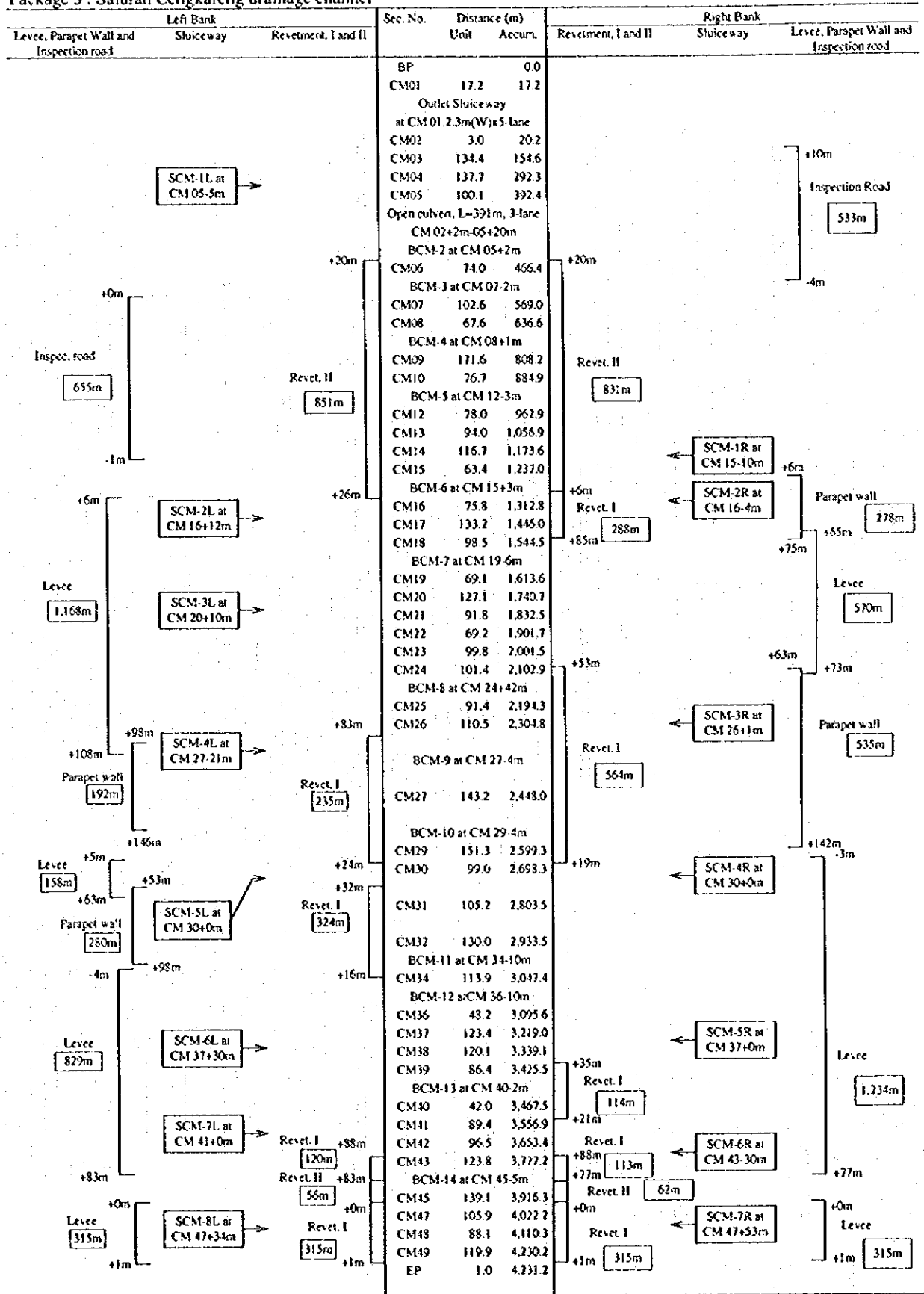


Fig. 7.5.3 LOCATION OF STRUCTURE IN PACKAGE 3 (2/3)

Package 3 : Gede/Bor drainage channel

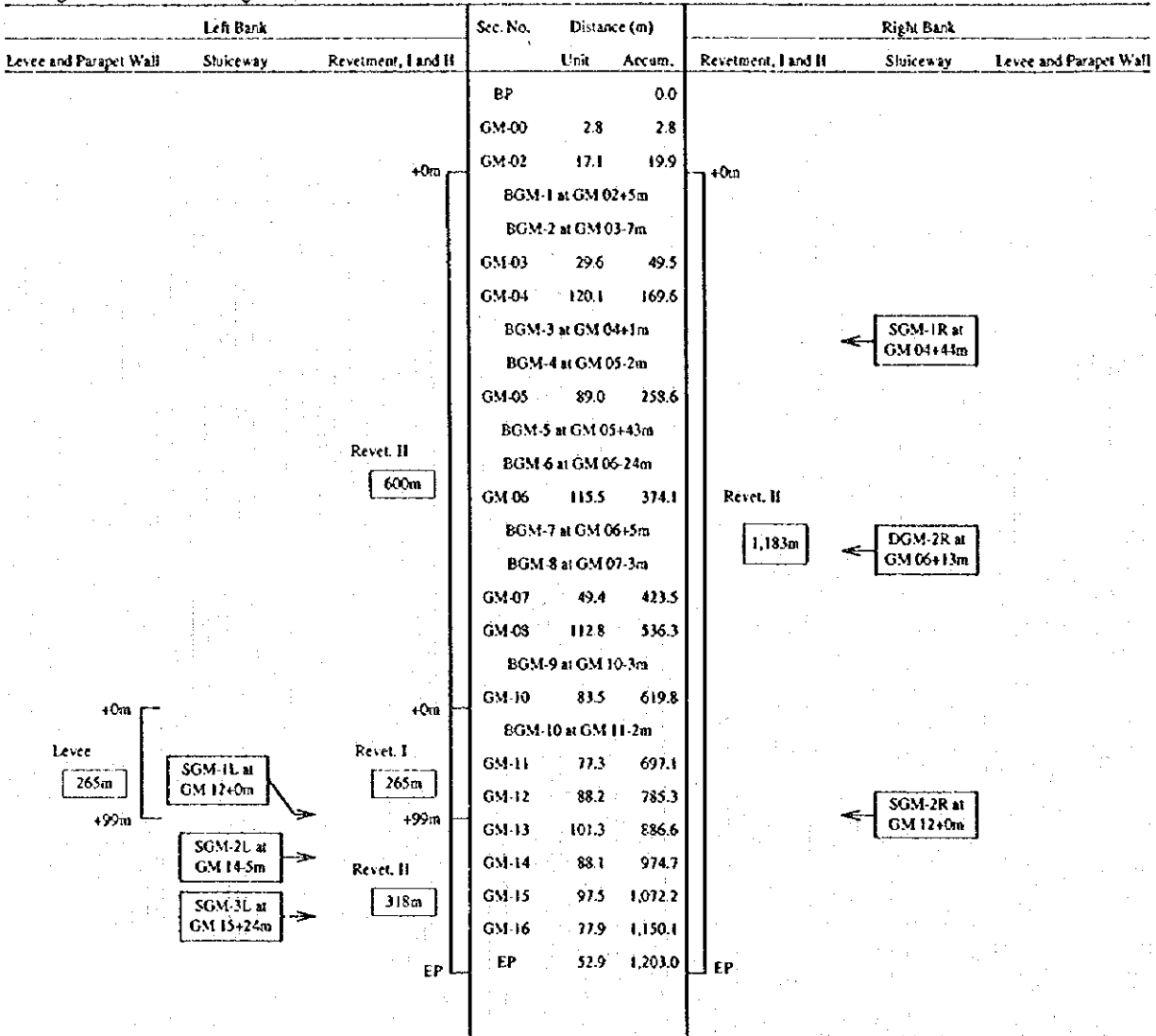
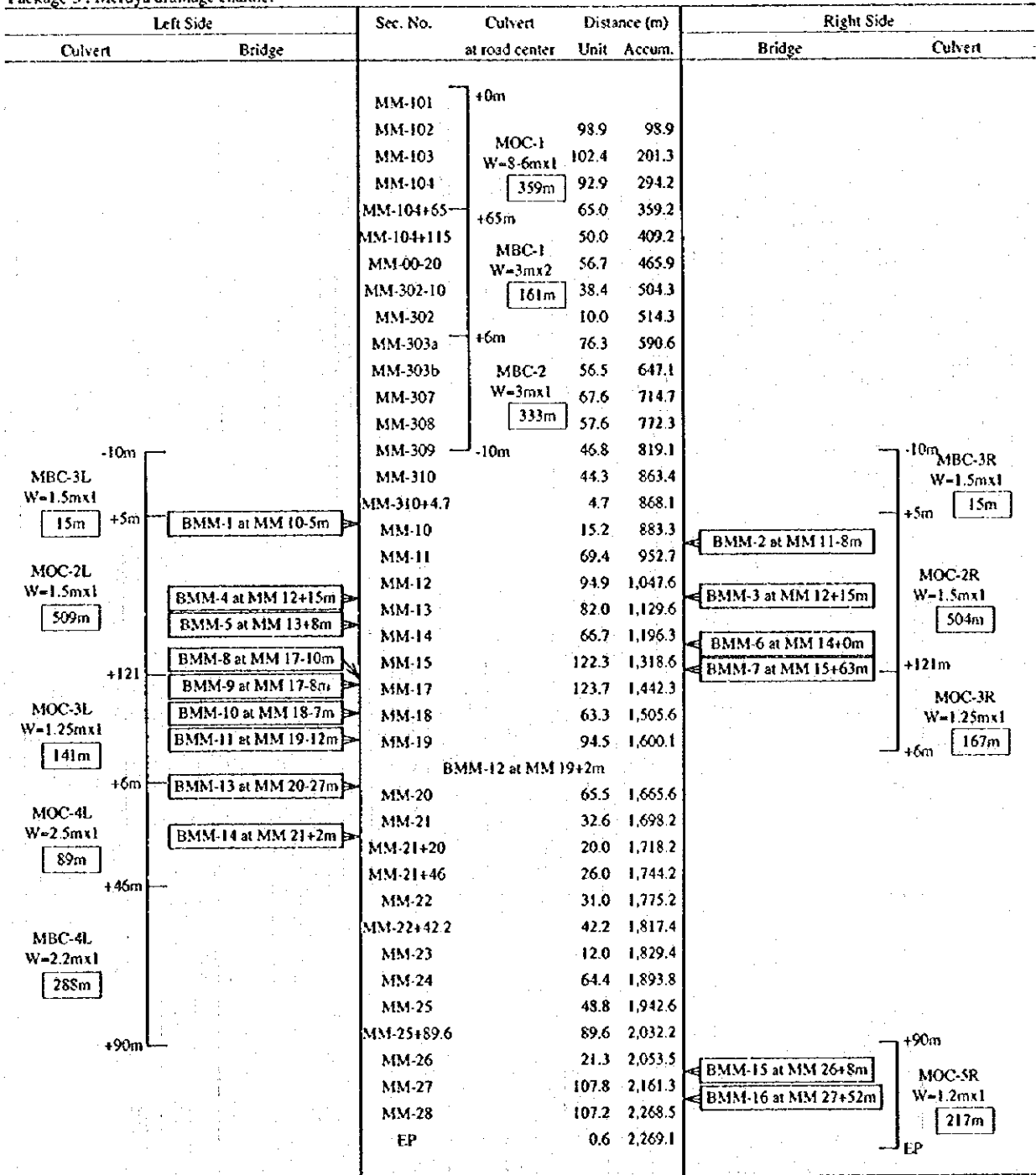


Fig. 7.5.3 LOCATION OF STRUCTURE IN PACKAGE 3 (3/3)

Package 3 : Meruya drainage channel



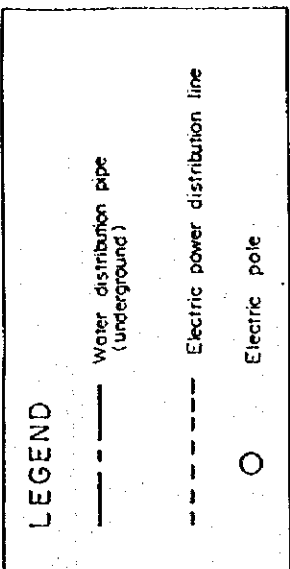
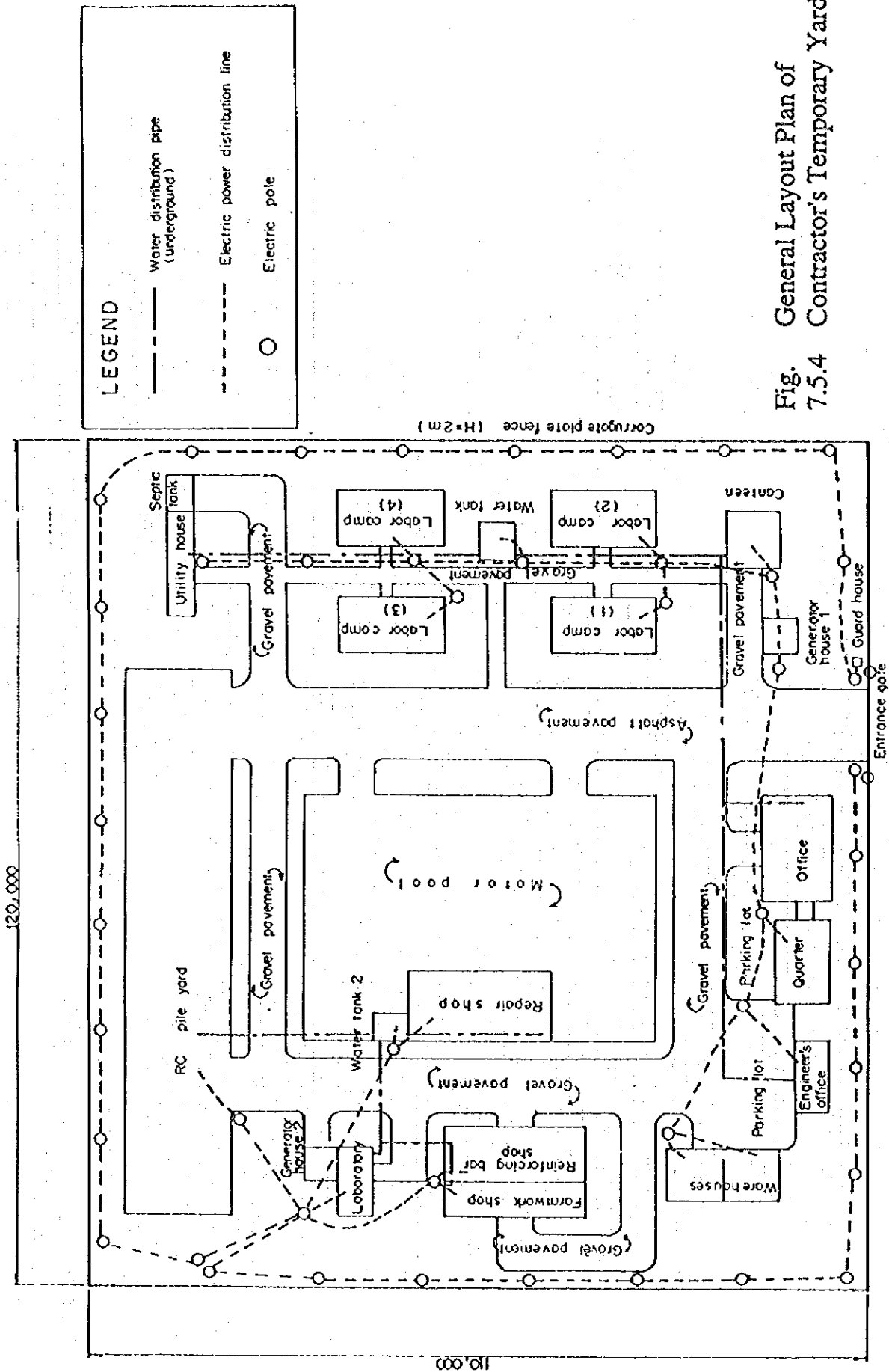


Fig. General Layout Plan of Contractor's Temporary Yard
7.5.4

Fig. 7.5.5 STANDARD WORK SCHEDULE (1/17)

Work	Sub-item	1st month	2nd month	3rd month	4th month	5th month	6th month
Structure : Levee embankment by dump filling method. (1 unit : L=100m)							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.			1st Unit				
- Dewatering							
- Levee embankment							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.			2nd Unit				
- Dewatering							
- Levee embankment							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.				3rd Unit			
- Dewatering							
- Levee embankment							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.					4th Unit		
- Dewatering							
- Levee embankment							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.						5th Unit	
- Dewatering							
- Levee embankment							
- Site preparation							
- Steel sheet piles, L=6m, 575 nos.							6th Unit
- Dewatering							
- Levee embankment							

Fig. 7.5.5 STANDARD WORK SCHEDULE (2/17)

Work	Calendar Day																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Sub-item	b1.1	b1.2	b1.3	b1.4	b1.5	b1.6	b1.7	b1.8	b1.9																						
Site Preparation																															
Excavation	b1.1	b1.2	b1.3	b1.4	b1.5	b1.6	b1.7	b1.8	b1.9																						
Pile Driving																															
Concrete																															
Clearing																															
Base concrete																															
Curing																															
Bar arrangement and Formwork																															
Concrete																															
Curing																															
Form removal																															
Back filling																															

Fig. 7.5.5 STANDARD WORK SCHEDULE (4/17)

Structure : Revetment, Type II (Block length : 10m)

Work	Calendar Day																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Sub-item	bl.1				bl.2				bl.3			bl.4																			
Site Preparation					bl.2					bl.3				bl.4																	
Excavation						bl.2																									
Wooden Pile				bl.1				bl.2				bl.3				bl.4															
Leveling Concrete					bl.1			bl.2				bl.3				bl.4															
Foundation Concrete							bl.1				bl.2																				
Masonry and gravel bedding										bl.1																					
Gravel filling											bl.1						bl.2									bl.4					
Gabion mattress																bl.1															
Rubble filling																	bl.1														
Back Filling																															

Fig. 7.5.5 STANDARD WORK SCHEDULE (6/17)

Structure : Open Culvert in Saluran Cengkareng, Right half 2-lane (Span = 10m)

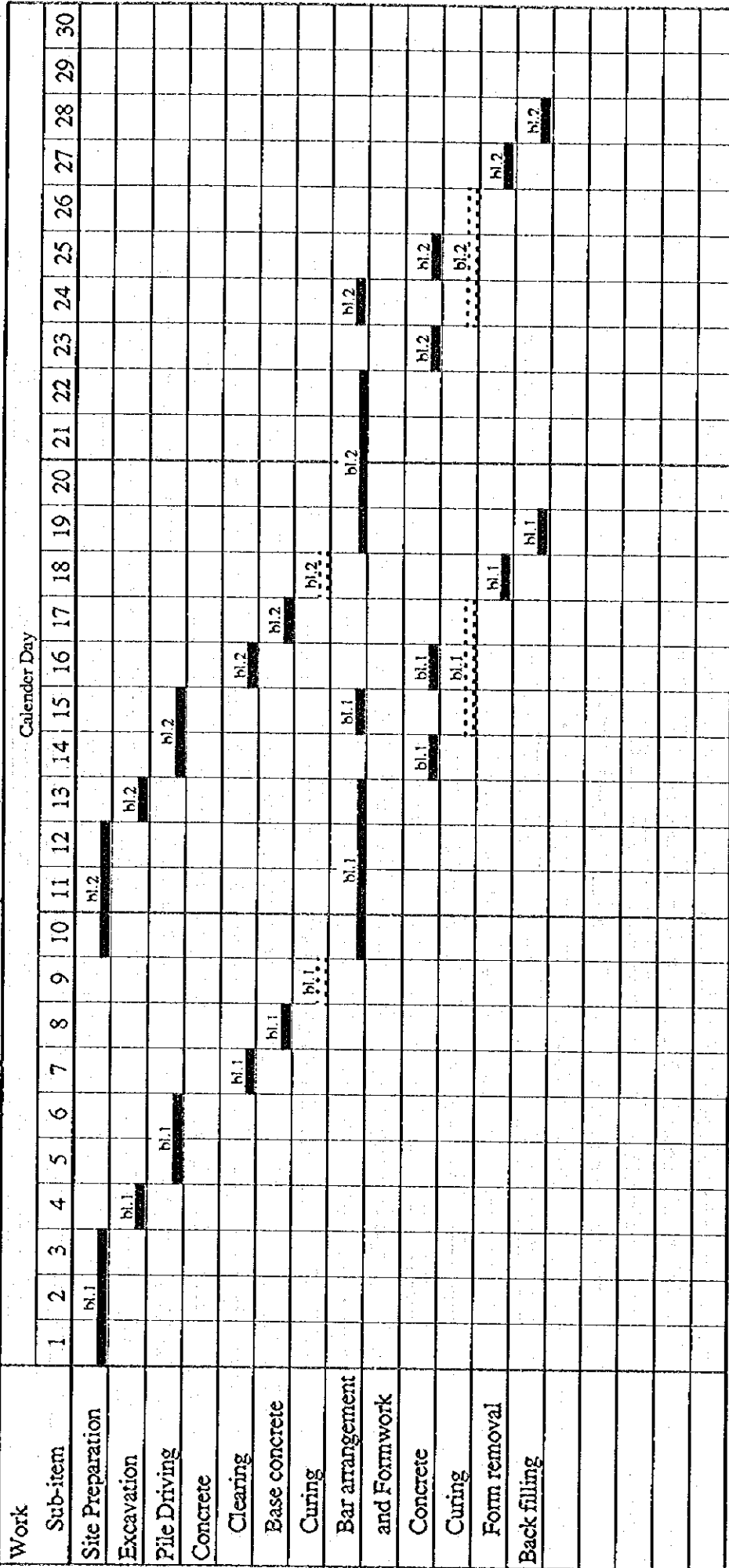


Fig. 7.5.5 STANDARD WORK SCHEDULE (7/17)

Structure : Open Culvert in Saluran Cengkareng, Left half 1-lane (Span = 10m)

Work	Calendar Day																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Sub-item																															
Site Preparation	bl.1						bl.2					bl.3																			
Excavation		bl.1						bl.2					bl.3																		
File Driving			bl.1						bl.2					bl.3																	
Concrete																															
Clearing				bl.1					bl.2					bl.3																	
Base concrete					bl.1					bl.2					bl.3																
Curing						bl.1					bl.2					bl.3															
Bar arrangement and Formwork								bl.1				bl.2					bl.3														
Concrete									bl.1			bl.2					bl.3														
Curing										bl.1				bl.2				bl.3													
Form removal													bl.1					bl.2									bl.3				
Back filling																															bl.2

Fig. 7.5.5 STANDARD WORK SCHEDULE (8/17)

Structure : Outlet Sluiceway of Saluran Cengkareng drainage channel

Work	1st month	2nd month	3rd month	4th month	5th month	6th month
Sub-item						
Site Preparation	Nos. 1&5					
Excavation/Coffering	Nos. 1&5		Nos. 2 to 4			Removal
Demolition	Nos. 1&5		Nos. 2 to 4			
Pile Driving	Nos. 1&5		Nos. 2 to 4			
Concrete						
Leveling	Nos. 1&5			Nos. 2 to 4		
Conduit		Nos. 1&5		Nos. 2 to 4		
Inlet			Nos. 1&5		Nos. 2 to 4	
Outlet			Nos. 1&5		Nos. 2 to 4	
Gate tower			Nos. 1&5		Nos. 2 to 4	
Secondary						
Gate						
Embedded metal		Nos. 1&5		Nos. 2 to 4		
Hoist						
Sluice gate						
Test operation						

Fig. 7.5.5 STANDARD WORK SCHEDULE (9/17)

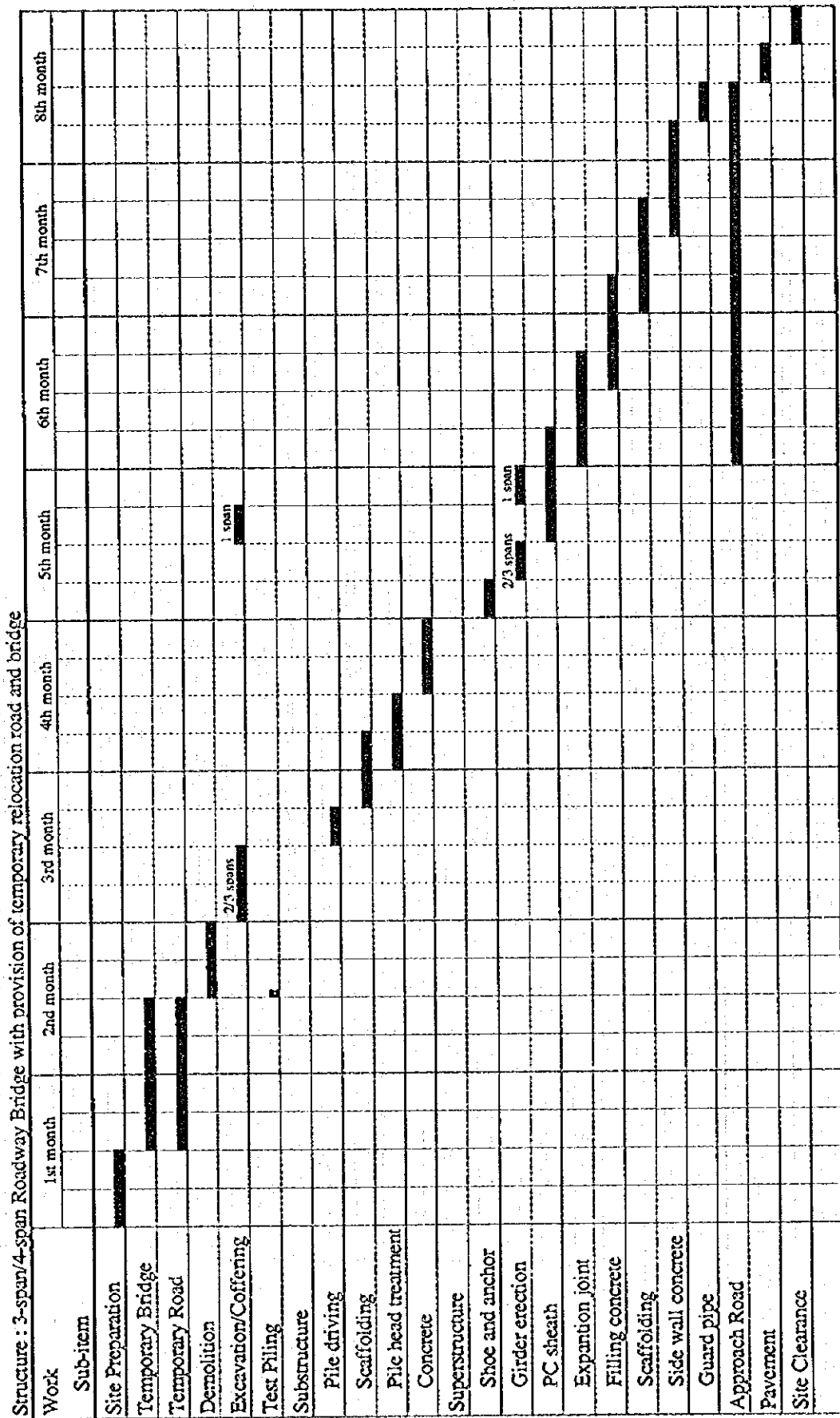


Fig. 7.5.5 STANDARD WORK SCHEDULE (10/17)

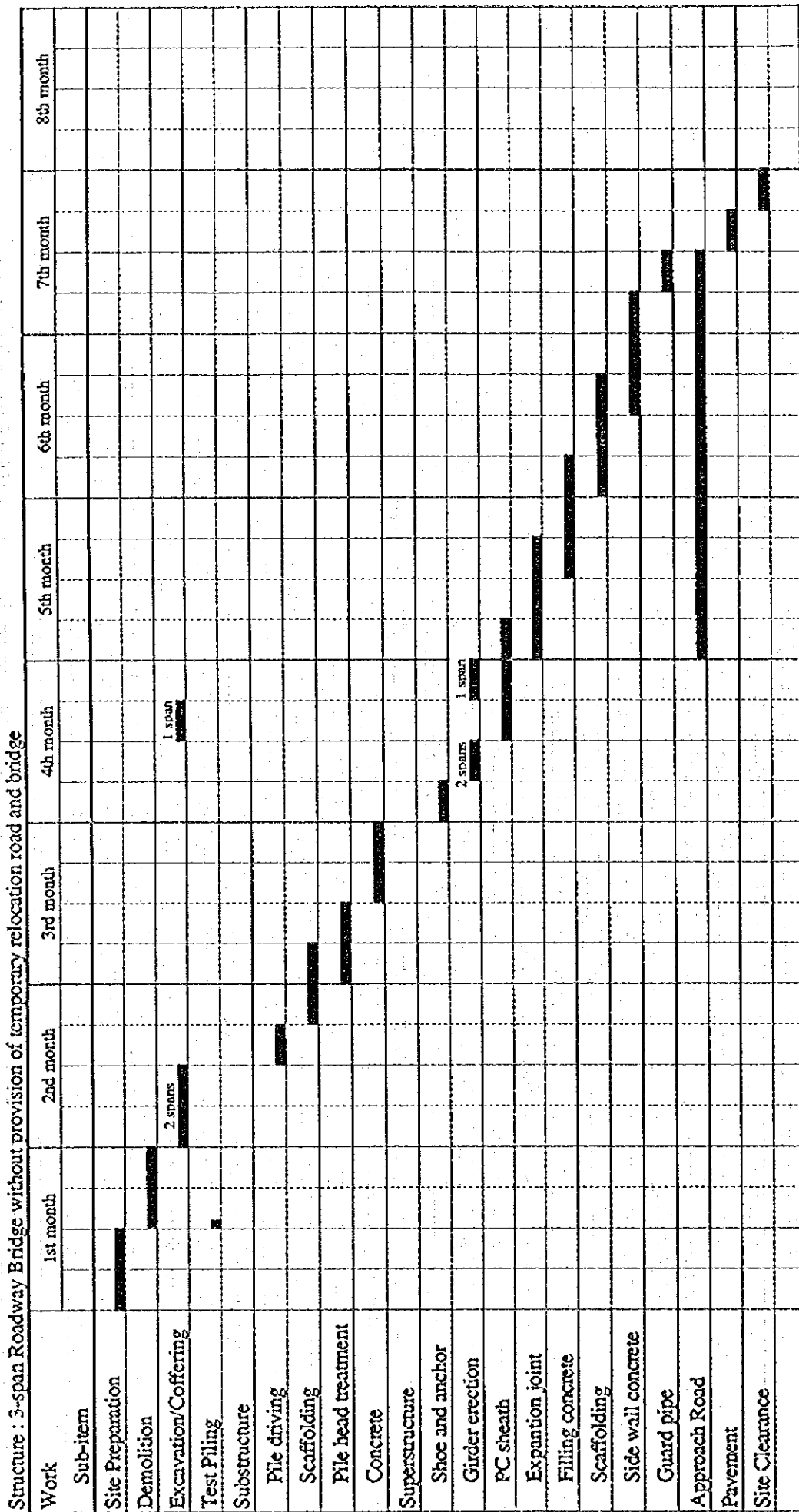


Fig. 7.5.5 STANDARD WORK SCHEDULE (11/17)

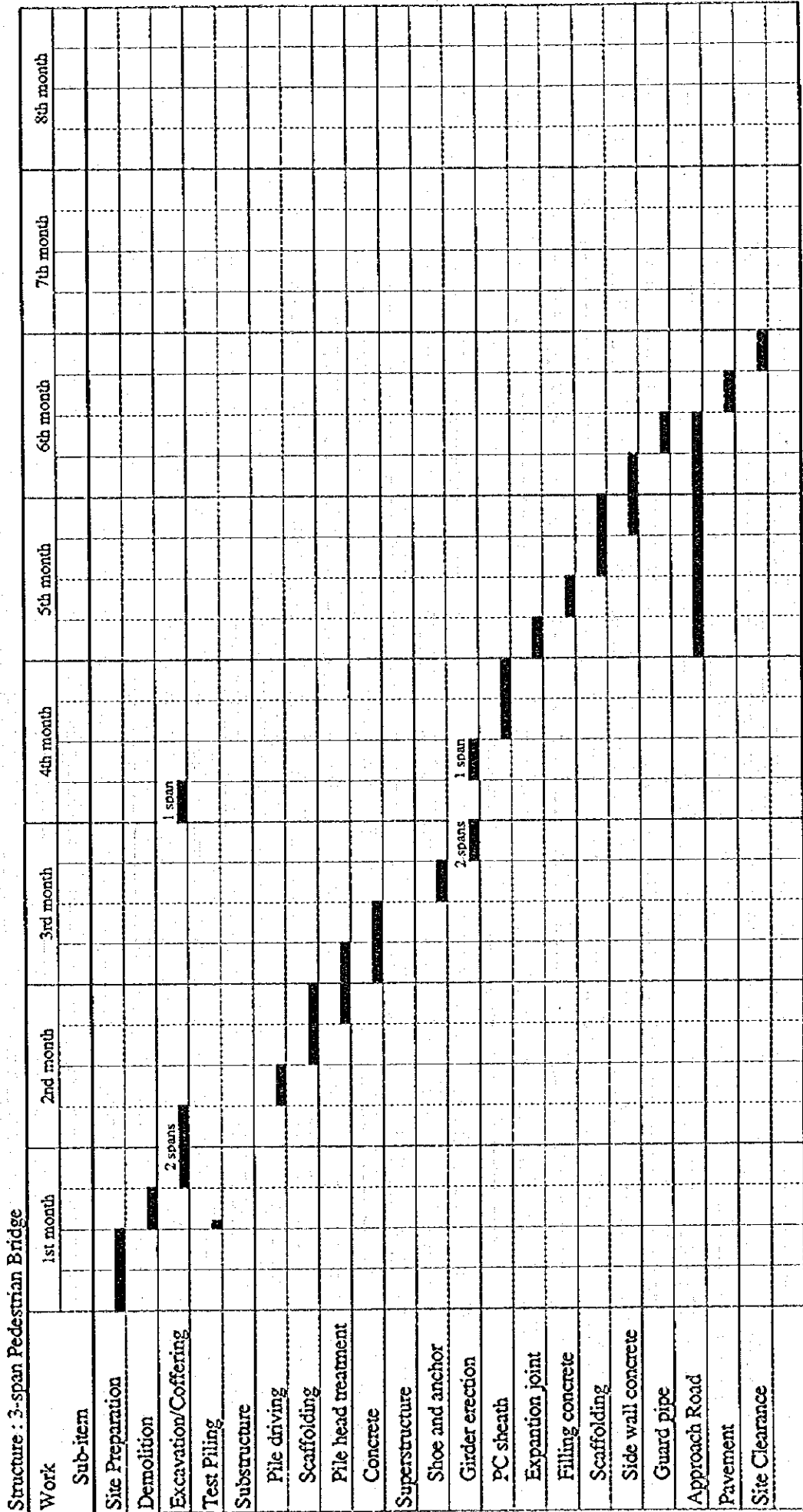


Fig. 7.5.5 STANDARD WORK SCHEDULE (12/17)

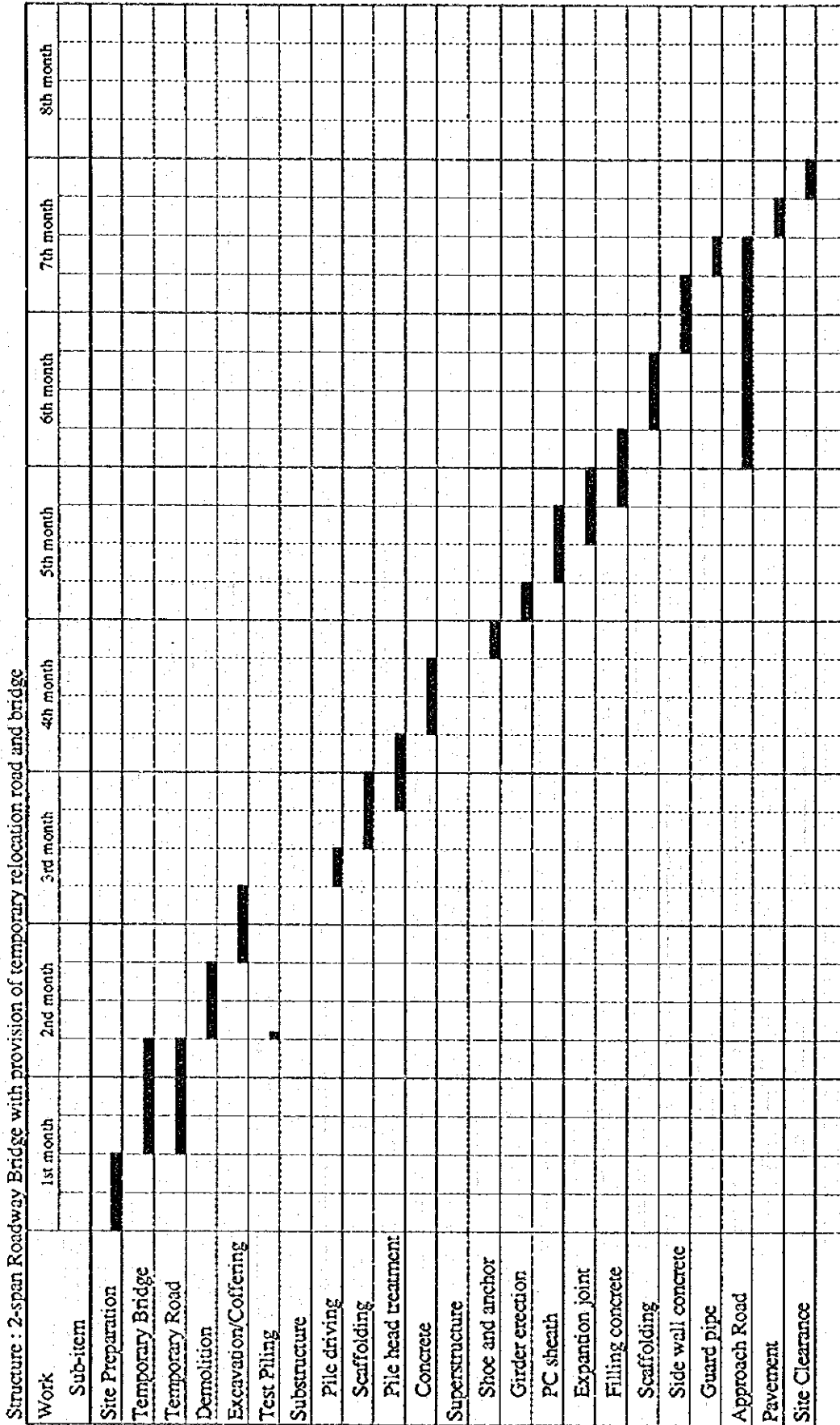


Fig. 7.5.5 STANDARD WORK SCHEDULE (13/17)

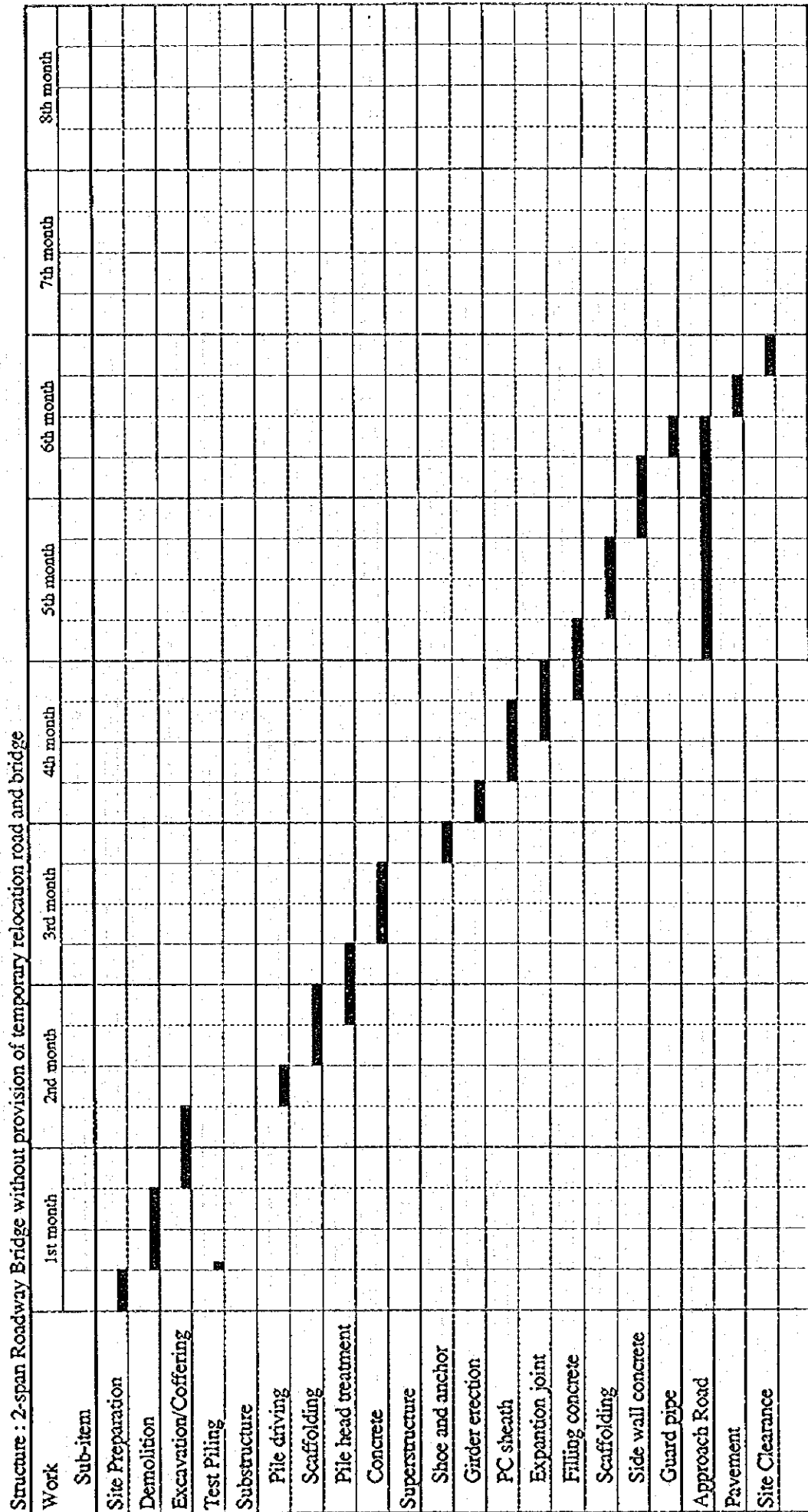


Fig. 7.5.5 STANDARD WORK SCHEDULE (14/17)

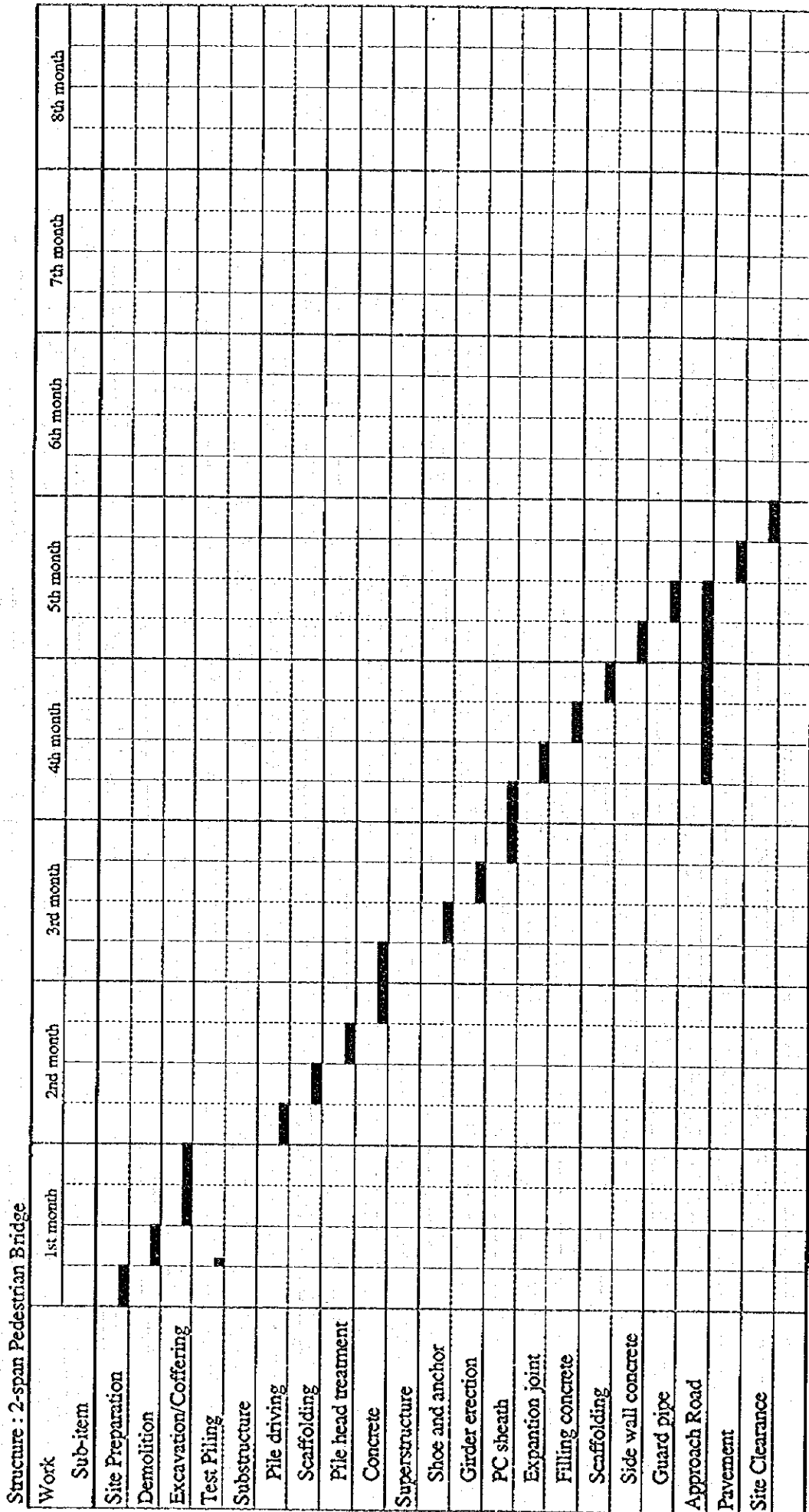


Fig. 7.5.5 STANDARD WORK SCHEDULE (15/17)

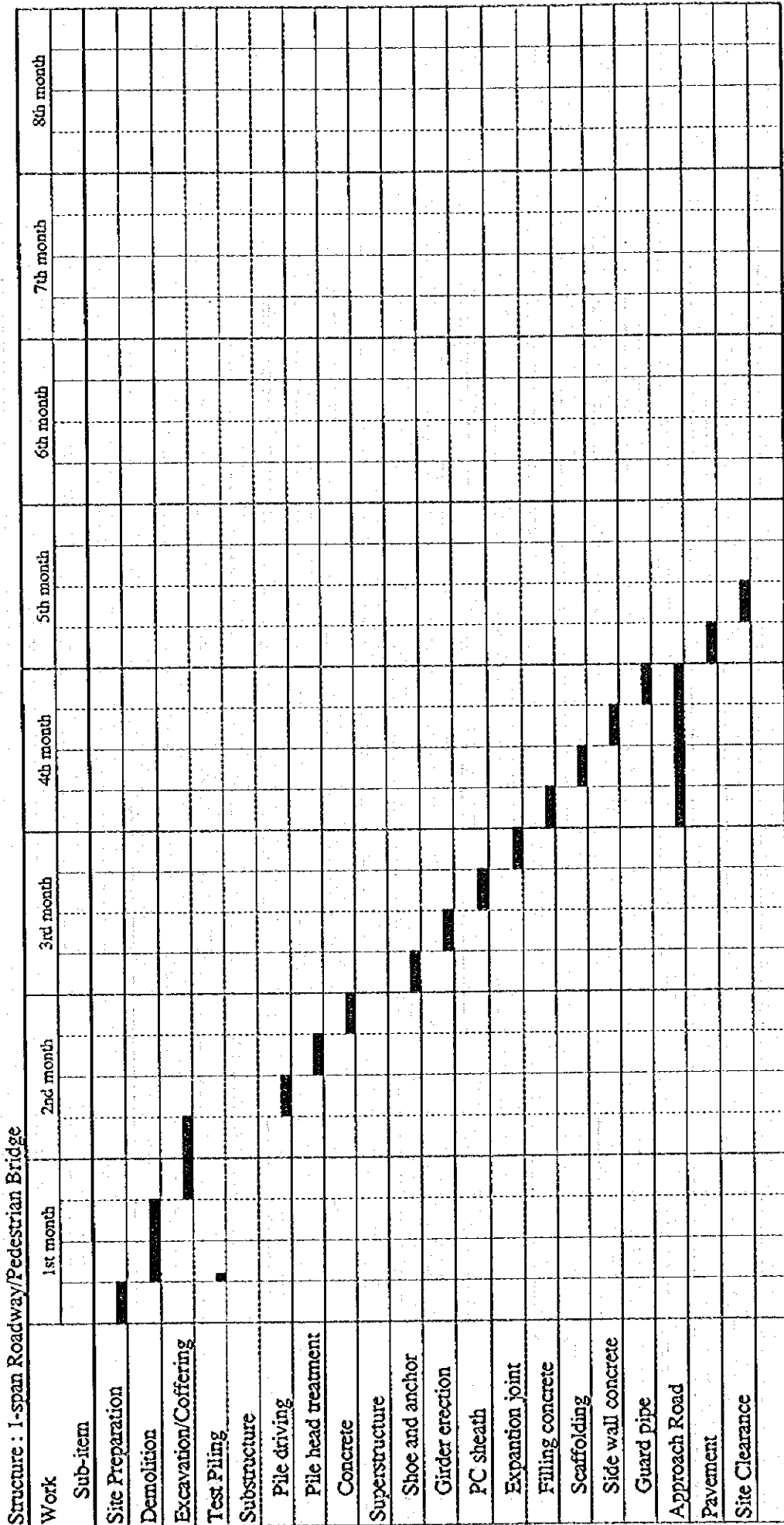


Fig. 7.5.5 STANDARD WORK SCHEDULE (16/17)

Structure : In-situ Slab Roadway Bridge with test piling

Work Sub-item	1st month	2nd month	3rd month	4th month	5th month	6th month	7th month	8th month
Site Preparation	█							
Demolition	█							
Excavation	█							
Test Piling	█							
Substructure								
Pile driving		█						
Pile head treatment		█						
Concrete in cuvert			█					
Superstructure								
Shoe								
In-situ concrete								
Erection by crane								
Handrail								
Approach Road								
Pavement								
Site Clearance								

Fig. 7.5.5 STANDARD WORK SCHEDULE (17/17)

Structure : In-situ Slab Roadway Bridge without test piling

Work Sub-item	1st month	2nd month	3rd month	4th month	5th month	6th month	7th month	8th month
Site Preparation	█							
Demolition	█							
Excavation	█							
Substructure								
Pile driving		█						
Pile head treatment			█					
Concrete in cuvert			█					
Superstructure								
Shoe								
In-situ concrete								
Erection by crane								
Handrail								
Approach Road								
Pavement								
Site Clearance								

No. 8

Cost Estimate

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1 GENERAL

The total project cost consists of construction costs for Packages 1 to 3, engineering services, administration expense, contingencies, tax and interest during construction. The constitute of the total project cost is given in Fig. 8.1.1.

The estimated total project cost is summarized as below on price level of June 1997, assuming the foreign exchange rates of US\$ 1.0 = Rp. 2,350 = Yen 115.0.

Foreign currency :	US\$ 28,016,000	(31.5 %)
<u>Local currency :</u>	<u>US\$ 60,957,000</u>	<u>(68.5 %)</u>
Total :	US\$ 88,973,000	(100 %)

The construction cost is estimated with the unit price estimate method in principal, taking into account of the detailed design, scope of work, general and technical specifications, proposed construction plan and schedule prevailing labor wages, material costs, equipment cost and governing law and regulations concerned.

2 BASIC CONDITIONS AND ASSUMPTIONS

The financial cost was estimated under the following conditions:

(1) Project execution method

All the construction works of the project will be executed on a contract basis. The construction equipment, materials and labor to be required for the works will be supplied by the contractors to be selected through an international tendering for each package.

(2) Price level

The cost estimate is made at the price level as of June 1997 because basic costs of labor, material and equipment had been collected at this period.

(3) Currency in cost estimate

The cost estimate is made in terms of US Dollars for both the foreign currency

portion and the local currency portion.

(4) Foreign exchange rates

The exchange rate in the cost estimate is US\$1.0 = ¥115.00 = Rp. 2,350, on the bases of the TTS (=Telegram Transfer Selling) rates of the Bank of Tokyo-Mitsubishi in Japan as of monthly mean rates in June 1997.

(5) Classification of Foreign and Local Currencies

The financial cost is divided into foreign currency portion and local currency portion. The following conditions for the classification of foreign currency portion and local currency portion are applied in the cost estimate:

Local currency portion:

- All labor costs;
- Net local portion of construction material costs;
- Annual management and part of maintenance costs of construction equipment;
- Cost of local portion of engineering services.
- All costs of administration expense for the government staff,
- Land acquisition and compensation costs;
- Value Added Tax;
- Local portion of contingencies, and
- Local portion of interest during construction.

Foreign currency portion:

- Part of maintenance and full amount of depreciation costs of equipment;
- Net and indirect portions of construction material costs,
- Cost of foreign engineering services.
- Foreign portion of contingencies, and
- Foreign portion of interest during construction.

The proportions of foreign and local currency components of the major construction materials and other unit price components are assumed as follows:

Description	Foreign Portion (%)	Local Portion (%)
1. Labor	0	100
2. Construction Equipment	80	20
3. Construction Materials		
(1) Cement	70	30
(2) Re-bar	70	30
(3) Fuel, Oil and Lubricant	80	20
(4) Aggregate and stone materials	70	30
(5) Cobble, Gravel and Sand	40	60
(6) Lumber, Plywood & Wooden Materials	40	60
(7) R.C. Products	70	30
(8) Asphalt Bituminous	60	40
(9) Steel Sheet Pile	90	10
(10) Structural Steel	90	10
(11) PVC Waterstop	80	20

3 COMPOSITION OF PROJECT COST

The composition of the project cost is shown in Fig. 8.1.1. The calculation method of the project cost is tabulated below.

Item	Calculation Method
A. Construction Cost	Unit price basis
1 Package 1	
2 Package 2	
3 Package 3	
B. Engineering Services	Estimate by schedule
C. Administration Expense	5% of A
D. Compensation	Estimate of land and houses
E. Contingencies	
1 Physical contingency	10 % of A to D
2 Price escalation	2 % p.a. of A to E.1
F. Tax	10 % of A, B & E (for A & B)
G. Interest during Construction	3 % p.a. for financed amount
H. Total Project Cost	Total A to G

4 APPROACH TO COST ESTIMATE

In line with the basic conditions and assumptions, cost estimate was made by the procedure as described below.

4.1 General Items and Public Utilities

In accordance with the Tender Documents and construction plan and schedule, work items and period are identified for each pay item. Unit costs of labor, materials and equipment are same with those of the construction works. Insurance costs for temporary and permanent structures and for third parties are estimated in the general items because such costs are presumed not to be included in the unit prices stated in the Bill of Quantities.

The costs of public utilities to be relocated/reconstructed are estimated on the basis of price quotations from related agencies multiplying work quantities shown in Tables 7.5.9 and 7.5.10 in sub-chapter 7.5.2 (7) of the "Construction plan and Schedule" report in ANNEX-III.

4.2 Construction Works

The unit work cost was prepared in a breakdown of unit cost and estimated based on the unit prices of materials, labor and equipment. It consists of direct cost, indirect cost including contractor's overhead and profit, office expense and excluding value added tax. The cost of construction works are calculated by multiplying work quantity and unit price.

The labor wages are estimated based on the Government regulations. The labor wages include excess overtime for 8 hours per week, contributions, bonus and insurance charge. Those labor wages are tabulated in Table 8.4.1 with calculation procedure.

The unit costs of materials are collected in Jakarta city referring to price quotations from manufacturers and suppliers, material price books published in Jakarta city for local products and Japan for import products. Those unit costs of materials are tabulated in Table 8.4.2 with ratio of foreign and local currency portions.

The equipment unit cost at the site is calculated on hourly or daily basis taking

into account the nature of equipment use. The equipment cost includes depreciation cost, repair and maintenance costs and annual management expenses. Reference was made to the authorized guide line available in Japan to determine life time rate of repair, maintenance and administration expenses. The unit cost is allocated to the foreign currency portion and local currency portion, considering the origin of those cost items. The operation cost such as operator's wage, fuel cost, lubricants cost and electricity charge is not included in the hourly/daily cost of equipment but they are counted into labor and material costs in the unit price of the construction works. The estimated equipment cost on hourly or daily basis is shown in Table 8.4.3 with basic data for the estimate of equipment unit cost. The fuel consumption and required operators for equipment operation are shown in Table 8.4.4.

The Contractor's overhead cost covering the following items is assumed to be 20 % of the direct cost, which comprises labor cost, material cost and equipment cost, and included in the respective unit price of the work.

- Field administration and supervision
- Corporate overhead and profit
- Communication and welfare
- Security and safety control
- Material handling at site
- Movement of equipment in the site

4.3 Engineering Services

The engineering service cost in assistance of tendering and construction supervision of the project works by consultant was estimated on an actual cost basis. The assignment schedule of the consultant's engineers are assumed to be recruited on man-month basis as shown in Fig. 8.4.1.

4.4 Administration Expenses

The administration expenses of the project management office was assumed to be 5 % of the construction costs of Packages 1 to 3. In this expense, extra costs due to the project implementation are counted and estimated for site allowance of the staff, transportation in the site area, inspectors to be employed for the supervision of the project, etc.

4.5 Land Acquisition and House Compensation

Unit costs of house compensation and acquisition of lands were estimated based on experienced cost data in Jakarta City. The work quantities are estimated by the results of the detailed design features and construction implementation methods. The details of unit price and work quantities are described in ANNEX-IV of Vol. II Supporting Reports.

4.6 Tax

Value added tax (=PPN) of 10 % is charged for the total costs of construction, engineering services and their contingencies. Import duty and tax is deemed to be included in the costs of imported goods, however such costs cannot be identified in the costs of those goods to be procured from local agents, manufacturers and suppliers. In this connection, such import duty and tax are inclusive in the unit costs of material and equipment.

4.7 Contingency

The contingency comprises physical and price contingencies.

The physical contingency was estimated at 10 % of the sum of main construction cost, land and house compensation, engineering services and administration expense to cover unforeseen costs as shown below.

- Underground public utilities
- Foundation piles subject to geological conditions
- Additional drainage facilities to be requested by inhabitants
- Change of designs in relation with compensation

The price contingency to cope with an annual price escalation was estimated at 2 % for both the foreign and local currency portions. The escalation from the base year (1997) is calculated as below.

Year	Escalation Rate
1998	2.00%
1999	4.04%
2000	6.12%
2001	8.24%
2002	10.41%
2003	12.62%
2004	14.87%
2005	17.17%
2006	19.51%

4.8 Interest during Construction

The annual interest amount during construction period is calculated by applying fixed rate of 3 % against accumulated financed amount in each year. The calculation method of the interest is tabulated below.

Year	Financed Amount		Interest Amount	
	Annual	Due Amount	Rate	Amount
1997	A	$A1=1/2xA$	3.00%	$A2=A1 \times 3.00\%$
1998	B	$B1=1/2x B+A+A2$	3.00%	$B2=B1 \times 3.00\%$
1999	C	$C1=1/2xC+B1+1/2xB+B2$	3.00%	$C2=C1 \times 3.00\%$
2000	D	$D1=1/2xD+C1+1/2xC+C2$	3.00%	$D2=D1 \times 3.00\%$
2001	E	$E1=1/2xE+C1+1/2xC+D2$	3.00%	$E2=E1 \times 3.00\%$
2002	F	$F1=1/2xF+E1+1/2xE+E2$	3.00%	$F2=F1 \times 3.00\%$
2003	G	$G1=1/2xG+F1+1/2xF+F2$	3.00%	$G2=G1 \times 3.00\%$
2004	H	$H1=1/2xH+G1+1/2xG+G2$	3.00%	$H2=H1 \times 3.00\%$
2005	I	$I1=1/2xI+H1+1/2xH+H2$	3.00%	$I2=I1 \times 3.00\%$
2006	J	$J1=J+I1+1/2xI+I2$	3.00%	$J2=J1 \times 3.00\%$

5 COST ESTIMATE

The total project cost comprises construction costs for Packages 1 to 3, engineering services, administrative expense, compensation cost for households and land acquisition, physical and price contingencies, tax and interest during construction. The main construction cost was estimated on a unit price basis.

The financial cost estimated based on the above conditions is US\$ 89.0 million comprising foreign currency portion of US\$ 28.0 million (31.5 %) and local currency portion of US\$ 61.0 million (68.5 %) including tax. Table 8.5.1 shows the summary of the total project cost.

Detailed breakdown of the costs for each packages in Table 8.5.1 is given in the tables shown below.

Appendix 8-1 Construction cost for Package 1 (Overall, Stages I to III)

Appendix 8-2 Construction cost for Package 2 (Overall, Tanjungan and PIK
Junction)

Appendix 8-3 Construction cost for Package 3 (Overall, Gede/Bor, Saluran
Cengkareng and Meruya)

Breakdown of costs of engineering services is given in Table 8.5.5.

6 ANNUAL DISBURSEMENT SCHEDULE

An annual disbursement schedule of the project works was estimated as shown in Table 8.6.1 based on the proposed construction schedule. The annual budget to be disbursed is summarized as follows:

Year	(1,000 US\$)		
	F.C.	L.C.	Amount
1997	0	1,030	1,030
1998	0	854	854
1999	243	3,054	3,297
2000	2,184	5,968	8,152
2001	2,709	11,536	14,245
2002	2,956	12,847	15,803
2003	4,050	8,437	12,487
2004	6,678	8,124	14,802
2005	5,116	5,740	10,856
2006	4,080	3,367	7,447
Total	28,016	60,957	88,973

7 OPERATION AND MAINTENANCE COSTS

Operation and maintenance of the drainage channel and constructed structures shall be necessary to keep functions of those drainage channels. Those works consist of the following items :

- Removal of sediment in drainage channels,
- Minor repair and maintenance of pavements,

- Cutting grass on the slopes of embanked levee and inspection/relocation road,
- Minor repair and maintenance of gabion mattresses,
- Minor repair and maintenance of steel mesh cover on the open culvert in Saluran Cengkareng drainage channel,
- Minor repair and maintenance of sluiceway gates,
- Periodical inspection on the conduits of sluiceways.

Those work costs per each year assume to require 0.5 % of the construction cost for each package. The annual costs for Package 1 to 3 are shown below.

Item	Unit : US\$		
	Package 1	Package 2	Package 3
Construction cost	8,921,383	4,324,887	10,648,850
Cost ratio of O/M	0.5%	0.5%	0.5%
Annual O/M cost	44,600	21,600	53,200

Tables

Table 8.4.1 Daily Wage of Labor

		Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115 as of June 1997																				
1	2	3	4	5	6	7	8		9		10		11		12		13		14		15	
							Rate	Annual	Rate	Annual	Weekly	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual		Annual
No. Particular	Unit	Minimum Wage	Total Contributions	Insurance	Overtime Charge	Bonus	Annual	Rate	Annual	Weekly	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Annual	Daily Wage	
		(Rp./day)	(Rp./year)	(Rp./mon.)	(Rp./year)	(Rp./year)	(Rp./year)	(%)	(Rp./year)	(Rp./week)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./year)	(Rp./day)	Equiv. US\$
1	Foreman	m.d.	14,000	4,172,000	2.10	352,800	5%	208,600	27,125	1,415,383	350,000	6,498,783	21,800	9.28								
2	Operator A	m.d.	16,000	4,768,000	2.10	403,200	5%	238,400	31,000	1,617,580	400,000	7,427,180	24,900	10.60								
3	Operator B	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
4	Driver	m.d.	12,000	3,576,000	2.10	302,400	5%	178,800	23,250	1,213,185	300,000	5,570,385	18,700	7.96								
5	Electrician	m.d.	14,000	4,172,000	2.10	352,800	5%	208,600	27,125	1,415,383	350,000	6,498,783	21,800	9.28								
6	Mechanic	m.d.	14,000	4,172,000	2.10	352,800	5%	208,600	27,125	1,415,383	350,000	6,498,783	21,800	9.28								
7	Welder	m.d.	14,000	4,172,000	2.10	352,800	5%	208,600	27,125	1,415,383	350,000	6,498,783	21,800	9.28								
8	Rigger	m.d.	14,000	4,172,000	2.10	352,800	5%	208,600	27,125	1,415,383	350,000	6,498,783	21,800	9.28								
9	Mason	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
10	Skilled labor	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
11	Steel worker	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
12	Plumber	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
13	Carpenter	m.d.	11,000	3,278,000	2.10	277,200	5%	163,900	21,313	1,112,112	275,000	5,106,212	17,100	7.28								
14	Pavement worker	m.d.	8,000	2,384,000	2.10	201,600	5%	119,200	15,500	808,790	200,000	3,713,590	12,500	5.32								
15	Concrete worker	m.d.	8,000	2,384,000	2.10	201,600	5%	119,200	15,500	808,790	200,000	3,713,590	12,500	5.32								
16	Common labor	m.d.	7,000	2,086,000	2.10	176,400	5%	104,300	13,563	707,717	175,000	3,249,417	10,900	4.64								

NOTES : Above labor wage is presumed referring to "THE REGIONAL MINIMUM WAGE FOR 27 PROVINCES IN INDONESIA, 1997" and related Decrees, Regulations and Acts.

Basic Work Condition in DKI Jakarta :

Work hours : 8 hours/day

Work days : 6 days/week

Overtime : 8 hours/day (8 hours/day x 6 days/week - 40 hours/week)

Bonus : 25 days wage or 1 month salary per year

Basic Data :

Yearly workable day : 298 days/year (365 days - 52 sundays - 15 National holidays)

Week per year : 52.18 weeks/year (365.25 days/year / 7 days/week)

Paid leave : 12 days/year

Overtime : 1.5 times for first hour

2.0 times after first hour

Calculation Formula :

(5) = (4) x 298

(7) = (4) x (6) x 12

(9) = (4) x (8)

(10) = (4) / 8 x 1.5 + (4) / 8 x 7 x 2.0

(11) = (10) x 52.18

(12) = (4) x 25

(13) = (5) + (7) + (9) + (11) + (12)

(14) = (13) / 298

Table 8.4.2 UNIT COSTS OF MATERIALS (1/4)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Particular	Description	Unit	Base Cost		Unit Cost (US\$)			
			Foreign (US\$)	Local (Rp.)	Rate	F/C	Rate	L/C
1 Gasoline		lit.		700	0.80	0.24	0.20	0.06
2 Light oil		lit.		450	0.80	0.16	0.20	0.04
3 Form oil		lit.		200	0.80	0.07	0.20	0.02
4 Electric		KWH		225	0.80	0.08	0.20	0.02
5 Earth material		cu.m		10,000	0.60	2.55	0.40	1.70
6 Portland cement, sack	ordinary	ton		180,000	0.70	53.62	0.30	22.98
7 Coarse aggregate		cu.m		36,400	0.70	10.85	0.30	4.65
8 Fine aggregate		cu.m		36,400	0.70	10.85	0.30	4.65
9 Stone materials		cu.m		24,200	0.70	7.21	0.30	3.09
10 Non-shrink mortar		lit.	2.05		0.70	1.44	0.30	0.62
11 Ready-mixed concrete, type 1	K.325-08-25	cu.m		150,000	0.70	44.69	0.30	19.15
12 Ready-mixed concrete, type 2	K.300-10-40	cu.m		145,000	0.70	43.20	0.30	18.52
13 Ready-mixed concrete, type 3	K.225-08-25	cu.m		142,000	0.70	42.30	0.30	18.13
14 Ready-mixed concrete, type 4	K.225-10-40	cu.m		140,000	0.70	41.71	0.30	17.88
15 Ready-mixed concrete, type 5	K.125-10-25	cu.m		125,500	0.70	37.39	0.30	16.03
16 Hot mix asphalt		cu.m		223,000	0.60	56.94	0.40	37.96
17 Asphalt emulsion	tack coat	lit.		605	0.60	0.16	0.40	0.11
18 Asphalt emulsion	prime coat	lit.		625	0.60	0.16	0.40	0.11
19 Gabion mattress, PVC coated	3.0x1.5x0.5m	pc.		126,000	0.70	37.54	0.30	16.09
20 Gabion mattress, galvanized	3.0x1.5x0.5m	pc.		100,000	0.70	29.79	0.30	12.77
21 PVC pipe	50 mm	lin.m		5,100	0.80	1.74	0.20	0.44
22 PVC pipe coupling	65 mm	pc.		1,200	0.80	0.41	0.20	0.11
23 PVC water stop	200 mm	lin.m		12,600	0.80	4.29	0.20	1.08
24 PVC water stop	200 mm	lin.m		22,900	0.60	5.85	0.40	3.90
25 Metal form	300x1500mm	pc.		37,200	0.90	14.25	0.10	1.59
26 Metal form	200x1500mm	pc.		34,300	0.90	13.14	0.10	1.46
27 Metal form	150x1500mm	pc.		27,200	0.90	10.42	0.10	1.16
28 Timber, plank		cu.m		400,000	0.40	68.09	0.60	102.13
29 Timber, square		cu.m		400,000	0.40	68.09	0.60	102.13
30 Timber, log		cu.m		340,000	0.40	57.88	0.60	86.81
31 Plywood	t=12mm	sq.m		22,500	0.40	3.83	0.60	5.75
32 Nail		kg		700	0.60	0.18	0.40	0.12
33 Clamp		pc.		18,500	0.90	7.09	0.10	0.79
34 Cast iron pipe	48.6 mm	m		3,700	0.90	1.42	0.10	0.16
35 Cone		pc.		300	0.90	0.12	0.10	0.02
36 Separator	9 mm	lin.m		400	0.90	0.16	0.10	0.02
37 Annealed iron wire		kg		1,100	0.90	0.43	0.10	0.05
38 Catwalk wooden plate	1.829x1.050m	pc.		48,600	0.40	8.28	0.60	12.41
39 Steel sheet pile, YSPF	W=400mm	sq.m	69.10		0.90	62.20	0.10	6.92
40 Steel sheet pile, U type II	W=400mm	sq.m	59.90		0.90	53.92	0.10	6.00
41 Concrete pipe	200 mm	lin.m		32,500	0.70	9.69	0.30	4.15
42 Concrete pipe	300 mm	lin.m		48,200	0.70	14.36	0.30	6.16
43 Concrete pipe	400 mm	lin.m		71,000	0.70	21.15	0.30	9.07
44 Concrete pipe	500 mm	lin.m		98,800	0.70	29.43	0.30	12.62
45 Concrete pipe	600 mm	lin.m		127,500	0.70	37.98	0.30	16.28

Table 8.4.2 UNIT COSTS OF MATERIALS (2/4)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Particular	Description	Unit	Base Cost			Unit Cost (US\$)		
			Foreign (US\$)	Local (Rp.)	Rate	F/C Rate	L/C	
46 Concrete pipe	700 mm	lin.m	167,500		0.70	49.90	0.30	21.39
47 Concrete pipe	800 mm	lin.m	220,700		0.70	65.75	0.30	28.18
48 Concrete pipe	900 mm	lin.m	314,300		0.70	93.63	0.30	40.13
49 Concrete pipe	1,000 mm	lin.m	355,500		0.70	105.90	0.30	45.39
50 Precast concrete drain block	type 5a	no.	15,000		0.70	4.47	0.30	1.92
51 Concrete ditch, L-shape	300x300mm	lin.m	18,000		0.70	5.37	0.30	2.30
52 Concrete culvert	400x400mm	lin.m	60,000		0.70	17.88	0.30	7.66
53 Concrete ditch	300x300mm	lin.m	30,000		0.70	8.94	0.30	3.83
54 Concrete ditch	400x400mm	lin.m	36,000		0.70	10.73	0.30	4.60
55 Concrete ditch	600x600mm	lin.m	97,950		0.70	29.18	0.30	12.51
56 Concrete ditch	600x800mm	lin.m	135,500		0.70	40.37	0.30	17.30
57 Concrete ditch	800x800mm	lin.m	151,950		0.70	45.27	0.30	19.40
58 Curb stone, H=30cm	L=60cm	pc.	16,800		0.70	5.01	0.30	2.15
59 PC pile, A-350, L=6m	w/cap at both ends	pc.	238,000		0.70	70.90	0.30	30.39
60 PC pile, A-350, L=7m	w/cap at both ends	pc.	277,000		0.70	82.52	0.30	35.37
61 PC pile, A-350, L=9m	w/cap at both ends	pc.	357,000		0.70	106.35	0.30	45.58
62 PC pile, A-350, L=6m	w/cap and shoe	pc.	234,000		0.70	69.71	0.30	29.88
63 PC pile, A-350, L=7m	w/cap and shoe	pc.	274,000		0.70	81.62	0.30	34.98
64 PC pile, A-350, L=8m	w/cap and shoe	pc.	313,000		0.70	93.24	0.30	39.96
65 PC pile, A-350, L=9m	w/cap and shoe	pc.	353,000		0.70	105.15	0.30	45.07
66 PC pile, A-350, L=10m	w/cap and shoe	pc.	393,000		0.70	117.07	0.30	50.18
67 PC pile, A-350, L=11m	w/cap and shoe	pc.	433,000		0.70	128.98	0.30	55.28
68 PC pile, B-350, L=6m	w/cap at both ends	pc.	295,000		0.70	87.88	0.30	37.66
69 PC pile, B-350, L=7m	w/cap at both ends	pc.	344,000		0.70	102.47	0.30	43.92
70 PC pile, B-350, L=9m	w/cap at both ends	pc.	442,000		0.70	131.66	0.30	56.43
71 PC pile, B-350, L=6m	w/cap and shoe	pc.	291,000		0.70	86.69	0.30	37.15
72 PC pile, B-350, L=7m	w/cap and shoe	pc.	339,000		0.70	100.98	0.30	43.28
73 PC pile, B-350, L=9m	w/cap and shoe	pc.	438,000		0.70	130.47	0.30	55.92
74 PC pile, B-350, L=9m	w/cap and shoe	pc.	487,000		0.70	145.07	0.30	62.18
75 PC pile, B-350, L=11m	w/cap and shoe	pc.	537,000		0.70	159.96	0.30	68.56
76 PC pile, B-400, L=6m	w/cap at both ends	pc.	389,000		0.70	115.88	0.30	49.66
77 PC pile, B-400, L=7m	w/cap at both ends	pc.	453,000		0.70	134.94	0.30	57.83
78 PC pile, B-400, L=6m	w/cap and shoe	pc.	382,000		0.70	113.79	0.30	48.77
79 PC pile, B-400, L=7m	w/cap and shoe	pc.	447,000		0.70	133.15	0.30	57.07
80 PC pile, B-400, L=7m	w/cap and shoe	pc.	641,000		0.70	190.94	0.30	81.83
81 PC pile, B-400, L=11m	w/cap and shoe	pc.	706,000		0.70	210.30	0.30	90.13
82 Precast PC girder, BM-70	H=400mm, L=7.3m	pc.	1,232,000		0.70	366.98	0.30	157.28
83 Precast PC girder, BM-70	H=450mm, L=8.4m	pc.	1,596,000		0.70	475.41	0.30	203.75
84 Precast PC girder, BM-70	H=450mm, L=9.6m	pc.	1,823,000		0.70	543.03	0.30	232.73
85 Precast PC girder, BM-70	H=450mm, L=10.5m	pc.	1,994,000		0.70	593.96	0.30	254.56
86 Precast PC girder, BM-70	H=450mm, L=11.3m	pc.	2,146,000		0.70	639.24	0.30	273.96
87 Precast PC girder, BM-70	H=450mm, L=11.9m	pc.	2,260,000		0.70	673.20	0.30	288.52
88 Precast PC girder, BM-70	H=500mm, L=12.35m	pc.	2,606,000		0.70	776.26	0.30	332.69
89 Precast PC girder, BM-70	H=500mm, L=13.35m	pc.	2,818,000		0.70	839.41	0.30	359.75
90 Precast PC girder, BM-70	H=500mm, L=14.15m	pc.	2,986,000		0.70	889.45	0.30	381.20

Table 8.4.2 UNIT COSTS OF MATERIALS (3/4)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Particular	Description	Unit	Base Cost		Unit Cost (US\$)			
			Foreign (US\$)	Local (Rp.)	Rate	F/C	Rate	L/C
91	Precast PC girder, BM-70	H=550mm, L=13.5m	pc.	3,134,000	0.70	933.54	0.30	400.09
92	Precast PC girder, BM-70	H=550mm, L=14.1m	pc.	3,273,000	0.70	974.94	0.30	417.83
93	Precast PC girder, BM-70	H=550mm, L=14.9m	pc.	3,459,000	0.70	1,030.35	0.30	441.58
94	Precast PC girder, BM-70	H=650mm, L=15.8m	pc.	4,335,000	0.70	1,291.28	0.30	553.41
95	Precast PC girder, BM-70	H=700mm, L=15.8m	pc.	4,668,000	0.70	1,390.47	0.30	595.92
96	Precast PC girder, BM-100	H=450mm, L=8.4m	pc.	1,596,000	0.70	475.41	0.30	203.75
97	Precast PC girder, BM-100	H=500mm, L=11.9m	pc.	2,511,000	0.70	747.96	0.30	320.56
98	Precast PC girder, BM-100	H=500mm, L=12.9m	pc.	2,723,000	0.70	811.11	0.30	347.62
99	Precast PC girder, BM-100	H=550mm, L=13.5m	pc.	3,134,000	0.70	933.54	0.30	400.09
100	Precast PC girder, Pedestrian	H=350mm, L=7.3m	pc.	1,078,000	0.70	321.11	0.30	137.62
101	Precast PC girder, Pedestrian	H=350mm, L=8.4m	pc.	1,241,000	0.70	369.66	0.30	158.43
102	Precast PC girder, Pedestrian	H=350mm, L=9.2m	pc.	1,359,000	0.70	404.81	0.30	173.49
103	Precast PC girder, Pedestrian	H=400mm, L=11.5m	pc.	1,942,000	0.70	578.47	0.30	247.92
104	Precast PC girder, Pedestrian	H=400mm, L=12.5m	pc.	2,111,000	0.70	628.81	0.30	269.49
105	Precast PC girder, Pedestrian	H=450mm, L=12.15m	pc.	2,308,000	0.70	687.49	0.30	294.64
106	Precast PC girder, Pedestrian	H=450mm, L=12.6m	pc.	2,393,000	0.70	712.81	0.30	305.49
107	Precast PC girder, Pedestrian	H=450mm, L=13.1m	pc.	2,488,000	0.70	741.11	0.30	317.62
108	Precast PC girder, Pedestrian	H=450mm, L=14.6m	pc.	2,773,000	0.70	826.01	0.30	354.01
109	Precast PC girder, Pedestrian	H=500mm, L=15.8m	pc.	3,335,000	0.70	993.41	0.30	425.75
110	Reinforcing bar	deformed	kg	900	0.90	0.35	0.10	0.04
111	Reinforcing bar	round	kg	1,000	0.90	0.39	0.10	0.05
112	Joint bar, D=25mm	L=1m	no.	4,043	0.90	1.55	0.10	0.18
113	Anchor bolt, M 16	L=120mm	pc.	1,730	0.90	0.67	0.10	0.08
114	H-shape steel		ton	1,390,000	0.90	532.35	0.10	59.15
115	Angle steel	L-60x60x5mm	kg	1,290	0.90	0.50	0.10	0.06
116	Steel checkered deck plate		kg	1,800	0.90	0.69	0.10	0.08
117	Steel plate		ton	810.00	0.90	729.01	0.10	81.01
118	Steel round pipe	diam. 3/4"	lin.m	3,850	0.90	1.48	0.10	0.17
119	Steel round pipe	diam. 1 1/4"	lin.m	5,780	0.90	2.22	0.10	0.25
120	Steel round pipe	diam. 2"	lin.m	10,600	0.90	4.06	0.10	0.46
121	Steel round pipe	diam. 3"	lin.m	18,300	0.90	7.01	0.10	0.78
122	Steel round pipe	diam. 4"	lin.m	27,100	0.90	10.38	0.10	1.16
123	Steel round pipe	diam. 6"	lin.m	41,600	0.90	15.94	0.10	1.78
124	Steel round pipe	diam. 8"	lin.m	65,000	0.90	24.90	0.10	2.77
125	Steel oval pipe	95 mm	lin.m	4.50	0.90	4.06	0.10	0.46
126	Bolt and nut	M10x30	pc.	180	0.90	0.07	0.10	0.01
127	Cable sheath	45 mm	lin.m	1.57	0.90	1.42	0.10	0.16
128	PC bar		kg	2.04	0.90	1.84	0.10	0.21
129	Elastic bearing pad, mov.	t=33mm, L=150mm	lin.m	199.04	0.90	179.14	0.10	19.91
130	Elastic bearing pad, fix.	t=33mm, L=150mm	lin.m	199.04	0.90	179.14	0.10	19.91
131	Steel bearing, mov.	300x600mm	set	1,698.26	0.90	1,528.44	0.10	169.83
132	Steel bearing, fix	200x600mm	set	1,850.43	0.90	1,665.39	0.10	185.05
133	Anchor cap, mov.	44.4x94.51mm	lin.m	2.43	0.90	2.19	0.10	0.25
134	Anchor cap, fix.	Diam. 48.5mm	lin.m	1.83	0.90	1.65	0.10	0.19
135	Expansion joint	road bridge	lin.m	269.65	0.90	242.69	0.10	26.97

Table 8.4.2 UNIT COSTS OF MATERIALS (4/4)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Particular	Description	Unit	Base Cost		Unit Cost (US\$)			
			Foreign (US\$)	Local (Rp.)	Rate	F/C	Rate	L/C
136 Expansion joint	pedestrian	lin.m	301.30		0.90	271.18	0.10	30.14
137 Drain pipe with cap	100x50mm,L=840mm	pc.		9,950	0.90	3.82	0.10	0.43
138 Drain pipe, diam. 75mm	L=700mm	pc.		8,770	0.90	3.36	0.10	0.38
139 Drain pipe, diam. 75mm	L=400mm	pc.		5,010	0.90	1.92	0.10	0.22
140 Guard pipe, for road bridge	H=400mm	lin.m		87,500	0.90	33.52	0.10	3.73
141 Guard pipe, for pedestrian	H=1.0 m	lin.m		367,000	0.90	140.56	0.10	15.62
142 Geo-textile	t = 1.5 mm	sq.m		2,600	0.50	0.56	0.50	0.56
143 Wire net		kg		2,600	0.90	1.00	0.10	0.12
144 Turf	60 kg.m2	sq.m		2,300	0.00	0.00	1.00	0.98
145 Fertilizer		kg		500	0.40	0.09	0.60	0.13
146 Steel net fence	H = 2.5m	lin.m		50,000	0.90	19.15	0.10	2.13
147 Wooden pile	diam. 15-18cm	lin.m		3,000	0.10	0.13	0.90	1.15
148 bamboo mat		sq.m		15,000	0.10	0.64	0.90	5.75
149 Bamboo	diam.80-100mm	lin.m		620	0.10	0.03	0.90	0.24
150 Rust prevent paint		kg		3,460	0.90	1.33	0.10	0.15
151 Epoxy emulsion paint		kg		6,600	0.90	2.53	0.10	0.29
152 Expansion metal	XS 62	sq.m	6.70		0.90	6.04	0.10	0.68
153 Anchor bolt	L=120mm	pc.	1.00		0.90	0.91	0.10	0.11
154 Steel slide gate *1	0.6 x 0.6m	set	2,700.00		0.90	2,431.00	0.10	271.00
155 Steel slide gate *1	0.7 x 0.7m	set	2,964.00		0.90	2,668.00	0.10	297.00
156 Steel slide gate *1	0.8 x 0.8m	set	3,408.00		0.90	3,068.00	0.10	341.00
157 Steel slide gate *1	0.9 x 0.9m	set	3,498.00		0.90	3,149.00	0.10	350.00
158 Steel slide gate *1	1.0 x 1.0m	set	3,792.00		0.90	3,413.00	0.10	380.00
159 Steel slide gate *1	1.1 x 1.1m	set	4,116.00		0.90	3,705.00	0.10	412.00
160 Steel slide gate *1	1.2 x 1.2m	set	4,416.00		0.90	3,975.00	0.10	442.00
161 Steel slide gate *1	1.3 x 1.3m	set	4,860.00		0.90	4,375.00	0.10	487.00
162 Steel slide gate *1	1.5 x 1.3m	set	5,088.00		0.90	4,580.00	0.10	509.00
163 Steel slide gate *1	2.3 x 2.3m	set	10,698.00		0.90	9,629.00	0.10	1,070.00
164 Steel flap gate *1	0.4 x 0.4m	set	512.00		0.90	461.00	0.10	52.00
165 Stoplog *1	0.4 x 0.4m	set		224,000	0.50	48.00	0.50	48.00
166 Stoplog *1	0.6 x 0.6m	set		504,000	0.50	108.00	0.50	108.00
167 Stoplog *1	0.7 x 0.7m	set		686,000	0.50	146.00	0.50	146.00
168 Stoplog *1	0.8 x 0.8m	set		896,000	0.50	191.00	0.50	191.00
169 Stoplog *1	0.9 x 0.9m	set		1,134,000	0.50	242.00	0.50	242.00
170 Stoplog *1	1.0 x 1.0m	set		1,400,000	0.50	298.00	0.50	298.00
171 Stoplog *1	1.1 x 1.1m	set		1,694,000	0.50	361.00	0.50	361.00
172 Stoplog *1	1.2 x 1.2m	set		2,016,000	0.50	429.00	0.50	429.00
173 Stoplog *1	1.3 x 1.3m	set		2,366,000	0.50	504.00	0.50	504.00
174 Stoplog *1	1.5 x 1.3m	set		2,730,000	0.50	581.00	0.50	581.00
175 Stoplog *1	2.3 x 2.3m	set		7,406,000	0.50	1,576.00	0.50	1,576.00
176 Portable hanger *1		set		800,000	0.90	307.00	0.10	35.00
177 Portable hanger *1	for 2.3 x 2.3m stoplog	set		1,000,000	0.90	383.00	0.10	43.00
178 Maintenance tool *1		set		300,000	0.90	115.00	0.10	13.00

Note : *1 ; Unit price including installation/procurement and corporate overhead

Table 8.4.3 UNIT COST OF EQUIPMENT (1/2)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

1	2	3	4	5	6			9	10	11	12	13		14
					Life (Year)	Hours (hour)	Work (day)					Annual working data	Unit Cost	
Equipment	Spec.	Unit	Purchase (US\$)	Life (Year)	Hours (hour)	Work (day)	Serve (day)	Depreciation (%)	Repair & mainte. (%)	Annual Manage (%)	Use Rate (10-6)	F/C (US\$)	L/C (US\$)	
Bulldozer, LGP	16 t	hr	90,100	6	1,200	200	290	90	40	7	238.9	17.22	4.30	1
Backhoe	0.2 m3	hr	36,900	5	1,400	260	300	90	30	7	221.4	6.54	1.63	1
Backhoe	0.8 m3	hr	111,000	5	2,000	280	320	90	30	7	155.0	13.76	3.44	1
Dump truck	8 t	hr	35,000	5	2,000	280	320	90	50	7	175.0	4.90	1.23	1
Crawler crane	100 t	hr	633,000	8	1,600	260	300	90	45	7	149.2	75.55	18.89	1
Crawler crane	35 t	hr	192,000	8	1,450	240	280	90	45	7	164.7	25.30	6.32	1
Truck crane, hyd.	15 t	hr	117,000	8	1,500	250	290	90	25	7	142.5	13.34	3.33	1
Self-climbing pile driver	90 t	hr	18,300	5	1,300	200	250	90	40	7	253.8	3.72	0.93	1
Self-climbing crane	7 t	hr	24,400	6	1,500	260	320	90	30	7	180.0	3.51	0.88	1
Hydraulic pile driver	4-5 t	hr	516,000	6	1,500	240	290	90	35	7	185.6	76.62	19.15	1
Concrete breaker	800 kg	day	21,100	4	160	160	240	90	20	5	1,354.2	22.86	5.71	2
Motor grader	3.1 m	hr	65,100	7	1,200	200	300	90	35	7	117.0	6.09	1.52	1
Macadam roller	10-12 t	hr	43,300	8	1,200	220	300	90	35	7	106.0	3.67	0.92	1
Tire roller	8-20 t	hr	48,900	8	1,200	220	300	90	35	7	106.0	4.15	1.04	1
Vib. roller, hand	0.6 t	hr	7,430	6	900	200	300	90	35	7	157.0	0.93	0.23	1
Vibrating roller	8 t	hr	79,700	6	900	200	300	90	35	7	157.0	10.01	2.50	1
Plate compactor	60 kg	day	1,550	3	200	200	300	90	40	5	1,611.1	2.00	0.50	2
Concrete pump car	60 m3/hr	hr	172,000	5	2,000	280	320	90	55	7	126.0	17.34	4.33	1
Asphalt kettle	200 lit.	day	1,900	4	160	160	260	90	15	5	1,201.9	1.83	0.46	2
Emulsion sprayer	200 lit.	day	1,250	3	160	160	280	90	40	5	1,726.2	1.73	0.43	2
Asphalt finisher	2.4 m	hr	84,000	8	1,200	180	300	90	35	7	106.0	7.12	1.78	1
Sprinkler truck	4 kl	hr	27,100	6	1,600	280	320	90	40	7	113.0	2.45	0.61	1
Air compressor	5 m3/min.	day	15,470	7	90	90	130	90	40	5	1,813.2	22.44	5.61	2
Air compressor	10.5 m3/min.	day	35,700	7	90	90	130	90	40	5	1,813.2	51.78	12.95	2
Air compressor	17 m3/min.	day	41,860	7	90	90	130	90	40	5	1,813.2	60.72	15.18	2
Submersible pump	2 in	day	340	8	200	200	280	90	110	5	1,071.4	0.29	0.07	2
Submersible pump	4 in	day	1,110	8	200	200	280	90	110	5	1,071.4	0.95	0.24	2
Submersible pump	6 in	day	1,470	8	200	200	280	90	110	5	1,071.4	1.26	0.31	2

Table 8.4.3 UNIT COST OF EQUIPMENT (2/2)

Exchange Rates : 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

1	2	3	4	5	6		7	8	9	10	11	12	13		14
					Life (Year)	Hours (hour)							Unit Cost	Form	
Equipment	Spec.	Unit	Purchase (US\$)	Annual working data	Depreciation (%)	Repair & mainte. (%)	Annual Manage (%)	Use Rate (10-6)	Form	Unit Cost	F/C (US\$)	L/C (US\$)	Form		
Diesel generator	20 kVA	day	11,300	7	220	300	300	90	40	5	785.7	7.10	1.78	2	
Diesel generator	60 kVA	day	16,400	7	220	300	300	90	40	5	785.7	10.31	2.58	2	
Diesel generator	100 kVA	day	20,700	7	220	300	300	90	40	5	785.7	13.01	3.25	2	
Diesel generator	300 kVA	day	63,300	8	220	300	300	90	45	5	729.2	36.93	9.23	2	
Portable mixer	0.2 m ³	day	11,600	5	240	300	300	90	70	5	1,233.3	11.45	2.86	2	
Concrete vibrator	45 mm	day	800	3	260	320	320	90	55	5	1,666.7	1.07	0.27	2	
Water tank	5 m ³ /min.	day	1,600	5	320	350	350	90	40	5	885.7	1.13	0.28	2	

NOTE:

Formula 1: (12) = Round(((9) + (10) + (11) x (5)) / 100 / (5) / (6) x 1,000,000 .2)

(13) = Round ((4) x (12) / 1,000,000 x 0.8, 2)

(13) = Round ((4) x (12) / 1,000,000 x 0.2, 2)

Formula 2: (12) = Round(((9) + (10) + (11) x (5)) / 100 / (5) / (8) x 1,000,000 .2)

(13) = Round ((4) x (12) / 1,000,000 x 0.8, 2)

(13) = Round ((4) x (12) / 1,000,000 x 0.2, 2)

Table 8.4.4 UNIT CONSUMPTION OF FUEL AND OPERATORS OF EQUIPMENT (1/2)

1 Equipment	2 Spec.	3 Unit	4		5		6 Electric	7 Unit Consum. Rate	8		9		10		11		12		13				
			Light oil	Gasoline	Light oil	Gasoline			Light oil	Gasoline	Light oil	Gasoline	Light oil	Gasoline	Light oil	Gasoline	Light oil	Gasoline	Light oil	Gasoline	Operator	Op.A	Op.B
Bulldozer, LGP	16 t	hr	136				0.138	18.8										0.15	0.15				
Backhoe	0.2 m3	hr	51				0.138	7.0										0.15	0.15				
Backhoe	0.8 m3	hr	158				0.138	21.8										0.15	0.15				
Dump truck	8 t	hr	244				0.063	15.4										0.15					
Crawler crane	100 t	hr	263				0.070	18.4										0.15	0.15				
Crawler crane	35 t	hr	150				0.070	10.5										0.15	0.15				
Truck crane, hyd.	15 t	hr	230				0.037	8.5										0.15	0.15				
Self-climbing pile driver	90 t	hr	120				0.037	4.4										0.15	0.15				
Self-climbing crane	7 t	hr	160				0.037	5.9										0.15	0.15				
Hydraulic pile driver	4.5 t	hr	119				0.037	4.4										0.15	0.15				
Concrete breaker	800 kg	day	75				0.138	82.8										0.15	0.15				
Motor grader	3.1 m	hr	115				0.081	9.3										0.15	0.15				
Macadam roller	10-12 t	hr	90				0.084	7.6										0.15	0.15				
Tire roller	8-20 t	hr	96				0.075	7.2										0.15	0.15				
Vib. roller, hand	0.6 t	hr	5				0.151	0.8															
Vibrating roller	8 t	hr	132				0.114	15.0										0.15	0.15				
Plate compactor	60 kg	day		4			0.228				7.3												
Concrete pump car	60 m3/hr	hr	226				0.062	14.0										0.15	0.15				
Asphalt kettle	200 lit.	day																					
Emulsion sprayer	200 lit.	day		3.2			0.170				4.4							0.15					
Asphalt finisher	2.4 m	hr	33				0.030	1.0										0.15	0.15				
Sprinkler truck	4 kl	hr	160				0.030	4.8															
Air compressor	5 m3/min.	day	50				0.155	62.0															
Air compressor	10.5 m3/min.	day	106				0.155	131.4															
Air compressor	17 m3/min.	day	157				0.155	194.7															
Submersible pump	2 in	day											0.70							5.6			
Submersible pump	4 in	day											3.70							29.6			
Submersible pump	6 in	day											19.60							156.8			

Table 8.4.4 UNIT CONSUMPTION OF FUEL AND OPERATORS OF EQUIPMENT (2/2)

1	2	3	4		5		6	7	8		9	10		11	12	13
			Unit	Spec.	Light oil	Gasoline			Power Output	Electric		Unit Consum. Rate	Light oil			
		day	20 kVA	27			0.127	27.4								
		day	60 kVA	75.6			0.127	76.8								
		day	100 kVA	120			0.127	121.9								
		day	300 kVA	400.5			0.127	406.9								
		day	0.2 m3			2.20	1.000					17.6				
		day	45 mm			0.88	1.000					7.0				
		day	5 m3/min.													

NOTE :

- Formula : (8) = Round((4) X (7) , 2) for hourly equipment
 (8) = Round((4) X (7) x 8.0 , 2) for daily equipment
 (9) = Round((5) X (7) x 8.0 , 2) for daily equipment
 (9) = Round((5) X (7) , 2) for hourly equipment
 (10) = Round((6) X (7) , 2) for hourly equipment
 (10) = Round((6) X (7) x 8.0 , 2) for daily equipment

Table 8.5.1 Total Project Cost

Description	Amount (1,000 US \$)		
	Foreign Portion	Local Portion	Total
A Construction Cost	14,511	9,384	23,895
1 Package 1	5,304	3,617	8,921
Stage I	791	472	1,263
Stage II	2,196	1,544	3,740
Stage III	2,317	1,601	3,918
2 Package 2	2,733	1,592	4,325
Tanjungan	2,579	1,490	4,069
PIK Junction	154	102	256
3 Package 3	6,474	4,175	10,649
Gede/Bor	1,039	816	1,855
Saluran Cengkareng	4,283	2,525	6,808
Meruya	1,152	834	1,986
B Government Administrative Expense	0	1,195	1,195
C Engineering Services	6,975	3,810	10,785
Total A to C	21,486	14,389	35,875
D Compensation Cost	0	29,996	29,996
E Physical Contingency (10 % for A to D)	2,149	4,438	6,587
F Price Escalation (3 % p.a. for A to E)	3,203	5,155	8,358
G Tax (10 % for A, C and E&F for A&C)	0	4,332	4,332
H Interest during Construction	1,178	2,647	3,825
Total Project Cost	28,016	60,957	88,973

Table 8.5.2 CONSTRUCTION COST FOR PACKAGE I

Description	OVERALL			Stage I			Stage II			Stage III		
	F.C.	L.C.	Total	F.C.	L.C.	Total	F.C.	L.C.	Total	F.C.	L.C.	Total
	(Unit : USS)											
0 GENERAL ITEM	580,085	520,061	1,100,146	112,298	95,010	207,308	246,918	222,739	469,657	220,869	202,312	423,181
1 RELOCATION/RECONSTRUCTION OF PUBLIC FACILITIES	0	577,030	577,030	0	16,700	16,700	0	349,220	349,220	0	211,110	211,110
2 DRAINAGE CHANNEL	536,557	296,370	832,927	154,276	84,707	238,983	231,402	127,336	358,738	150,879	84,327	235,206
2.1 Drainage Channel	1,001,724	553,116	1,554,840	438,554	235,175	673,729	449,032	247,690	696,722	114,138	70,251	184,389
2.2 Levee and Inspection/Relocation Road	295,101	104,808	399,909	0	0	0	295,101	104,808	399,909	0	0	0
2.3 Concrete Parapet Wall	1,637	1,276	2,913	0	0	0	0	0	0	1,637	1,276	2,913
2.4 Heightening of Existing Masonry Revetment	422,063	276,102	698,165	3,851	2,505	6,356	181,418	119,102	300,520	236,794	154,495	391,289
2.5 Masonry Revetment, type I	409,311	273,128	682,439	0	0	0	108,614	72,839	181,453	300,697	200,289	500,986
2.6 Masonry Revetment, type II	117,896	76,818	194,714	0	0	0	0	0	0	117,896	76,818	194,714
2.7 Concrete Ditch and Culvert	2,784,289	1,581,618	4,365,907	596,681	322,387	919,068	1,265,567	671,775	1,937,342	922,041	587,456	1,509,497
Total of 2	211,401	91,692	303,093	0	0	0	148,918	66,524	215,452	62,483	25,158	87,641
3 DRAINAGE FACILITIES	141,389	75,015	216,404	7,195	3,752	10,947	61,963	32,617	94,580	72,231	38,646	110,877
3.1 Sluiceway	352,790	166,707	519,497	7,195	3,752	10,947	210,881	99,151	310,032	134,714	63,804	198,518
3.2 Connection Canal/Cross Drain	93,615	35,281	128,896	4,600	1,701	6,301	24,349	9,199	33,548	64,666	24,381	89,047
Total of 3	173,086	82,331	255,417	9,094	4,279	13,373	54,293	25,562	79,855	109,699	52,490	162,189
4 BRIDGE AND ROAD	816,880	274,740	1,091,620	44,627	16,685	61,312	308,835	103,943	412,778	463,418	154,112	617,530
4.1 Demolition of Existing Bridge and Road	503,606	379,264	882,870	16,641	11,432	28,073	85,513	62,039	147,552	401,452	305,793	707,245
4.2 Foundation and Substructure	1,587,187	771,616	2,358,803	74,962	34,097	109,059	472,990	200,743	673,733	1,039,235	536,776	1,576,011
4.3 Superstructure	5,304,351	3,617,032	8,921,383	791,136	471,946	1,263,082	2,196,356	1,543,628	3,739,984	2,316,859	1,601,458	3,918,317
4.4 Approach Road	Total of 4	1,587,187	771,616	2,358,803	74,962	34,097	109,059	472,990	673,733	1,039,235	536,776	1,576,011
Total	5,304,351	3,617,032	8,921,383	791,136	471,946	1,263,082	2,196,356	1,543,628	3,739,984	2,316,859	1,601,458	3,918,317

Note : Foreign Exchange Rates :

1.0 USS = Rp. 2,350 = Yen 115.0 as of June 1997

Table 8.5.3 CONSTRUCTION COST FOR PACKAGE 2

Description	OVERALL			Tanjungan			PIK Junction		
	F.C.	L.C.	Total	F.C.	L.C.	Total	F.C.	L.C.	Total
	(Unit: US\$)								
0 GENERAL ITEM	319,815	321,224	641,039	306,133	305,158	611,291	13,682	16,066	29,748
1 RELOCATION/RECONSTRUCTION OF PUBLIC FACILITIES	0	118,020	118,020	0	118,020	118,020	0	0	0
2 DRAINAGE CHANNEL									
2.1 Drainage Channel	115,794	66,763	182,557	115,786	66,756	182,542	8	7	15
2.2 Levee and Inspection/Relocation Road	532,869	372,922	905,791	532,869	372,922	905,791	0	0	0
2.3 Concrete Wall	721,418	278,460	999,878	721,418	278,460	999,878	0	0	0
2.4 Masonry Revetment, type II	43,131	28,869	72,000	43,131	28,869	72,000	0	0	0
2.5 Concrete Ditch and Culvert	116,116	75,368	191,484	0	0	0	116,116	75,368	191,484
Total of 2	1,529,328	822,382	2,351,710	1,413,204	747,007	2,160,211	116,124	75,375	191,499
3 DRAINAGE FACILITIES									
3.1 Sluiceway	53,119	19,196	72,315	46,830	17,061	63,891	6,289	2,135	8,424
3.2 Connection Canal/Cross Drain	20,731	10,941	31,672	17,847	9,432	27,279	2,884	1,509	4,393
Total of 3	73,850	30,137	103,987	64,677	26,493	91,170	9,173	3,644	12,817
4 BRIDGE AND ROAD									
4.1 Demolition of Existing Bridge and Road	65,769	22,441	88,210	65,694	22,383	88,077	75	58	133
4.2 Foundation and Substructure	49,620	25,291	74,911	41,686	20,017	61,703	7,934	5,274	13,208
4.3 Superstructure	566,554	161,295	727,849	559,903	159,098	719,001	6,651	2,197	8,848
4.4 Approach Cushion Slab	2,067	1,250	3,317	2,067	1,250	3,317	0	0	0
4.5 Approach Road	125,339	90,505	215,844	125,339	90,505	215,844	0	0	0
Total of 4	809,349	300,782	1,110,131	794,689	293,253	1,087,942	14,660	7,529	22,189
Total	2,732,342	1,592,545	4,324,887	2,578,703	1,489,931	4,068,634	153,639	102,614	256,253

Note: Foreign Exchange Rates: 1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Table 8.5.4 CONSTRUCTION COST FOR PACKAGE 3

Description	OVERALL			Gede/Bor			Saturan Cengkareng			Meruya		
	F.C.	L.C.	Total	F.C.	L.C.	Total	F.C.	L.C.	Total	F.C.	L.C.	Total
	(Unit : US\$)											
0 GENERAL ITEM	411,425	399,347	810,772	61,841	63,502	125,343	273,769	261,854	535,623	75,815	73,991	149,806
1 RELOCATION/RECONSTRUCTION OF PUBLIC FACILITIES	0	461,870	461,870	0	192,660	192,660	0	217,580	217,580	0	51,630	51,630
2 DRAINAGE CHANNEL	134,635	77,307	211,942	50,014	28,304	78,318	84,621	49,003	133,624	0	0	0
2.1 Drainage Channel	864,570	484,487	1,349,057	11,677	7,350	19,027	814,511	453,854	1,268,365	38,382	23,283	61,665
2.2 Levee and Inspection/Relocation Road	844,586	304,697	1,149,283	0	0	0	844,586	304,697	1,149,283	0	0	0
2.3 Concrete Parapet Wall	326,896	216,290	543,186	30,958	20,803	51,761	294,448	194,489	488,937	1,490	998	2,488
2.4 Masonry Revetment, type I	502,702	339,937	842,639	256,416	174,469	430,885	246,286	165,468	411,754	0	0	0
2.5 Masonry Revetment, type II	1,681,536	1,008,064	2,689,600	33,337	15,662	48,999	662,826	341,845	1,004,671	985,373	650,557	1,635,930
2.6 Concrete Ditch and Culvert	4,354,925	2,430,782	6,785,707	382,402	246,588	628,990	2,947,278	1,509,356	4,456,634	1,025,245	674,838	1,700,083
Total of 2	320,028	139,342	459,370	51,492	19,959	71,451	268,536	119,383	387,919	0	0	0
3 DRAINAGE FACILITIES	162,436	85,097	247,533	26,295	13,830	40,125	136,141	71,267	207,408	0	0	0
3.1 Sluiceway	482,464	224,439	706,903	77,787	33,789	111,576	404,677	190,650	595,327	0	0	0
3.2 Connection Canal/Cross Drain	96,878	37,621	134,499	29,196	11,398	40,594	67,682	26,223	93,905	0	0	0
Total of 3	135,210	74,700	209,910	41,398	20,827	62,225	50,515	25,664	76,179	43,297	28,209	71,506
4 BRIDGE AND ROAD	486,741	176,195	662,936	206,792	73,857	280,649	272,619	97,036	369,655	7,330	5,302	12,632
4.1 Demolition of Existing Bridge and Road	4,900	2,924	7,824	0	0	0	4,900	2,924	7,824	0	0	0
4.2 Foundation and Substructure	501,585	366,844	868,429	240,006	173,085	413,091	261,579	193,759	455,338	0	0	0
4.3 Superstructure	1,225,314	658,284	1,883,598	517,392	279,167	796,559	657,295	345,606	1,002,901	50,627	33,511	84,138
4.4 Approach Cushion Slab	6,474,128	4,174,722	10,648,850	1,039,422	815,706	1,855,128	4,283,019	2,525,046	6,808,065	1,151,687	833,970	1,985,657
4.5 Approach Road												
Total of 4												
Total	6,474,128	4,174,722	10,648,850	1,039,422	815,706	1,855,128	4,283,019	2,525,046	6,808,065	1,151,687	833,970	1,985,657

Note : Foreign Exchange Rates :
1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Table 8.5.5 COST FOR ENGINEERING SERVICES (1/2)

ITEM		AMOUNT
<u>Yen Currency Portion</u>		
I	Remuneration	¥ 436,800,000
	Professional-A	
	Y2,400,000 x 182 M/M	- ¥436,800,000
II	Direct Cost	¥ 365,290,000
1	International Travel Cost	¥ 29,640,000
	(1) Airfare(Tokyo-Jakarta)	<u>¥17,160,000</u>
	- Engineer	
	Y330,000 x 34 trips	- ¥11,220,000
	- Family	
	Y330,000 x 18 trips	- ¥5,940,000
	(2) Excess baggage charge	<u>¥6,240,000</u>
	- Engineer	
	Y3,000 x 20 kgs x 2 times x 34 trips	- ¥4,080,000
	- Family	
	Y3,000 x 20 kgs x 2 times x 18 trips	- ¥2,160,000
	(3) Miscellaneous Travel Expenses	<u>¥6,240,000</u>
	- Engineer	
	Y120,000 x 34 trips	- ¥4,080,000
	- Family	
	Y120,000 x 18 trips	- ¥2,160,000
2	International Communication Cost	¥ 9,500,000
	Y100,000 x 95 months	
3	Cost of Technical Supplies and Reference Materials	¥ 2,000,000
4	Cost of Family Moving	¥ 2,100,000
	Y700,000 x 3 families	
5	Computer Charge	¥ 3,250,000
	Y250,000 x 5 hours (Japan)	- ¥1,250,000
	Y100,000 x 20 hours (Indonesia)	- ¥2,000,000
6	Procurement of Equipment	¥ 35,000,000
	(1) Laboratory Equipment	- ¥20,000,000
	(2) Office Equipment	- ¥15,000,000
7	Transportation Cost for Consultants(vehicle rent)	¥ 171,000,000
	Y180,000 x 95 car-mont x 10 nos	
8	Report Printing Cost(L.S)	¥ 20,000,000
9	Cost of GOI Overseas Participation(L.S)	¥ 20,000,000
10	Subsistence Allowance and Per Diem of Foreign Consultants	¥ 72,800,000
	Y400,000 x 182 M/M	
	TOTAL (Yen Currency)	¥ 802,090,000
	Equivalent to US\$	<u>6,975,000</u>

Note : Foreign exchange rates :

1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Table 8.5.5 COST FOR ENGINEERING SERVICES (2/2)

ITEM		AMOUNT
<u>Rupiah Currency Portion</u>		
I	Remuneration	Rp <u>3,915,000,000</u>
	(1) Professional-B	
	Rp 9,000,000 x 435 M/M	- Rp3,915,000,000
II	Salary of Sub-Professional & Office Staff	Rp <u>2,908,000,000</u>
	(1) Sub-Professional	
	Rp 2,500,000 x 1,000 M/M	- Rp2,500,000,000
	(2) Office Supporting	
	Rp 800,000 x 510 M/M	- Rp 408,000,000
III	Direct Cost	Rp <u>2,130,000,000</u>
1	Mobilization Cost	Rp 10,000,000
	Rp 500,000 x 20 times	
2	Office Cost	Rp 1,860,000,000
	(1) Office establishment cost	1,670,000,000
	- Rent of office	
	Rp/m ² 40,000 x 400 m ² x 95 M	- Rp1,520,000,000
	- Furniture	- Rp 150,000,000
	(2) Office supplies and consumables	Rp 95,000,000
	Rp/month 1,000,000 x 95 months	
	(3) Office running cost	Rp 95,000,000
	Rp/month 1,000,000 x 95 months	
3	Communication Cost	Rp 190,000,000
	Rp/month 2,000,000 x 95 months	
4	Computer Cost(Establishing Inter-net system,software, royalty,etc. L.S)	Rp 50,000,000
5	Miscellaneous Expenses(official expenses excluding above items)	Rp 20,000,000
TOTAL(Rupiah Currency Portion)		Rp <u>8,953,000,000</u>
Equivalent to US\$		3,810,000

Note: Foreign exchange rates :
1.0 US\$ = Rp. 2,350 = Yen 115.0 as of June 1997

Table 8.6.1 OVERALL DISBURSEMENT SCHEDULE (1/2)

Description	Total Cost (1,000 US\$)			1997			1998			1999			2000			2001		
	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total	Foreign	Local	Total
A Construction Cost	14,511	9,384	23,895	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 Package 1	5,304	3,617	8,921	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stage I	791	472	1,263	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stage II	2,196	1,544	3,740	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Stage III	2,317	1,601	3,918	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2 Package 2	2,733	1,592	4,325	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tanjung	2,579	1,490	4,069	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PIK Junction	154	102	256	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3 Package 3	6,474	4,175	10,649	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gede/Bor	1,039	816	1,855	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saturan Cengkareng	4,283	2,525	6,808	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Menyu	1,152	834	1,986	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
B Government Administrative Expense	0	1,195	1,195	72	72	143	96	96	143	143	143	143	143	143	143	167	167	167
C Engineering Services	6,975	3,810	10,785	0	0	0	0	0	0	209	114	323	698	381	1,079	977	533	1,510
Total A to C	21,486	14,389	35,875	0	72	72	0	96	96	209	257	466	1,837	1,295	3,132	2,187	1,524	3,711
D Compensation Cost	0	29,996	29,996	851	851	1,702	627	627	1,254	2,318	2,318	3,366	3,366	3,366	3,366	7,519	7,519	7,519
E Physical Contingency (10 % for A to D)	2,149	4,438	6,587	0	92	92	0	72	72	21	258	279	184	466	650	219	904	1,123
F Price Escalation (2 % p.a. for A to E)	3,203	5,155	8,358	0	0	0	0	16	16	9	114	123	124	314	438	198	820	1,018
G Tax (10 % for A, C and E&F for A&C)	0	4,332	4,332	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
H Interest during Construction	1,178	2,647	3,825	0	15	15	0	43	43	4	70	74	39	178	217	105	347	422
Total Project Cost	28,016	60,957	88,973	0	1,030	1,030	0	854	854	243	3,054	3,297	2,184	5,968	8,152	2,709	11,536	14,245
		100.00%			1.16%			0.96%			3.71%			9.16%			16.01%	

Basic Data
Foreign exchange rates
Rp/US\$ 2,350
Yen/US\$ 115

A Progress rate of construction works	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 1, Stage I	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 1, Stage II	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 1, Stage III	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 2, Tanjung	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 2, PIK Junction	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 3, Gede/Bor	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 3, S. Cengkareng	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Package 3, Menyu	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
B Government Administrative Expense	5%	100%	100%	6%	0%	0%	8%	0%	0%	3%	12%	0%	10%	12%	0%	14%	14%	14%
C Engineering Services	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
D Compensation Cost	10%	10%	10%	0.00%	0.00%	0.00%	2.00%	2.00%	4.04%	4.04%	4.04%	6.12%	6.12%	6.12%	8.24%	8.24%	8.24%	8.24%
E Physical Contingency (10 % for A to D)	10%	10%	10%	0	1,015	1,015	0	811	811	239	2,984	2,984	2,145	5,790	5,790	2,604	11,189	11,189
F Price Escalation (2 % p.a. for A to E)	10%	10%	10%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
G Tax (10 % for A, C and E&F for A&C)	10%	10%	10%	0	15	15	0	43	43	4	70	74	39	178	178	105	347	347
H Interest during Construction	10%	10%	10%	0	1,030	1,030	0	854	854	243	3,054	3,054	2,184	5,968	5,968	2,709	11,536	11,536
Disbursed Amount at the end year				0	1,030	1,030	0	854	854	243	3,054	3,054	2,184	5,968	5,968	2,709	11,536	11,536

Table 8.6.1 OVERALL DISBURSEMENT SCHEDULE (2/2)

Description	2002				2003				2004				2005				2006			
	Total Cost (1,000 US\$)		Foreign	Local	Total		Foreign	Local	Total		Foreign	Local	Total		Foreign	Local	Total		Foreign	Local
	Foreign	Local			Foreign	Local			Foreign	Local			Foreign	Local			Foreign	Local		
A Construction Cost	14,511	9,384	23,895	1,286	880	2,166	1,965	1,247	3,212	4,067	2,568	6,635	2,780	1,734	4,514	2,064	1,360	3,424	2,064	1,360
1 Package I	5,304	3,617	8,921	1,286	880	2,166	977	669	1,646	692	473	1,165	0	0	0	0	0	0	0	0
Stage I	791	472	1,263	158	94	252	119	71	190	79	47	126	0	0	0	0	0	0	0	0
Stage II	2,196	1,544	3,740	549	386	935	395	278	673	264	185	449	0	0	0	0	0	0	0	0
Stage III	2,317	1,601	3,918	579	400	979	463	320	783	349	241	590	0	0	0	0	0	0	0	0
2 Package 2	2,733	1,592	4,325	0	0	0	988	578	1,566	1,101	642	1,743	644	372	1,016	0	0	0	0	0
Tanjungan	2,579	1,490	4,069	0	0	0	903	522	1,425	1,032	596	1,628	644	372	1,016	0	0	0	0	0
PIK Junction	154	102	256	0	0	0	85	56	141	69	46	115	0	0	0	0	0	0	0	0
3 Package 3	6,474	4,175	10,649	0	0	0	0	0	0	2,274	1,453	3,727	2,136	1,362	3,498	2,064	1,360	3,424	2,064	1,360
Gele/Bor	1,039	816	1,855	0	0	0	0	0	0	416	326	742	291	228	519	332	262	594	332	262
Saluran Congkareng	4,283	2,525	6,808	0	0	0	0	0	0	1,628	960	2,588	1,499	884	2,283	1,156	681	1,837	1,156	681
Meruya	1,152	834	1,986	0	0	0	0	0	0	230	167	397	346	250	596	576	417	993	576	417
B Government Administrative Expense	0	1,195	1,195	1,046	167	1,213	1,186	648	1,834	1,046	572	1,618	977	533	1,510	836	457	1,293	836	457
C Engineering Services	6,975	3,810	10,785	1,046	572	1,618	1,186	648	1,834	1,046	572	1,618	977	533	1,510	836	457	1,293	836	457
Total A to C	21,486	14,389	35,875	2,332	1,619	3,951	3,151	2,015	5,166	5,113	3,260	8,373	3,757	2,363	6,120	2,900	1,888	4,788	2,900	1,888
D Compensation Cost	0	29,996	29,996	0	0	0	0	0	0	3,884	3,884	0	0	0	0	0	0	0	0	0
E Physical Contingency (10 % for A to D)	2,149	4,438	6,587	233	976	1,209	315	590	905	511	531	1,042	376	360	736	290	189	479	290	189
F Price Escalation (2 % p.a. for A to E)	3,203	5,155	8,358	267	1,118	1,385	437	819	1,256	836	869	1,705	710	680	1,390	622	405	1,027	622	405
G Tax (10 % for A, C and E&F for A&C)	0	4,332	4,332	0	0	0	0	0	0	625	625	0	218	369	587	273	325	598	273	325
H Interest during Construction	1,178	2,647	3,825	124	531	655	147	504	651	147	504	651	147	504	651	147	504	651	147	504
Total Project Cost	28,016	60,957	88,973	2,956	12,847	15,803	4,050	8,437	12,487	6,678	8,124	14,802	5,116	5,740	10,856	4,080	3,367	7,447	4,080	3,367
		100.00%		17.76%			14.03%		16.64%				12.20%					8.37%		

Basic Data
 Foreign exchange rates
 Rp/US\$ 2,350

- A Progress rate of construction works
 - Package 1, Stage I 100%
 - Package 1, Stage II 100%
 - Package 1, Stage III 100%
 - Package 2, Tanjungan 100%
 - Package 2, PIK Junction 100%
 - Package 3, Gele/Bor 100%
 - Package 3, S. Congkareng 100%
 - Package 3, Meruya 100%
- B Government Administrative Expense 5%
- C Engineering Services 100%
- D Compensation Cost 100%
- E Physical Contingency (10 % for A to D) 10%
- F Price Escalation (2 % p.a. for A to E) 10%
- G Tax (10 % for A, C and E&F for A&C)
- H Interest during Construction
 - Annual amount 2.832
 - Due Amount 4,123
 - Rate 3%
 - Interest during Construction 124
 - Disbursed Amount at the end year 2,956

Figures

Fig. 8.1.1 Constitution of Project Cost

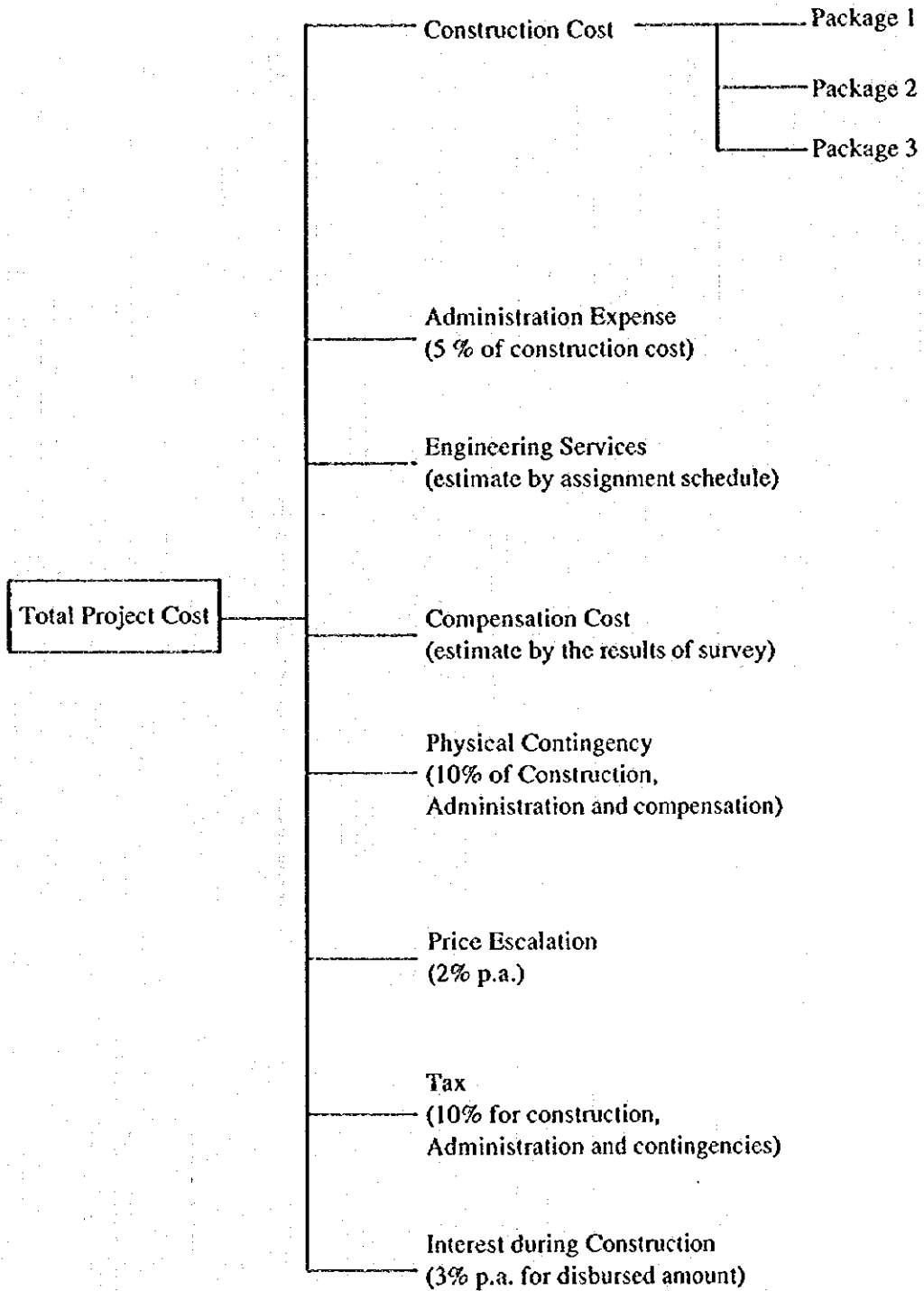


Fig 8.4.1 Assignment Schedule for Engineering Services

DESCRIPTION	1999		2000		2001		2002		2003		2004		2005		2006	
	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B	Pre-A	Pre-B
1. Pre-construction and tendering stage																
1.1 Professional-A																
- Tendering Works																
(1) Resident Engineer																
- Design review works																
(2) Structural engineer																
(3) Cost Estimator																
Sub-total																
1.2 Professional-B																
- Design review Works																
(1) Structural Engineer(A)																
(1) Structural Engineer(B)																
(2) Cost Estimator																
Sub-total																
Total of 1																
2. Construction Stage																
2.1 Professional-A																
(1) Resident Engineer																
(2) Foundation Engineer																
(3) Bridge Engineer																
(4) Mechanical Engineer																
(5) Unallocated																
(6) Home Support																
Sub-total																
Total of 2																
2.2 Professional-B																
(1) Assistant Resident Engineer																
(2) Structural engineer(A)																
(3) Structural engineer(B)																
(4) Structural Engineer(C)																
(5) Foundation Engineer(A)																
(6) Foundation Engineer(B)																
(7) Bridge Engineer(A)																
(8) Bridge Engineer(B)																
(9) Concrete Engineer																
Sub-total																
Total of 2																
Grand Total																