

THE GOVERNMENT OF MAURITIUS  
MINISTRY OF ENERGY, WATER RESOURCES AND POSTAL SERVICES  
CENTRAL WATER AUTHORITY

THE DETAILED DESIGN  
ON  
THE PORT LOUIS WATER SUPPLY PROJECT  
IN MAURITIUS

FINAL REPORT (2)

COST ESTIMATE

FOR

LOT III : RAW WATER TRANSMISSION PIPELINE AND  
TREATMENT FACILITIES

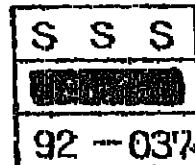
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MARCH 1992

JAPAN INTERNATIONAL COOPERATION AGENCY



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COST ESTIMATE FOR LOT III

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# PORT LOUIS WATER SUPPLY PROJECT

## COST ESTIMATE

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## 1. GENERAL

This report presents the construction cost for the implementation of the Lot III, Raw Water Transmission Pipeline and Treatment Facilities of the Port Louis Water Supply Project.

The construction cost of the Lot III of the Project is estimated at the price level of January 1991 as follows;

Foreign currency	:	US\$	8,540 x 10 <sup>3</sup>	(68.9 %)
Local currency	:	MRs.	52,800 x 10 <sup>3</sup>	(31.1 %)
<hr/>				
Total (equivalent to)	:	MRs.	169,800 x 10 <sup>3</sup>	(100 %)

The direct cost of the Lot III Work is estimated on the basis of the Bill of Quantities, Detailed Design Drawings, Specifications and the proposed construction plan and schedule developed in the study of this design stage. In order to make an accurate cost estimate, unit price estimate method is mainly applied for each work. Furthermore, the estimate procedures and the breakdown of the unit cost are applied taking into account a prevailing estimate procedures in Mauritius, a recent international tendering system and a financial source.

The unit prices are estimated and analysed on the basis of local conditions, the proposed construction method, accurate unit rates of labour wages, material and equipment costs, and data referring to the recent tender prices on the similar projects in Mauritius.

The summary of construction cost is shown in Table 1.1.

Table 1.1 Summary of Construction Cost for Lot III Work

Division No.	Description	Foreign Currency (US\$)	Local Currency (MRs.)	Total Amount (MRs.)
A.	General and Preliminary Items	197,200	4,455,900	7,157,540
B.	Raw Water transmission Pipeline	1,378,658	5,288,812	24,176,426
C.	Treatment Facilities	5,227,464	27,289,375	98,905,631
	Total of Direct Cost	6,803,322	37,034,087	130,239,598
D.	Engineering and Administration Cost	680,300	4,870,000	14,190,000
E.	Physical Contingency	374,160	2,095,000	2,469,160
F.	Price Contingency	682,482	8,800,913	22,901,242
	Total Construction Cost	8,540,000	52,800,000	169,800,000

## 2. BASIC CONDITIONS

The basic conditions and assumptions applied for the cost estimate are described below:

- The unit prices and rates are based on the current prices for labour, material and equipment as of January 1991.
- The estimated cost is composed of a foreign currency portion in US Dollar (US\$) and a local currency portion of Mauritian Rupee (MRs.). The total amount is converted into MRs as an equivalent price.
- The exchange rates are employed in consideration of the prevailing exchange rate in January 1991. The exchange rates used in this cost estimate are as follows:

$$\text{US\$ 1.0} = \text{Yen 130} = \text{Rs. 13.7}$$

- The work quantities are calculated from the detailed design drawings and the technical specifications of the tender documents of Lot III Contract as shown in the BILL OF QUANTITIES.
- The construction works will be carried out by a contractor selected through an international competitive tender in accordance with a guidelines of CWA in Mauritius and a financial source. All construction equipment and machinery , Engineer's office and laboratory tests are to be provided by the Lot III contractor.
- Annual price escalation rates are assumed to be 3 per cent for the foreign currency portion and 7 per cent for the local currency portion.
- In principle, the import taxes and duties on construction equipment and materials which are imported for construction of the Project are excluded from this cost estimate.

### **3. CONSTITUTION OF CONSTRUCTION COST**

The construction cost consists of a direct cost (contract cost) and an indirect cost. The direct construction cost is estimated based on the work items and quantities derived from the detailed design. This cost includes the labour wages, material cost, equipment cost and contractor's indirect cost such as overhead and profit. The direct construction cost is estimated in the Priced Bill of Quantities.

Whilst, the indirect cost includes the land compensation, administration expenses of the CWA, engineering services, physical contingency and price contingency as the price escalation.

#### **(1) Direct Construction Cost (Contract Cost)**

Lot III : Raw Water Transmission Pipeline and Treatment Facilities

#### **(2) Indirect Cost**

- Compensation for wayleave of the pipeline

- Administration expenses
- Engineering services
- Physical contingency
- Price contingency

#### 4. DIRECT CONSTRUCTION COST

##### 4.1 Construction Works in Lot III (Raw Water Transmission Pipeline and Treatment Facilities)

###### (1) General

Lot III Work consists of:

###### A: GENERAL and PRELIMINARY ITEMS

- Costs of:
- performance bond and advanced payment bond
  - insurance of Work, third party insurance and insurance against accident to workmen
  - contractor's camps, office and other facilities
  - office and other required equipment for PMO/Engineer's Representative
  - providing and maintaining all attendance for the said office
  - temporary water supply facilities
  - temporary electrical supply facilities
  - chemical, equipment, labour for disinfection of filter and filtered water pipelines.

###### B: RAW WATER TRANSMISSION PIPELINE

- Costs of:
- intake
  - raw water transmission
  - river crossings
  - wash-out pipe
  - tunnel crossing



## C: TREATMENT FACILITIES

- Costs of:
- receiving tank
  - rapid mixing tank
  - flocculation and sedimentation tank
  - filter
  - wastewater and sludge ponds
  - yard piping
  - sitework
  - chemical building
  - operation building
  - chlorination building
  - workshop
  - mechanical facilities
  - electrical facilities

### (2) Cost Component of Direct Construction Cost

The direct construction costs of civil engineering works and building works are estimated by adopting the method of unit price multiplied the corresponding work quantity and lump sum prices, based on labour wages and the cost of materials and construction equipment. The contractor's indirect cost consisting of overhead expense and profit is included in the unit price of each work item.

The cost of imported equipment and materials is estimated at CIF price at Port Louis in foreign currency portion. The import tax and duties for the construction equipment and machinery procured and imported from foreign countries are not included in the cost estimate, on the condition that such equipment shall be exported immediately after completion of the Project.

The costs for supply and delivery of imported items, ocean freight and insurance are considered in foreign currency portion. The cost for unloading and other charges at port and inland transportation expenses are estimated in local currency portion.

The main components of the cost are described as follows:

a. Labour Wages

All the labours required for the construction are assumed to be local labours and the cost is computed in the local currency portion. However, some foreign technicians such as foreman, mechanics and specialist are considered for the special works. The foreign labour wage is computed in the foreign and local currencies taking into account the annual income, air fare and living allowances, etc.

Daily labour wages are estimated at the average rates between the standard and currently prevailing wages obtained in Mauritius. The labour wages are estimated at the rate of 7 working hours per day and 40 hours per week according to the labour regulation.

The applied labour wages, which include the labour's all fringe benefits such as vacation and sick leaves, charge of insurance, medical care, living allowance and others, are shown in Table 4.1.

Table 4.1 Basic Labour Wages for Cost Estimate

Description	Unit	F/C (US\$)	L/C (MRs)
1. Foreign Foreman	m.d.	171.23	570
2. Foreman	m.d.	-	350
3. Common Labour	m.d.	-	170
4. Skilful Labour	m.d.	-	240
5. Driver for Vehicle	m.d.	-	240
6. Driver for Dump-truck	m.d.	-	270
7. Operator for Construction Machine	m.d.	-	300
8. Assistant Operator	m.d.	-	220
9. Mechanic for repair	m.d.	-	300
10. Welder	m.d.	-	240
11. Plumber	m.d.	-	240
12. Carpenter	m.d.	-	220
13. Concrete worker	m.d.	-	200
14. Steel Bar Bender	m.d.	-	220
15. Plasterer	m.d.	-	220
16. Stonemason	m.d.	-	240
17. Painter	m.d.	-	270
18. Electrician	m.d.	-	300

Notes:	1.	Exchange rate	:	US\$1.0 = Rs.13.7 = ¥130.0
	2.	Extra payment for overtime		
		- Normal overtime	:	50 %
		- Night work	:	50 %
		- Holidays and Sundays	:	100 %

b. Material cost

Several construction materials may be purchased by the contractor in local markets. However, availability of these materials is little in large amount. Therefore, local materials employed in the cost estimate are only sand, gravel, rubble stone, ready mixed concrete, concrete products and timber. Some material prices of the said items were collected in the Port Louis area. These prices are assumed to be purchased price at site including inland transportation expenses from the markets. Here, the local materials are considered to include the indirect foreign cost such as the equipment depreciation cost and imported raw material cost, etc.

Most of major material costs could not be collected in Mauritius. Therefore, the costs other than the above-mentioned items are all assumed as the imported materials from abroad, taking into consideration the insufficient supply in Mauritius.

As for the costs of all imported materials, these are estimated on the basis of CIF prices at Port Louis including freight and insurance premium in the foreign currency portion, referring to the prevailing prices in Japanese market. The costs of handling charge at port and inland transportation expenses to the site are estimated in the material prices in the local currency portion.

Material costs used for the cost estimate are listed in Table 4.2.

Table 4.2 Construction Material Cost for Lot III Work

MATERIAL PRICES AT SITE

As of Jan. 1991

Description	Applied Unit	Unit Price F/C (US\$)	Unit Price L/C (MRs)
1. Portland cement	ton	111.68	76.50
2. Reinforcing Bar	ton	584.62	400.46
3. Sand (for aggregate, basalt sand)	m <sup>3</sup>	16.64	152.00
4. Sand (unwashed rocksand)	m <sup>3</sup>	10.42	95.20
5. Gravel (for aggregate)	m <sup>3</sup>	10.12	92.40
6. Gravel (Crusher run)	m <sup>3</sup>	7.53	68.80
7. Rubble stone	m <sup>3</sup>	8.32	76.00
8. Wood (log)	m <sup>3</sup>	294.92	2,693.60
9. Timber, board	m <sup>3</sup>	243.21	13,328.00
10. Timber, plank	m <sup>3</sup>	238.69	13,080.00
11. Plywood (t= 3 mm)	m <sup>2</sup>	10.34	7.09
12. Concrete Block			
- 150 x 200 x 450	nr	-	7.34
- 200 x 200 x 450	nr	-	8.35
13. Gasoline	lit	0.91	0.62
14. Diesel Oil	lit	0.52	0.36
15. Engine Oil	lit	2.41	1.65
16. Asphalt	kg	0.73	0.50
17. Oxygen Gas (8,100 lit)	cyl	22.80	15.45
18. Acetylene (6,075 lit)	cyl	47.40	32.45
19. Ready mixed concrete			
- Type A, 30 N/mm <sup>2</sup>	m <sup>3</sup>	88.40	808.00
- Type B, 25 N/mm <sup>2</sup>	m <sup>3</sup>	85.80	784.00
- Type C, 20 N/mm <sup>2</sup>	m <sup>3</sup>	82.80	756.00
- Type D, 15 N/mm <sup>2</sup>	m <sup>3</sup>	80.20	732.00
- Type F, 30 N/mm <sup>2</sup>	m <sup>3</sup>	91.00	832.00
20. PVC pipe			
- DN 40 mm, t= 3.0 mm	m	1.30	0.89
- DN 50 mm, t= 4.0 mm	m	1.80	1.23
- DN 63 mm, t= 3.2 mm	m	2.70	1.85
- DN 90 mm, t= 4.7 mm	m	5.60	3.84
- DN 110 mm, t= 5.6 mm	m	8.40	5.75
- DN 160 mm, t= 6.5 mm	m	16.70	11.44
- DN 225 mm, t= 11.6 mm	m	26.90	18.43
21. Galvanised steel pipe			
- DN 50 mm	m	6.90	4.73
- DN 65 mm	m	9.40	6.44
- DN 80 mm	m	11.30	7.74
- DN 100 mm	m	18.80	12.88
- DN 125 mm	m	26.20	17.95
- DN 150 mm	m	37.10	25.41
22. Shape steel			
- H steel	ton	619.50	424.36
- I beam	ton	739.70	506.69
- Angle	ton	582.30	398.90
- Channel	ton	675.30	462.58
- Plate (t= 4.5 mm)	ton	795.50	544.92
- Checkered plate (t= 4.5 mm)	ton	1,034.15	708.40
- Flat bar	ton	621.90	426.00

	Description	Applied Unit	Unit Price F/C (US\$)	Unit Price L/C (MRs)
	- Round bar	ton	583.70	399.83
	- Sheet pile	ton	1,020.00	698.70
23.	Concrete pipe (socket joint for external load)			
	- 300 mm	m	-	368.26
	- 450 mm	m	-	696.23
	- 600 mm	m	-	1,166.62
24.	Water Stop (PVC, corrugate type)			
	- 200B x 5t	m	10.10	6.92
	- 220B x 6t	m	12.52	8.57
	- 300B x 7t	m	19.74	13.52
25.	Concrete joint sealant (Asphalt) 20 x 20 x 500 mm	m	3.85	5.27
26.	Concrete joint filler t= 20 mm	m <sup>2</sup>	22.00	30.14
27.	Iron Step, 300L x 22 dia	nr	15.30	20.96
28.	Grating, for floor (galvanised, closed-end type)			
	- 25H x 3t, flat-bar (34.2 kg/m <sup>2</sup> )	m <sup>2</sup>	78.10	53.50
29.	Manhole cover (grey iron)			
	- 600 mm dia, water-proof type	nr	269.40	369.08
	- - do - , resisting water pressure type	nr	781.20	1,070.24
<u>Pipes, Fittings, Valves and Headstocks</u>				
30.	Ductile iron pipe	kg	1.50	2.10
31.	Fittings (DIP)			
	- 75 mm - 150 mm	kg	4.90	6.70
	- 200 mm - 900 mm	kg	3.80	4.50
32.	Mechanical joint, ND 800 mm	nr	221.80	303.87
	- do - ND 600 mm	nr	120.90	165.63
	- do - ND 300 mm	nr	55.50	76.04
	- do - ND 200 mm	nr	27.38	37.51
	- do - ND 125 mm	nr	23.46	32.14
33.	Steel pipe			
	more than DN 350 mm	kg	2.03	2.78
	less than DN 200 mm	kg	2.70	3.70
34.	Fittings (SP)			
	more than DN 350 mm	kg	12.10	16.58
	less than DN 200 mm	kg	19.70	26.99
35.	Butterfly valve, short type			
	DN 800 mm	nr	20,880.00	28,600.00
	- do -			
	DN 700 mm	nr	15,170.00	20,780.00
	- do -			
	DN 600 mm	nr	11,300.00	15,480.00
	- do -			
	DN 350 mm	nr	7,240.00	9,920.00
	- do -			
	DN 200 mm	nr	4,370.00	5,990.00
36.	Sluice valve, DN 300 mm	nr	2,420.00	3,320.00
	- do - DN 200 mm	nr	1,240.00	1,700.00
	- do - DN 150 mm	nr	840.00	1,150.00

	Description	Applied Unit	Unit Price F/C (US\$)	Unit Price L/C (MRs)
37	Sluice gate, rising stem type DN 800 mm	nr	28,390.00	38,900.00
	- do - 500 x 500 mm	nr	6,980.00	9,560.00
	- do - 400 x 400 mm	nr	5,790.00	7,930.00
	- do - 350 x 350 mm	nr	4,860.00	6,660.00
	- do - 300 x 300 mm	nr	4,100.00	5,620.00
38.	Headstock, (type-A) handwheel type, DN 100 to DN 300 mm	nr	1,600.00	2,190.00
39.	- do - (type-B) bevel gear type, DN 200 to DN 800 mm	nr	2,720.00	3,730.00
40.	- do - (type-C) bevel gear type, for gates, rising stem	nr	2,830.00	3,880.00
41.	Air-release valve, quick exhaust type, DN 80 mm	nr	870.00	1,190.00
42.	Angle valve with hose coupling, DN 65 mm	nr	117.00	160.30
	- do - DN 50 mm	nr	96.60	132.30

Note: Exchange rate : US\$1.0 = Rs.13.7 = ¥130.0

### c. Equipment Cost

All construction equipment and machinery in the cost estimate are assumed to be provided by the contractors. The prices of construction equipment and machinery are prevailing prices in international market especially in Japan in January 1991. The equipment cost is estimated based on the CIF price at Port Louis including freight and insurance premium, handling charge, inland transportation expenses and other incidental charges. The import duties of the equipment is excluded in the cost estimate.

Rates of the hourly equipment cost are established based on the CIF price at Port Louis and calculated in consideration of Japanese standards for life-time, salvage value, depreciation rate, maintenance and repair rates, and management expenses rate.

The equipment cost is divided into foreign and local currency portion as follows:

- i) Foreign currency portion
- Depreciation rate (calculated based on salvage value of 10 percent)
  - Maintenance and repair rates and management expenses rate (70 percent of the CIF price)
- ii) Local currency portion
- Maintenance and repair rates and management expenses rate mainly labour cost (30 percent of the CIF price)
  - Other local incidentals.

The equipment cost is listed in Table 4.3.

Table 4.3 Construction Equipment Cost for Lot III Work

Equipment	CIF Price (US\$)	Capacity	Unit	Unit Price		Fuel (lit.)
				Foreign Currency (US\$)	Local Currency (Rs.)	
Bulldozer, w/Ripper	212,850	21 t	hr.	32.7	112.0	29.0
Bulldozer	189,750	21 t	hr.	27.9	95.4	26.0
Bulldozer	97,350	11 t	hr.	14.3	49.1	13.0
Backhoe	126,225	0.6 m <sup>3</sup>	hr.	15.2	52.0	15.0
Wheel loader	42,488	0.6 m <sup>3</sup>	hr.	7.6	25.9	5.4
Tractor shovel	57,750	0.6 m <sup>3</sup>	hr.	7.6	25.9	7.6
Dump truck	65,175	11 t	hr.	8.0	27.4	12.0
Dump truck	46,200	8 t	hr.	6.3	21.4	9.4
Dump truck	31,763	6 t	hr.	5.0	17.0	6.6
Truck	28,716	6 t	hr.	4.2	11.4	6.3
Truck crane	160,000	16 t	hr.	15.4	42.2	7.8
Truck crane	65,385	4.9 t	hr.	8.6	23.6	5.4
Leg hammer	1,906	30 kg	hr.	5.2	12.8	-
Pick hammer	264	7.5 kg	hr.	0.5	2.0	-
Concrete bucket	2,748	0.5 m <sup>3</sup>	hr.	5.6	19.3	-
Concrete vibrator, flexible	1,139	φ45 mm	hr.	1.8	6.2	-
Concrete mixer	15,675	0.5 m <sup>3</sup>	hr.	21.6	74.0	-
Concrete spray gun	28,215	4-6 m <sup>3</sup> /hr	hr.	4.8	16.3	-
Steel bender	-	-	hr.	4.1	13.8	-
Portable belt conveyor, engine	2,121	7 m	hr.	6.7	22.7	G1.2
Asphalt sprayer, drum	1,873	200 lit.	hr.	3.2	10.9	G0.53
Air compressor (P)	43,148	10.5 m <sup>3</sup> /min	hr.	12.5	35.6	15.0
Air compressor (P)	18,000	5 m <sup>3</sup> /min	hr.	5.8	19.9	7.1
Diesel generator	6,864	10 kVA	hr.	5.7	19.4	2.1
Submersible pump	1,345	φ50 mm	hr.	2.5	8.6	-

Note: Exchange rate: US\$1.0 = Rs.13.7 = ¥130.0

d. Contractor's Indirect Cost

Contractor's indirect cost is to be overhead expenses and profit for the contractor. The overhead expenses comprise general administrative expenses, field expenses and field administration cost. The general administrative expenses are salaries and allowances for the contractor's personnel, legal welfare expenses, international travelling and communication expenses, depreciation, insurance and so on in his head office. The field expenses and field administration cost are for labour transportation, preparation on topographic survey, leading frame, safety, technical expense for concrete test etc, and the contractor's personnel, camp operation, labour control expenses, inland travelling expenses, security, insurance and bond, stationary and communication expenses and so on, in the field.

The overhead expenses and profit are distributed to the price or lump sum of each work item. These expenses are estimated at 20 percent of direct unit cost comprising labour wages, material costs and equipment cost. The breakdown is as follows:

- Common field expense	:	4 %
- Field administration cost	:	8.5 %
- General administration cost	:	7.5 %

e. Direct Construction Cost

The unit prices for various work items in the Bill of Quantities are estimated in accordance with the above conditions. The breakdowns required for work item in the Bill of Quantities are attached in APPENDIX A and the unit cost for Lot III Work are as shown in APPENDIX B.

The direct construction cost for Lot III is estimated at about MRs 130 million equivalent in total, comprising US\$ 6.8 million in foreign currency (71.6 %) and MRs.37.0 million in local currency portion (28.4 %).



## **5. INDIRECT COST**

### **5.1 Administration Expenses and Engineering Services**

The cost of CWA's administration expenses for running cost of office, stationary, consumables, etc. is estimated at 3.5 percent of the local currency portion of the direct construction cost. On the other hand, cost for the engineering services is also estimated at 10 percent of the foreign currency portion of the direct cost based on the necessary construction supervision required for all over the Project, including the pre-construction and construction stages, assuming that these services are made by the expatriate consultant.

The administration expenses and the engineering services are estimated at about MRs 14.2 million, comprising US\$ 0.68 million in foreign currency (65.5 %) and MRs.4.9 million in local currency (34.5 %).

### **5.2 Physical Contingency**

The physical contingency is provided at 5 % for a summation of direct construction cost and administration cost in Foreign and Local portions taking into consideration some design changes during the construction period.

### **5.3 Price Contingency**

The price contingency is provided to cope with price escalation due to inflation. Price contingency is assumed that the escalation rate will be 3 % per annum for the foreign currency portion and 7 % per annum for the local currency portion.

## **6. ANNUAL DISBURSEMENT SCHEDULE**

Fiscal year of the disbursement schedule is assumed to start in July and end in June next year considering Mauritian Fiscal Year. According to the construction time schedule, the construction cost for the Project are assumed to be disbursed as shown in Table 6.1.

Table 6.1 DISBURSEMENT SCHEDULE

(Unit: MRs. 1,000)

WORK ITEM	TOTAL COST		1ST YEAR		2ND YEAR		3RD YEAR	
	F/C	L/C	F/C	L/C	F/C	L/C	F/C	L/C
<b>A. GENERAL AND PRELIMINARY ITEMS</b>	2,701	4,456	2,701	3,936	-	520	-	-
<b>C. RAW WATER TRANSMISSION PIPELINE</b>								
B1. Intake	899	288	899	288	-	-	-	-
B2. Raw Water Transmission Pipeline	17,248	4,354	5,749	1,451	11,499	2,903	-	-
B3. River Crossing	604	550	-	-	302	275	302	275
B4. Wash-out Pipe	58	33	-	-	-	-	58	33
B5. Tunnel Crossing	78	64	-	-	78	64	-	-
<b>Subtotal</b>	18,887	5,289	6,648	1,739	11,879	3,242	360	308
<b>C. TREATMENT FACILITIES</b>								
C1. Receiving Tank	1,725	422	1,725	422	-	-	-	-
C2. Rapid Mixing Tank	903	344	903	344	-	-	-	-
C3. Flocculation & Sedimentation Tank	7,053	5,188	7,053	5,188	-	-	-	-
C4. Filter	17,959	5,429	10,775	3,257	7,184	2,172	-	-
C5. Wastewater and Sludge Ponds	4,170	2,704	-	-	4,170	2,704	-	-
C6. Yard Piping	4,897	1,997	-	-	1,469	599	3,428	1,398
C7. Site Work	2,240	2,017	-	-	-	-	2,240	2,017
C8. Chemical Building	2,615	1,892	784	567	1,831	1,325	-	-
C9. Operation Building	4,871	2,610	4,871	2,610	-	-	-	-
C10. Chlorination Building	595	363	-	-	595	363	-	-
C11. Workshop	2,910	1,757	-	-	2,910	1,757	-	-
C12. Mechanical Equipment	9,137	1,148	-	-	5,482	688	3,655	460
C13. Electrical Equipment	12,541	1,418	-	-	6,270	449	6,271	969
<b>Subtotal</b>	71,616	27,289	26,111	12,388	29,911	10,057	15,594	4,844
<b>Total of A+B+C</b>	93,204	37,034	35,460	18,063	41,790	13,819	15,954	5,152
Engineering Cost	9,320	3,700	2,796	1,110	5,033	1,998	1,491	592
Administration Cost	-	1,170	-	351	-	632	-	187
Physical Contingency	5,126	2,095	1,912	976	2,341	822	873	297
Price Contingency	9,350	8,801	2,432	2,900	4,536	3,929	2,382	1,972
<b>Grand Total</b>	117,000	52,800	42,600	23,400	53,700	21,200	20,700	8,200

## **7. PRICED BILL OF QUANTITIES**

SUMMARY OF BILL OF QUANTITY

Division No.	Description	Foreign Currency Portion (US\$)	Local Currency Portion (Rs.)	Total Equivalent Price (Rs.)
<b>A. GENERAL AND PRELIMINARY ITEMS</b>				
A1.	Preliminary Item	108,600	3,017,500	4,505,320
A2.	General Item	88,600	1,438,400	2,652,220
<b>TOTAL OF DIVISION A</b>		197,200	4,455,900	7,157,540
<b>B. RAW WATER TRANSMISSION PIPELINE</b>				
B1.	Intake	65,605	288,159	1,186,947
B2.	Raw Water Transmission Pipeline	1,258,950	4,354,043	21,601,658
B3.	River Crossing	44,098	550,205	1,154,347
B4.	Wash-out Pipe	4,288	32,357	91,102
B5.	Tunnel Crossing	5,717	64,048	142,370
<b>TOTAL OF DIVISION B</b>		1,378,658	5,288,812	24,176,426
<b>C. TREATMENT FACILITIES</b>				
C1.	Receiving Tank	125,936	421,914	2,147,237
C2.	Rapid Mixing Tank	65,907	344,124	1,247,049
C3.	Flocculation and Sedimentation Tank	514,790	5,188,403	12,241,026
C4.	Filter	1,310,841	5,429,161	23,387,682
C5.	Wastewater and Sludge Ponds	304,367	2,703,739	6,873,566
C6.	Yard Piping	357,454	1,996,559	6,893,678
C7.	Sitework	163,512	2,017,328	4,257,442
C8.	Chemical Building	190,885	1,891,671	4,506,795
C9.	Operation Building	355,564	2,609,648	7,480,874
C10.	Chlorination Building	43,474	362,741	958,334
C11.	Workshop	212,394	1,757,047	4,666,844
C12.	Mechanical Facilities	666,940	1,148,440	10,285,518
C13.	Electrical Facilities	915,400	1,418,600	13,959,580
<b>TOTAL OF DIVISION C</b>		5,227,464	27,289,375	98,905,631
<b>TOTAL</b>		6,803,322	37,034,087	130,239,598

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>A. GENERAL AND PRELIMINARY ITEMS</b>									
<b>A1</b>	<b>PRELIMINARY ITEM</b>								
	<p>Note: Preliminary items are to provide for compliance with the Condition of Contract and Specifications. the total amount permitted in respect of these items is limited to a max. of ten (10) per cent of the Tender Price.</p>								
/01	Allow for provision of Performance Bond in accordance with Clause 10 of Part II of the Conditions of Contract	sum		-			247,200		
/02	Allow for provision of Insurance of Work in accordance with Clause 21 of Part I of the Conditions of Contract	sum			90,100				
/03	Allow for provision of Third Party Insurance in accordance with Clause 23 of Part I of the Conditions of Contract	sum			18,100				
/04	Allow for provision of Insurance in accordance with Clause 24 of Part I of the Conditions of Contract	sum					165,500		
/05	Allow for provision of Advance Payment Bond in accordance with Clause 10 of Part II of the Conditions of Contract	sum					123,600		

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/06	Allow for the erection of Contractor's camps, office and other facilities and other demobilization and movement off the work site on completion, including all temporary access and land required during the construction	sum	-	-	-	2,472,000	-	801 to 809 901 to 908	
/07	Provide and erect two signboards at the site directed by PMO/Engineer	sum	400	400	9,200	9,200			
<b>Subtotal of Item A1</b>					<u>108,600</u>		<u>3,017,500</u>		
<b>A2</b>	<b>GENERAL ITEM</b>								
/01	Allow for provision of office furnished, water supply, electrical supply, telephone and other facilities for PMO/Engineer's Representative, all as specified	Provisional sum		64,300		377,700		1001 to 1005	
/02	Provide and maintain all attendance as specified in the General Specification for the above office	month	26	-	10,900	283,400		1001	
/03	Allow for provision of supply, installation, operation and subsequent removal of temporary water supply facility	sum		1,200		171,000		803	
/04	Allow for provision of supply, installation, operation and subsequent removal of temporary electrical supply	sum		23,100		84,000		804	
/05	Allow for provision of all water, chemical, equipment, labour, etc. for conducting disinfection of filter and filtered water pipelines as per specifications	sum		-		2,300		10600	

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/06	Allocation fee for power receiving							520,000	
									provisional sum
/07	<p>The Contractor is to describe hereunder in detail and price other works, obligations or things which may be referred to in the Conditions of Contract or Specification or which he may consider have been omitted from the Bills of Quantities and for which he desires to enter a separate charge (the charge to be carried direct to the amount column). If no separate charge is made hereunder, the rates in the Bills of Quantities shall be held as covering all expenses for such works, obligations or things.</p>								
					88,600			1,438,400	
	<b>Subtotal of Item A2</b>								
	<b>TOTAL OF ITEM A</b>				197,200			4,455,900	

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B. RAW WATER TRANSMISSION PIPELINE</b>									
<b>B.1</b>	<b>INTAKE</b>								
<b>B1.1</b>	<b>Temporary Work</b>								
/01	Temporary cofferdam	sum		6,146		40,756		10508	
/02	Temporary raw water intake pipelaying works for existing pipes, DN 450 x 18.1 m and DN 600 x 9.8 m as per DWG No. P-044	sum		4,952		45,614		10507	
	<b>Subtotal of Item B1.1</b>			11,098		86,370			
<b>B1.2</b>	<b>Earthwork</b>								
/01	Open-cut excavation, rock	m3	137	4.22	578	25.15	3,445	10202.2	
	<b>Subtotal of Item B1.2</b>				578	3,445			
<b>B1.3</b>	<b>Concrete Work</b>								
	The concrete work comprises partial demolition of existing structure and restoration and modification of the existing structure as per DWG. Nos. P-041 to P-043								
/01	Demolition of concrete	m3	54	4.22	227	25.15	1,358	10301	
/02	Blinding concrete, Class D	m3	28	104.27	2,919	981.90	27,493	10301	
/03	Concrete, Class B	m3	42	111.52	4,683	1,065.78	44,762	10301	



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/04	Concrete filling, Class C	m3	14	107.54	1,505	1,012.14	14,169		10301
/05	Formwork, Type F1	m2	93	6.30	585	344.00	31,992		10303
/06	Reinforcing bars	ton	3	748.22	2,244	1,861.92	5,585		10304
	<b>Subtotal of Item B1.3</b>				12,163		125,359		
	<b>B1.4 Pipe Work</b>								
/01	Sluice gate with head stock, type C and bellmouth, DN 800 including installation work	sum			40,348		56,575		10503.3 & 10503.5
	<b>Subtotal of Item B1.4</b>				40,348		56,575		
	<b>B1.5 Metal Work</b>								
/01	Bar screen, ss400	nr	1	1,079.00	1,079	15,515.00	15,515		10702
/02	Step iron	nr	20	15.30	306	20.96	419		10514.5
/03	Manhole cover, checkered plate 950 x 950 x t = 4.5 mm with tar-epoxy resin painting	nr	1	33.00	33	476.00	476		10706
	<b>Subtotal of Item B1.5</b>				1,418		16,410		
	<b>Total of Item B1</b>				65,605		288,159		

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B-2</b>	<b>RAW WATER TRANSMISSION PIPELINE</b>								
<b>B2.1</b>	<b>Earthwork</b>								
/01	Slope cutting, common soil	m3	997	2.28	2,273	12.14	12,103		10202.2
/02	Slope cutting, rock (shown as provisional quantity)	m3	499	1.94	968	13.01	6,491		10202.2
/03	Trench excavation, common soil	m3	6,573	2.28	14,986	12.14	79,796		10202.3
/04	Trench excavation, rock (as shown provisional quantity)	m3	3,944	1.94	7,651	13.01	51,311		10202.3
/05	Backfilling, crusher run with grain size of 5 mm	m3	1,510	10.21	15,417	105.35	159,078		10205.2
/06	Backfilling, selected material	m3	4,122	1.50	6,183	20.04	82,604		10205.2
/07	Protection fence for falling rocks, fence area of 1500 m2	sum			57,620		227,341		10509
/08	Slope protection (shotcrete)	m2	890	12.23	10,884	58.40	51,976		10510
	<b>Subtotal of Item B2.1</b>				115,982		670,700		
<b>B2.2</b>	<b>Concrete Work</b>								
/01	Protection concrete, Class B for straight pipe and bend protections	m3	879	111.52	98,026	1,065.78	936,820		10301
/02	Formwork, type F1	m2	1,956	6.30	12,322	344.00	672,864		10303
/03	Reinforcing bars	ton	31	748.22	23,194	1,861.92	57,719		10304
	<b>Subtotal of Item B2.2</b>				133,542		1,667,403		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B2.3</b>	<b>Pipe Work</b>								
/01	Raw water pipelaying works, DN 800 DIP including pipes, fittings, joints, laying works, pressure testing and washing out	m	2,131	470.90	1,003,487	696.39	1,484,007		10500
/02	Air valve installation DN 80 quick exhaust type	nr	5	1,096	5,480	1,646	8,230		10503.4
/03	Air valve box	nr	5	91.81	459	4,740.60	23,703		10505.2
/04	Leakage repair work of existing pipelines provisionally for thirty (30) visible leakage spots	sum		-	-		500,000		10511
	<b>Subtotal of Item B2.3</b>				1,009,426		2,015,940		
	<b>Total of Item B2</b>				1,258,950		4,354,043		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B.3</b>	<b>RIVER CROSSING (2 - Places)</b> (As per DWG. Nos. P-045 and P-046)								
<b>B3.1</b>	<b>Temporary Work</b>								
/01	Temporary coffering	sum		696		43,635			10508
	<b><u>Subtotal of Item B3.1</u></b>			696		43,635			
<b>B3.2</b>	<b>Earthwork</b>								
/01	Trench excavation, rock	m3	669	4.22	2,823	25.15	16,825		10202.3
/02	Backfilling, excavated rock (Manpower)	m3	305	0.05	15	28.18	8,594		10205.2
	<b><u>Subtotal of Item B3.2</u></b>				2,838		25,419		
<b>B3.3</b>	<b>Concrete Work</b>								
/01	Portfection concrete, Class B	m3	252	111.52	28,103	1,065.78	268,576		10301
/02	Formwork, type F1	m2	553	6.30	3,483	344.00	190,232		10303
/03	Reinforcing bars	ton	12	748.22	8,978	1,861.92	22,343		10304
	<b><u>Subtotal of Item B3.3</u></b>				40,564		481,151		
	<b><u>Total of Item B3</u></b>				44,098		550,205		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B.4</b>	<b>WASH-OUT PIPE</b> (As per DWG. No. P-047)								
<b>B4.1</b>	<b>Earthwork</b>								
/01	Trench excavation, rock (manpower)	m3	9	11.65	104	169.78	1,528		10202.3
/02	Backfilling, excavated material	m3	6	0.05	0	28.18	169		10205.2
	<b>Subtotal of Item B4.1</b>				104		1,697		
<b>B4.2</b>	<b>Concrete Work</b>								
/01	Reinforced concrete, Class B	m3	7	111.52	780	1,065.78	7,460		10301
/02	Formwork, type F1	m2	28	6.30	176	344.00	9,632		10303
/03	Reinforcing bars	ton	0.4	748.22	299	1,861.92	744		10304
/04	Drain-pit including grating cover	nr	1	21.43	21	6,083.55	6,083		10705
	<b>Subtotal of Item B4.2</b>				1,276		23,919		
<b>B4.3</b>	<b>Pipe Work</b>								
/01	Pipelaying work, DN 150 DIP including pipes, fittings, joints, laying works, pressure testing and washing out	m	29	62.69	1,818	116.26	3,371		10500
/02	Wash-out valve installation, sluice valve with handwheel DN 150 including valve box	nr	1	1,090.32	1,090	3,370.25	3,370		10503.1 & 10505.2
	<b>Subtotal of Item B4.3</b>				2,908		6,741		
	<b>Total of Item B4</b>				4,288		32,357		

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>B.5 TUNNEL CROSSING</b>									
(As per DWG. Nos. P-031 and P-048)									
<b>B5.1 Earthwork</b>									
/01	Open-cut excavation, common soil	m3	278	2.28	633	12.14	3,374		10202.2
/02	Backfilling, selected material	m3	239	0.05	11	28.18	6,735		10205
	<b>Subtotal of Item B5.1</b>				644		10,109		
<b>B5.2 Concrete Work</b>									
/01	Concrete, Class B	m3	32	111.52	3,568	1,065.78	34,104		10301
/02	Formwork type F1	m2	49	6.30	308	344.00	16,856		10303
/03	Reinforcing bars	ton	1.6	748.22	1,197	1,861.92	2,979		10304
	<b>Subtotal of Item B5.2</b>				5,073		53,939		
	<b>Total of Item B5</b>				5,717		64,048		
	<b>TOTAL OF ITEM B</b>				1,378,658		5,288,812		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C. TREATMENT FACILITIES</b>									
<b>C1 RECEIVING TANK</b>									
<b>C1.1 Earth Work</b>									
/01	Open-cut excavation, residual soil with rock fragment	m3	308	2.28	702	12.14	3,739		10202
/02	Backfilling, backhoe	m3	212	1.50	318	20.04	4,248		10205.1
/03	Surplus soil disposal	m3	96	3.48	334	19.40	1,862		10206
	<b>Subtotal of Item C1.1</b>				1,354		9,849		
<b>C1.2 Concrete Work</b>									
/01	Concrete, Class A, C25/20	m3	80	114.79	9,183	1,096.02	87,681		10301
/02	Concrete, Class B, C20/20	m3	2	111.52	223	1,065.78	2,131		10301
/03	Concrete, Class D, C15/40	m3	6	104.27	625	981.90	5,891		10301
/04	Concrete, Class E, C15/20	m3	22	105.28	2,316	990.72	21,795		10301
/05	Formwork, Type F1	m2	220	6.30	1,386	344.00	75,680		10303
/06	Formwork, Type F3	m2	137	6.90	945	379.00	51,923		10303
/07	Reinforcing bars	ton	5.8	748.22	4,339	1,861.92	10,799		10304
	<b>Subtotal of Item C1.2</b>				19,017		255,900		
<b>C1.3 Equipment and Materials</b>									
/01	Precast concrete cover 300B x 1,690L x 100T	nr	4	32.15	128	239.04	956		10403
	<b>Subtotal of Item C1.3</b>				128		956		

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C1.4 Pipe Work (DWG. No. C-008)</b>									
/01	DN 800 mm DIP Raw water transmission pipe	m	9	1,466.70	13,200	1,908.04	17,172		10502.1
/02	DN 700 mm DIP Raw water pipe to existing system	m	8	741.89	5,935	1,047.96	8,383		10502.1
/03	DN 150 mm DIP Drain pipe	m	1	123.48	123	200.03	200		10502.1
/04	DN 800 mm Butterfly valves for flow control and shut-off with headstocks, type B	nr	2	29,776	59,552	42,834	85,668		10503.2
/05	DN 700 mm Butterfly valve for flow control with headstock, type B	nr	1	22,580	22,580	32,800	32,800		10503.2
/06	DN 150 mm Sluice valve for drain valve with headstock, type A	nr	1	3,074	3,074	4,856	4,856		10503.1
	<b>Subtotal of Item C1.4</b>				104,464		149,079		
<b>C1.5 Metal Work</b>									
/01	Ladder, L=2,500 mm x 1 nr as per DWG. No. C-019	kg	60	0.90	54	14.89	893		10704
/02	Ladder, L=2,900 mm x 1 nr	kg	69	0.90	62	14.89	1,027		10704
/03	Ladder, L=3,200 mm x 3 nrs	kg	228	0.90	205	14.89	3,394		10704
/04	Grating, 700A x 700B as per DWG. No. C-019	m2	1.47	78.10	114	53.50	78		10705
/05	Grey iron manhole cover, 600 mm dia.	nr	2	269.40	538	369.08	738		10706
	<b>Subtotal of Item C1.5</b>				973		6,130		
	<b>Total of Item C1</b>				125,936		421,914		



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C2</b>	<b>RAPID MIXING TANK</b>								
<b>C2.1</b>	<b>Earth Work</b>								
/01	Open-cut excavation, residual soil with rock fragment, backhoe	m3	196	2.28	446	12.14	2,379		10202
/02	Backfilling	m3	41	1.50	61	20.04	821		10205.1
/03	Surplus soil disposal	m3	155	3.48	539	19.40	3,007		10206
	<b>Subtotal of Item C2.1</b>				1,046		6,207		
<b>C2.2</b>	<b>Concrete Work</b>								
/01	Concrete, Class A, C25/20	m3	73	114.79	8,379	1,096.02	80,009		10301
/02	Concrete, Class B, C20/20	m3	2	111.52	223	1,065.78	2,131		10301
/03	Concrete, Class D, C15/40	m3	46	104.27	4,796	981.90	45,167		10301
/04	Formwork, Type F1	m2	157	6.30	989	344.00	54,008		10303
/05	Formwork, Type F3	m2	196	6.90	1,352	379.00	74,284		10303
/06	Reinforcing bars	ton	6.1	748.22	4,564	1,861.92	11,357		10304
	<b>Subtotal of Item C2.2</b>				20,303		266,956		
<b>C2.3</b>	<b>Equipment and Materials</b>								
/01	Precast concrete cover 300B x 1,690L x 100T	nr	5	32.15	160	239.04	1,195		10403
	<b>Subtotal of Item C2.3</b>				160		1,195		
<b>C2.4</b>	<b>Pipe Work</b>								
/01	DN 800 mm DIP Inlet pipe	m	5	2,105.37	10,526	2,734.07	13,670		10502.1

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/02	DN 150 mm DIP Drain pipe	m	1	123.48	123	200.03	200		10502.1
/03	DN 800 mm Butterfly valve for inlet flow control with headstock, type B	nr	1	29,776	29,776	42,834	42,834		10503.2
/04	DN 150 mm Sluice valve for drain pipe with headstock, type A	nr	1	3,074	3,074	4,856	4,856		10503.1
	<b><u>Subtotal of Item C2.4</u></b>				43,499		61,560		
	<b>C2.5 Metal Work</b>								
/01	Ladder, L=2.75 m x 1 nr	kg	65	0.90	58	14.89	967		10704
/02	Ladder, L= 5.05 m x 2 nrs	kg	240	0.90	216	14.49	3,477		10704
/03	Grating, 700Ax 400B x 2 nrs	m2	0.56	78.10	43	53.50	29		10705
/04	Grey iron manhole cover, 600 mm dia.	nr	1	269.40	269	369.08	369		10706
/05	Handrail	m	24.3	12.92	313	138.44	3,364		10703
	<b><u>Subtotal of Item C2.5</u></b>				899		8,206		
	<b><u>Total of Item C2</u></b>				65,907		344,124		

Item No.	Description	Unit Quantity		Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
		Unit	Quantity	Unit Price	Amount	Unit Price	Amount		
<b>C3 FLOCCULATION AND SEDIMENTATION TANK</b>									
<b>C3.1 Earth Work</b>									
/01	Open-cut excavation, residual soil with rock fragment, backhoe	m3	3,095	2.28	7,056	12.14	37,573		10202
/02	Backfilling	m3	245	1.50	367	20.04	4,909		10205.1
/03	Surplus soil disposal	m3	2,850	3.48	9,918	19.40	55,290		10206
	<u>Subtotal of Item C3.1</u>				17,341		97,772		
<b>C3.2 Concrete Work</b>									
/01	Concrete, Class A, C25/20	m3	1,595	114.79	183,090	1,096.02	1,748,151		10301
/02	Concrete, Class B, C20/20	m3	1	111.52	111	1,065.78	1,065		10301
/03	Concrete, Class D, C15/40	m3	126	104.27	13,138	981.90	123,719		10301
/04	Concrete, Class E, C15/20	m3	176	105.28	18,529	990.72	174,366		10301
/05	Formwork, Type F1	m2	1,639	6.30	10,325	344.00	563,816		10303
/06	Formwork, Type F3	m2	4,900	6.90	33,810	379.00	1,857,100		10303
/07	Reinforcing bars	ton	171.0	748.22	127,945	1,861.92	318,388		10304
/08	Expansion joint, t = 20 mm with water stop	m	117	43.73	5,116	90.36	10,572		10305
/09	Water stop with protective cover	m	20	26.88	537	56.34	1,126		10305
/10	Expansion joint, t= 10 mm without water stop	m	77	13.86	1,067	33.60	2,587		10305
	<u>Subtotal of Item C3.2</u>				393,668		4,800,890		
<b>C3.3 Equipment and Materials</b>									
/01	Clarified water effluent trough 250 W x 350 H x 3,230 L	nr	18	181.64	3,269	3,158.62	56,855		10404

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/02	Baffle plate and stop log								10402
-	Baffle plate, t = 20 mm	m3	0.114	3,380.92	385	41,967.48	4,784		
-	Stop log, t = 50 mm	m3	0.057	31.22	1	1,510.52	86		
	<b>Subtotal of Item C3.3</b>				3,655		61,725		
<b>C3.4</b>	<b>Pipe Work</b>								
	Pipe work includes installation of pipes and valves necessary for cleaning the tank and also includes inlet gates and pipes in perforated walls.								
/01	Desludging pipe, DN 300 DIP	m	4.2	490.12	2,058	627.98	2,637		10502.1
/02	Scouring pipe, DN 200 DIP as per DWG. No. C-015	m	35.4	115.97	4,105	185.65	6,572		10502.1
/03	Flush pipe, DN 100 GSP and 65 GSP as per DWG. No. C-017	sum			14,347		24,627		10502.2
/04	DN 300 mm Sluice valve with headstock, Type A	nr	4	5,065	20,260	8,230	32,920		10503.1
/05	DN 200 mm Sluice valve with headstock, Type A	nr	3	3,578	10,734	5,744	17,232		10503.1
/06	Inlet gate 500 x 500 with headstock, Type C	nr	3	12,396	37,188	18,221	54,663		10503.3
/07	DN 110 uPVC pipe for perforated wall, l = 250 as per DWG. No. C-015	nr	1,377	3.00	4,131	5.00	6,885		10502.3
	<b>Subtotal of Item C3.4</b>				92,823		145,536		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C3.5 Metal Work</b>									
/01	Ladder, L= 5.94 m x 2 nrs	kg	283	0.90	254	14.89	4,213		10704
/02	Ladder, L= 4.79 m x 6 nrs	kg	684	0.90	615	14.89	10,184		10704
/03	Ladder, L= 3.85 m x 6 nrs	kg	550	0.90	495	14.89	8,189		10704
/04	Ladder, L= 3.75 m x 6 nrs	kg	536	0.90	482	14.89	7,981		10704
/05	Ladder, L= 3.60 m x 3 nrs	kg	257	0.90	231	14.89	3,826		10704
/06	Ladder, L= 2.00 m x 2 nrs	kg	95	0.90	85	14.89	1,414		10704
/07	Grating, 800A x 800B x 3 nrs	m2	1.92	78.10	149	53.50	102		10705
/08	Grating, 700A x 600B x 8 nrs	m2	3.36	78.10	262	53.50	179		10705
/09	Grating, 700A x 450B x 12 nrs	m2	3.78	78.10	295	53.50	202		10705
/10	Grating, 400A x 600B x 4 nrs	m2	0.96	78.10	74	53.50	51		10705
/11	Grating, 400A x 400B x 18 nrs	m2	2.88	78.10	224	53.50	154		10705
/12	Grating, 400A x 450B x 2 nrs	m2	0.36	78.10	28	53.50	19		10705
/13	Handrail	m	317	12.91	4,092	138.44	43,885		10703
	<b>Subtotal of Item C3.5</b>				7,286		80,399		
<b>C3.6 Concrete Block Wall</b>									
/01	Concrete block masonry work	m2	1.6	10.82	17	1,301.03	2,081		20401
	DWG. No. C-014, SECTION B-B								
	<b>Subtotal of Item C3.6</b>				17		2,081		
	<b>Total of Item C3</b>				514,790		5,188,403		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C4</b>	<b>FILTER</b>								
<b>C4.1</b>	<b>Earth Work</b>								
/01	Open-cut excavation with backhoe, residual soil with rock fragment	m3	1,518	2.28	3,461	12.14	18,428		10202.1
/02	Backfilling	m3	185	1.50	277	20.04	3,707		10205.1
/03	Surplus soil disposal	m3	1,333	3.48	4,638	19.40	25,860		10206
	<b>Subtotal of Item C4.1</b>				8,376		47,995		
<b>C4.2</b>	<b>Concrete Work</b>								
/01	Concrete, Class A, C25/20	m3	1,094	114.79	125,580	1,096.02	1,199,045		10301
/02	Concrete, Class B, C20/20	m3	2	111.52	223	1,065.78	2,131		10301
/03	Concrete, Class D, C15/40	m3	47	104.27	4,900	981.90	46,149		10301
/04	Concrete, Class E, C15/20	m3	10	105.28	1,052	990.72	9,907		10301
/05	Formwork, Type F1	m2	599	6.30	3,773	344.00	206,056		10303
/06	Formwork, Type F3	m2	3,665	6.90	25,288	379.00	1,389,035		10303
/07	Reinforcing bars	ton	104.9	748.22	78,488	1,861.92	195,315		10304
/08	Water stop with protective cover	m	44	26.88	1,182	56.34	2,478		10305.2
/09	Expansion joint, t = 20 mm without water stop	m2	142	27.72	3,936	58.86	8,358		10305
	<b>Subtotal of Item C4.2</b>				244,422		3,058,474		
<b>C4.3</b>	<b>Equipment and Materials</b>								
/01	Filter underdrain system, complete with nozzles, k-floor, form work panels, accessories and all necessary work for installation	m2	225	1,540	346,500	5,270.00	1,185,750		10405

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/02	Filter sand, effective size of 1.0 mm, max uniformity coefficient of 1.5	m <sup>3</sup>	247.1	529.20	130,765	757.51	187,180		10406
/03	Supporting gravel, particle size of 2.38 mm to 4.76 mm	m <sup>3</sup>	22.5	507.78	11,425	739.25	16,633		10406
/04	Precast concrete cover 300B x 1,690L x 100T	nr	5	32.15	160	239.04	1,195		10403
/05	Roof light with frame	set	11	434.29	4,777	1,291.88	14,210		10708
/06	Ventilation louver (steel) W400 x H400 mm	set	1	57.50	57	377.30	377		21401, 21402
	W700 x H400 mm	set	8	100.70	805	660.20	5,281		
/07	Steel flush door with wired glass W800 x H2,100 mm	set	2	201.40	402	1,320.50	2,641		21301, 21302
	<b>Subtotal of Item C4.3</b>				494,891		1,413,267		21303
<b>C4.4</b>	<b>Pipe Work</b>								
	Pipe work in filter includes gates for filter inlet, pipes, valves for air scouring and backwash, pipes, gates and valves for wash drain.								
/01	Filter outlet/backwash pipe DN 350 SP	m	97.0	1,078.00	104,566	1,574.00	152,678		10502.2
/02	Air inlet pipe DN 200 SP	m	78.4	987.00	77,380	1,418.00	111,171		10502.2
/03	Drain pipe DN 150 SP	m	47.1	797.00	37,538	1,152.00	54,259		10502.2
/04	Plant water pipe DN 100, 125 SP	m	10.4	761.00	7,914	1,096.00	11,398		10501
/05	Filter inlet pipe DN 350 stainless steel l = 0.675 m	m	6	224.44	1,346	540.27	3,241		-

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/06	Filter inlet gate 350 x 350 with headstock, Type C	nr	6	9,722	58,332	14,378.00	86,268	10503.3	
/07	Wash drain gate 400 x 400 with headstock, Type C	nr	6	10,895	65,370	16,036	96,216	10503.3	
/08	DN 350 butterfly valve with headstock, Type B, for filter outlet	nr	6	12,565	75,390	18,716	112,296	10503.2	
/09	DN 350 butterfly valve with headstock, Type B, for backwash pipe	nr	6	12,565	75,390	18,716	112,296	10503.2	
/10	DN 350 butterfly valve with handwheel for backwash main	nr	1	9,122	9,122	13,817	13,817	10503.2	
/11	DN 200 sluice valve with headstock, Type A, for air inlet	nr	7	3,578	25,046	5,744	40,208	10503.1	
/12	DN 200 sluice valve with handwheel for air release	nr	1	1,562	1,562	2,882	2,882	10503.1	
/13	DN 150 sluice valve with handwheel for drain	nr	6	1,058	6,348	1,993	11,958	10503.1	
/14	DN 150 sluice valve with headstock, Type A, for drain	nr	1	3,074	3,074	4,856	4,856	10503.1	
/15	Single orifice air valve dia. 25 mm	nr	1	535.50	535	879.79	879	10503.4	
	<b>Subtotal of Item C4.4</b>				548,913		814,423		
<b>C4.5 Metal Work</b>									
/01	Steel pipe support	ton	1.48	582.30	861	8,376.40	12,397	-	
/02	Ductile iron manhole cover, 600 mm dia., water tight type	nr	6	269.40	1,616	369.08	2,214	10706	
/03	Ductile iron manhole cover, 600 mm dia., resisting water pressure type	nr	7	781.20	5,468	1,070.24	7,491	10706	



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/04	Ladder, L= 5.10 m x 1 nr	kg	121	0.90	108	14.89	1,801	10704	10704
/05	Ladder, L= 4.20 m x 3 nrs	kg	300	0.90	270	14.89	4,467	10704	10704
/06	Ladder, L= 3.80 m x 6 nrs	kg	543	0.90	488	14.89	8,085	10704	10704
/07	Ladder, L= 3.10 m x 1 nr	kg	74	0.90	66	14.89	1,101	10704	10704
/08	Ladder, L= 2.80 m x 1 nr	kg	67	0.90	60	14.89	997	10704	10704
/09	Ladder, L= 2.40 m x 1 nr	kg	57	0.90	51	14.89	848	10704	10704
/10	Ladder, L= 1.50 m x 1 nr	kg	36	0.90	32	14.89	536	10704	10704
/11	Grating, 700A x 1,200B x 6 nrs	m2	5.04	78.10	393	53.50	269	10705	10705
/12	Grating, 700A x 500B x 6 nrs	m2	2.10	78.10	164	53.50	112	10705	10705
/13	Handrail	m	309	12.91	3,989	138.44	42,777	10703	10703
	<b><u>Subtotal of Item C4.5</u></b>				13,566		83,095		
<b>C4.6</b>	<b>Concrete Block Wall</b>								
/01	Concrete wall masonry work for ventilation shaft as per DWG. No. C-022	m2	6.1	10.82	66	1,301.03	7,936	20401	20401
	<b><u>Subtotal of Item C4.6</u></b>				66		7,936		
<b>C4.7</b>	<b>Concrete Mortar for Water Proofing</b>								
/01	Roof of staircase room as per DWG. No. C-023	m2	21.1	28.80	607	188.20	3,971	20802	20802
	<b><u>Subtotal of Item C4.7</u></b>				607		3,971		
	<b><u>Total of Item C4</u></b>				<u>1,310,841</u>		<u>5,429,161</u>		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C5</b>	<b>WASTEWATER AND SLUDGE PONDS</b>								
<b>C5.1</b>	<b>Earth Work</b>								
/01	Open-cut excavation with backhoe, residual soil with rock fragment	m3	4,804	2.28	10,953	12.14	58,320		10202.1
/02	Backfilling	m3	673	1.50	1,009	20.04	13,486		10205.1
/03	Surplus soil disposal	m3	4,131	3.48	14,375	19.40	80,141		10206
	<b><u>Subtotal of Item C3.1</u></b>				26,337		151,947		
<b>C5.2</b>	<b>Concrete Work</b>								
/01	Concrete, Class A, C25/20	m3	1,200	114.79	137,748	1,096.02	1,315,224		10301
/02	Concrete, Class D, C15/40	m3	76	104.27	7,924	981.90	74,624		10301
/03	Concrete, Class E, C15/20	m3	91	105.28	9,580	990.72	90,155		10301
/04	Formwork, Type F1	m2	801	6.30	5,046	344.00	275,544		10303
/05	Formwork, Type F3	m2	1,314	6.90	9,066	379.00	498,006		10303
/06	Reinforcing bars	ton	87.2	748.22	65,244	1,861.92	162,359		10304
	<b><u>Subtotal of Item C5.2</u></b>				234,608		2,415,912		
<b>C5.3</b>	<b>Equipment and Materials</b>								
/01	Stop log for inlet complete with R.C. stop logs, guide frame, and chain block with support as per DWG. No. C-033	set	4	706.45	2,825	5,821.38	23,285		10707
/02	Stop log for outlet complete with R.C. stop logs, guide frame, and chain block with support as per DWG. No. C-033	set	4	779.73	3,118	7,243.72	28,974		10707
	<b><u>Subtotal of Item C5.3</u></b>				5,943		52,259		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C5.4 Pipe Work</b>									
/01	Outlet gate 300 x 300 with headstock, Type C as per DWG. No. C-032	nr	4	8,764	35,056	13,053	52,212		10503.3
	<b>Subtotal of Item C5.4</b>				35,056		52,212		
<b>C5.5 Metal Work</b>									
/01	Ladder, L= 4.45 m x 2 nrs	kg	212	0.90	190	14.89	3,156		10704
/02	Ladder, L= 3.85 m x 8 nrs	kg	733	0.90	659	14.89	10,914		10704
/03	Ladder, L= 1.80 m x 2 nrs	kg	86	0.90	77	14.89	1,280		10704
/04	Handrail	m	116	12.91	1,497	138.44	16,059		10703
	<b>Subtotal of Item C5.5</b>				2,423		31,409		
	<b>Total of Item C5</b>				304,367		2,703,739		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C6</b>	<b>YARD PIPING</b>								
<b>C6.1</b>	<b>Raw Water Pipe</b>								
/01	Pipe laying work, DN 800mmDIP from receiving tank to rapid mixing tank as per DWG. No. C-035	m	133	550.68	73,240	941.86	125,267		10502.1
/02	Pipe laying work, DN 700mm DIP from receiving tank to existing chamber No. 1 as per DWG. No. C-035	m	19	489.09	9,292	786.36	14,940		10502.1
/03	Pipe laying work, DN 200mm DIP for scouring	m	72	76.16	5,483	200.21	14,415		10502.1
/04	Pipe laying work, DN 40mm PE pipe for sampling	m	75	8.56	642	18.06	1,354		10502.3
	<b>Subtotal of Item C6.1</b>				88,657		155,976		
<b>C6.2</b>	<b>Filtered Water Pipe</b>								
/01	Pipe laying work, DN 900mm DIP for connection to existing filtered water pipe as per DWG. No. C-035	m	5	1,280.26	6,401	1,822.99	9,114		10502.1
/02	Pipe laying work, DN 800mm DIP for connection to existing filtered water pipe as per DWG. No. C-035	m	73	721.57	52,674	1,170.71	85,461		10502.1
/03	Pipe laying work, DN 600mm DIP for replaced filtered water pipe from existing filter as per DWG. No. C-037	m	93	446.18	41,494	779.91	72,531		10502.1, 10512

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/04	Removal of existing filtered water pipe, DN 600 mm DIP	m	111	51.35	5,699	346.82	38,497		10512
/05	Flowmeter and valve chamber as per DWG. No. C-038	sum			18,815		117,419		10505.1
/06	Valve chamber as per DWG. No. C-038	sum			7,323		45,109		10505.1
/07	DN 800mm Butterfly valve with handwheel	nr	1	26,333	26,333	37,936	37,936		10503.2
/08	DN 600mm Butterfly valve with handwheel	nr	1	14,258	14,258	21,067	21,067		10503.2
/09	Flowmeter replacement, DN 900mm DIP including removal of existing orifice plate and pipe, installation of pipe w/ annubar flowmeter and demolition of part of the chamber and restoration of the chamber as per DWG. No. C-038	sum			1,407		11,923		10505.1
	<b>Subtotal of Item C6.2</b>				174,404		439,057		
<b>C6.3</b>	<b>Associated Pipe Work</b>								
/01	Pipe laying work, DN 350mm DIP for backwash main as per DWG. No. C-039	m	77	187.86	14,465	285.24	21,963		10502.2
/02	Pipe laying work, DN 125mm DIP for plant water inlet as per DWG. No. C-	m	64	60.59	3,877	112.91	7,226		10502.1
/03	Pipe laying work, DN 150mm DIP for water supply as per DWG. No. C-040	m	15	133.86	2,007	189.24	2,838		10502.1

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/04	Pipe laying work, DN 110mm PE pipe for water supply as per DWG. No. C-040	m	131	27.04	3,542	47.55	6,229	10502.3	
/05	Pipe laying work, DN 63mm PE pipe for water supply as per DWG.No. C-040	m	139	15.70	2,182	31.85	4,427	10502.3	
/06	Hydrant with box as per DWG. No. C-040	set	6	224.00	1,344	3,206.00	19,236	-	
/07	Flexible hose and coupling for hydrant	lot	1		5,200		3,500		
	<b>Subtotal of Item C6.3</b>				<b>32,617</b>		<b>65,419</b>		
<b>C6.4</b>	<b>Drain Pipe</b>								
/01	Pipe laying work, DN 600mm RCP as per DWG No. C-041	m	243	39.15	9,513	1,840.46	447,231	10514	
/02	Pipe laying work, DN 450mm RCP as per DWG No. C-041	m	284	26.99	7,665	1,136.37	322,729	10514	
/03	Pipe laying work, DN 300mm RCP as per DWG No. C-041	m	208	22.88	4,759	680.77	141,600	10514	
/04	Pipe laying work, DN 200mm DIP Washout pipe as per DWG. No. C-036 and C-037	m	5	161.45	807	234.38	1,171	10514, 10502.1	
/05	Pipe laying work, DN 225mm uPVC as per DWG. No. C-040	m	18	49.40	889	163.01	2,934	10514, 10514.4	
/06	Pipe laying work, DN 160mm uPVC as per DWG. No. C-040	m	43	25.99	1,117	65.13	2,800	10514, 10502.4	

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/07	Pipe laying work, DN 90mm uPVC as per DWG. No. C-040	m	22	7.40	162	15.06	331	10514,	10514,
/08	Pipe laying work, DN 63mm uPVC as per DWG. No. C-040	m	8	3.58	28	12.41	99	10502.4	10514,
/09	DN 200 sluice valve with box for washout pipe as per DWG. No. C-036 and C-037	nr	2	1,799.28	3,598	3,770.68	7,541	10514.4	10503.2
/10	Removal of existing drain pipe, DN 450mm as per DWG. No. C-037	m	78	0.74	57	16.74	1,305	-	-
/11	Manholes, total of 24 manholes as per DWG. No. C-044	sum			32,555		394,863	10514.5	10514.5
/12	Drain pit as per DWG. No. C-041 and C-042	nr	4	156.73	626	3,375.86	13,503	-	-
	<b>Subtotal of Item C6.4</b>				61,776		1,336,107		
	<b>Total of Item C6</b>				357,454		1,996,559		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C7</b>	<b>SITEWORK</b>								
<b>C7.1</b>	<b>Earth Work</b>								
/01	Open-cut excavation, residual soil wit rock fragment	m3	7,979	2.12	16,915	11.47	91,519		10202.2
/02	Embankment	m3	4,684	1.50	7,026	20.04	93,867		10205
/03	Surplus soil disposal	m3	3,295	3.48	11,466	19.40	63,923		10206
	<b>Subtotal of Item C7.1</b>				35,407		249,309		
<b>C7.2</b>	<b>Road</b>								
	Asphalt pavement including subbase, prime coat etc.	m2	1,024	73.48	75,243	962.37	985,466		10803
<b>C7.3</b>	<b>Footpaths (W = 1.20m)</b>	m2	21	22.51	472	566.28	11,891		10804
<b>C7.4</b>	<b>R.C. L-type Retaining Wall</b> including guardrails	sum			39,641		461,766		10803.6
<b>C7.5</b>	<b>Stone Masonry Retaining Wall</b>	sum			9,241		214,722		10805
<b>C7.6</b>	<b>Removal of Existing Fences</b>	m	193	1.60	308	97.93	18,900		10806
<b>C7.7</b>	<b>Restoration of Fence</b>	m	121	26.45	3,200	622.10	75,274		10806
<b>C7.8</b>	<b>Indicated Posts</b> for air valves and drain valves	nr	8	6	48	800.00	6,400		10807



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
C7.9	Marker Posts for pipeline centres for raw water transmission pipeline and in the treatment works	nr	15	5	75	1,800.00	27,000		10807
<b>Total of Item C7</b>					<u>163,512</u>		<u>2,017,328</u>		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C8</b>	<b>CHEMICAL BUILDING</b>								
<b>C8.1</b>	<b>Earth Work</b>								
/01	Excavation, backhoe, common soil	m3	110.0	2.28	250	12.14	1,335		10202
/02	Backfill, manpower	m3	63.0	0.05	3	28.18	1,775		10205.1
/03	Disposal	m3	47.0	3.48	163	19.40	911		10206
/04	Gravel bedding	m3	29.5	10.21	301	105.35	3,107		10208
	<b>Subtotal of Item C8.1</b>				717		7,128		
<b>C8.2</b>	<b>Concrete Work</b>								
/01	Concrete Class A for structure	m3	383.0	114.79	43,964	1,096.02	419,775		10301
/02	Concrete Class D	m3	19.5	104.27	2,033	981.90	19,147		10301
/03	Form for plastering surface and natural	m2	1,140.0	6.30	7,182	344.00	392,160		10303
/04	Form for exposed surface	m2	870.0	6.90	6,003	379.00	329,730		10303
/05	Reinforcing bars	kg	46,800.0	0.75	35,100	1.86	87,048		10304
	<b>Subtotal of Item C8.2</b>				94,282		1,247,860		
<b>C8.3</b>	<b>Masonry Work</b>								
/01	Concrete block wall, 100mm thick including filling cement mortar and with wire lath	m2	37.0	31.20	1,154	204.30	7,559		20400
/02	Concrete block wall, 200mm thick including filling cement mortar and with wire lath	m2	209.0	54.20	11,327	355.30	74,257		20400
	<b>Subtotal of Item C8.3</b>				12,481		81,816		

Item No	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C8.4 Bituminous Waterproofing Work</b>									
/01	Epoxy waterproofing	m2	297.0	19.10	5,672	125.80	37,362		20502
	<u>Subtotal of Item C8.4</u>				5,672		37,362		
<b>C8.5 Tile Work</b>									
/01	Porcelain tile to exterior wall including base cement mortar	m2	249.0	67.10	16,707	440.10	109,584		20700
	<u>Subtotal of Item C8.5</u>				16,707		109,584		
<b>C8.6 Plastering Work</b>									
/01	Cement mortar plaster on floor	m2	278.0	8.60	2,390	56.60	15,734		20801
/02	Cement mortar plaster to interior skirting, H=100mm	m	135.0	7.70	1,039	50.50	6,817		20801
/03	Cement mortar plaster to interior wall	m2	490.0	17.70	8,673	116.30	56,987		20801
/04	Cement mortar plaster to exterior wall	m2	48.2	18.70	901	122.40	5,899		20801
/05	Cement mortar plaster to interior ceiling	m2	22.4	20.70	463	134.60	3,015		20801
/06	Waterproof cement mortar plaster to roof gutter	m2	258.0	28.80	7,430	188.20	48,555		20802
/07	Waterproof cement mortar plaster to eaves	m2	120.0	28.80	3,456	188.20	22,584		20802
	<u>Subtotal of Item C8.6</u>				24,352		159,591		
<b>C8.7 Painting Work</b>									
/01	Oil paint to metal surface	m2	227.0	7.20	1,634	47.40	10,759		20900
/02	Vinyl emulsion paint on cement mortar	m2	682.0	6.20	4,228	41.30	28,166		20900
	<u>Subtotal of Item C8.7</u>				5,862		38,925		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C8.8</b>	<b>Doors and Windows</b>								
/01	Steel door leaves and frames including hardware, accessories and calking to outside perimeter	m2	6.8	119.90	815	786.00	5,344		21300
/02	Steel windows and frames including hardware, accessories and calking to outside perimeter	m2	31.2	230.20	7,182	1,509.20	47,087		21300
/03	Steel louver windows and frames including hardware, accessories and calking to outside perimeter	m2	5.6	359.60	2,013	2,357.90	13,204		21400
/04	Steel rolling doors including operation devices, accessories and calking to outside perimeter	m2	8.7	551.40	4,797	3,615.40	31,453		21300
	<b><u>Subtotal of Item C8.8</u></b>				14,807		97,088		
<b>C8.9</b>	<b>Glazing Work</b>								
/01	Plate wire glass 6.8mm thick including glazing bead	m2	32.9	39.00	1,283	255.90	8,419		21500
	<b><u>Subtotal of Item C8.9</u></b>				1,283		8,419		
<b>C8.10</b>	<b>Miscellaneous Metal Work</b>								
/01	Roof drain, cast iron made, 100 mm dia.	nr	16	36.00	576	235.60	3,769		21600
/02	Steel pipe handrail, 50mm dia. including balusters	m	22.7	12.91	293	138.44	3,142		21600
/03	Stainless steel nosing w/non-slip rubber	m	43.2	13.40	578	88.70	3,831		21600

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/04	Steel hoist beam including base plate, anchor bolt and base cement plaster	kg	1230	0.74	910	10.70	13,161		21600
/05	Cornep protection curb	kg	370	0.74	273	10.70	3,959		21600
/06	Ladder stainless steel	nr	16	14.60	233	220.00	3,520		21600
/07	Unloading hatch cover 1,000, 1,000	nr	1	47.00	47	679.20	679		
/08	PVC downspout, 100mm dia. including accessories	m	92.8	10.00	928	26.44	2,453		21700
/09	Wire mesh	m2	32.5	3.40	110	22.00	715		-
/10	Steel ladder (iron step) ø19mm	nr	24	15.30	367	20.96	503		21600
	<b>Subtotal of Item C8.10</b>				4,315		35,732		
	<b>C8.11 Miscellaneous Work</b>								
/01	Lavatory sink, wall hung w/faucet, stop valve, mirror and supply and drain water piping	set	1	238.80	239	1,565.60	1,565		21800, 22100
	<b>Subtotal of Item C8.11</b>				239		1,565		
	<b>C8.12 Indoor lighting and Auxiliary Service</b>								
/01	Lighting panel (LP-CHE)	set	1		3,039		19,931		22207
/02	Circuit breaker panel (ELCB3P-50A)	set	1		359		2,358		22207
/03	Exhaust fan, wall mounted type 1,680 m3/h (2) motor 230V - 0.05kW	set	6	429.50	2,577	2,816.20	16,897		22207
/04	Lighting fixture including lamp, ballast and fittings FL40Wx1 (B401)	set	2	62.30	124	408.50	817		22207

Item No.	Description	Unit	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
			Quantity	Unit Price	Amount	Unit Price		
/05	Lighting fixture including lamp, ballast and fittings FL40Wx1 (D401)	set	4	67.00	268	444.00	1,776	22207
/06	Lighting fixture including lamp, ballast and fittings FL40Wx2 (D402)	set	13	84.40	1,097	552.30	7,179	22207
/07	Lighting fixture including lamp, ballast and fittings FL20Wx1 (F201)	set	2	126.60	253	829.30	1,658	22207
/08	Tumbler switch with outlet box 1P-15A-300Vx1	ea	3	15.00	45	104.00	312	22207
/09	Tumbler switch with outlet box 1P-15A-300Vx2	ea	1		21		142	22207
/10	Tumbler switch with outlet box 1P-15A-300Vx3	ea	2	21.00	42	142.00	284	22207
/11	Tumbler switch with outlet box 1P-15A-300Vx1 (3 way)	ea	1	17.60	17	114.80	114	22207
/12	Tumbler switch with outlet box 1P-15A-300Vx1 (3 way water proof type)	ea	1	20.80	20	136.50	136	22207
/13	Tumbler switch with outlet box 1P-15A-300Vx1 (4 way)	ea	2	19.70	39	128.50	257	22207
/14	Tumbler switch with outlet box 1P-15A-300Vx1 (water proof type)	ea	1		19		126	22207
/15	Receptacle with outlet box 3P-15A-250Vx1	ea	3	15.70	47	102.50	307	22207

Item No.	Description	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/16	Receptacle with outlet box 3P-15A-250V (water proof type)	ea	6	15.80	94	104.00	624		22207
/17	Electric conduit, including couplings, bushings, junction boxes and accessories 16mm dia.	m	192	6.20	1,190	41.30	7,929		22207
/18	Electric conduit, including couplings, bushings, junction boxes and accessories 22mm dia.	m	35	8.20	287	53.60	1,876		22207
/19	Electric wire, PVC insulated, 600V, with terminals, 1.6mm	m	303	0.90	272	6.10	1,848		22204
/20	Electric wire, PVC insulated, 600V, with terminals, 2.0mm	m	300	1.10	330	6.10	1,830		22204
/21	Electric wire, PVC insulated, 600V, with terminals, 5.5mm2	m	26	1.10	28	7.70	200		22204
<b>Subtotal of Item C8.12</b>					10,168		66,601		
<b>Total of Item C8</b>					<u>190,885</u>		<u>1,891,671</u>		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9 OPERATION BUILDING</b>									
<b>C9.1 Earthwork</b>									
/01	Excavation	m3	74.0	2.28	168	12.14	898		10202
/02	Backfill	m3	36.0	0.05	1	28.18	1,014		10205
/03	Disposal	m3	38.0	3.48	132	19.40	737		10206
/04	Gravel bedding	m3	41.2	10.21	420	105.35	4,340		10208
	<b>Subtotal of Item C9.1</b>				721		6,989		
<b>C9.2 Concrete Work</b>									
/01	Concrete Class A for structure	m3	215.0	114.79	24,679	1,096.02	235,644		10301
/02	Concrete Class D	m3	4.9	104.27	510	981.90	4,811		10301
/03	Form for plastering surface and natural	m2	1,080.0	6.30	6,804	344.00	371,520		10302
/04	Form for exposed surface	m2	259.0	6.90	1,787	379.00	98,161		10302
/05	Reinforcing bars	kg	28,200.0	0.75	21,150	1.86	52,452		10304
	<b>Subtotal of Item C9.2</b>				54,930		762,588		
<b>C9.3 Masonry Work</b>									
/01	Concrete block wall, 100mm thick including filling cement mortar and with wire lath	m2	481.0	31.20	15,007	204.30	98,268		20401
/02	Concrete block wall, 200mm thick including filling cement mortar and with wire lath	m2	206.0	54.20	11,165	355.30	73,191		20401
	<b>Subtotal of Item C9.3</b>				26,172		171,459		



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9.4 Bituminous Waterproofing Work</b>									
/01	3-ply built-up asphalt roofing	m2	373.0	17.3	6,452	113.2	42,223		20501
/02	2-ply built-up asphalt roofing	m2	30.6	15.8	483	104.0	3,182		20501
	<b>Subtotal of Item C9.4</b>				6,935		45,405		
<b>C9.5 Terrazzo Work</b>									
/01	Terrazzo block on floor including base cement mortar	m2	126.0	129.4	16,304	849.2	106,999		20600
/02	Terrazzo block door sill, including base cement mortar	m	4.0	86.3	345	566.1	2,264		20600
/03	Terrazzo block shelf, W=150mm including base cement mortar	m	10.4	71.1	739	471.2	4,900		20600
	<b>Subtotal of Item C9.5</b>				17,388		114,163		
<b>C9.6 Tile Work</b>									
/01	Porcelain tile to interior floor including base cement mortar	m2	41.9	51.1	2,141	355.0	14,874		20700
/02	Ceramic tile to interior wall including base cement mortar	m2	156.0	54.7	8,533	358.0	55,848		20700
/03	Porcelain tile to exterior wall including base cement mortar	m2	231.0	67.1	15,500	440.1	101,663		20700
	<b>Subtotal of Item C9.6</b>				26,174		172,385		
<b>C9.7 Plastering Work</b>									
/01	Cement mortar plaster on floor	m2	81.7	8.6	702	56.6	4,624		20800

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/02	Base cement mortar plaster 20mm thick for bituminous waterproofing	m2	373.0	6.7	2,499	44.4	16,561		20800
/03	Cement mortar plaster to interior skirting, H=100mm	m	179.0	7.7	1,378	50.5	9,039		20800
/04	Cement mortar plaster to interior wall	m2	843.0	17.7	14,921	116.3	98,040		20800
/05	Cement mortar plaster to exterior wall	m2	414.0	18.7	7,741	122.4	50,673		20800
/06	Cement mortar plaster to interior ceiling	m2	18.3	20.7	378	134.6	2,463		20800
/07	Waterproof cement mortar plaster to roof gutter	m2	41.5	28.8	1,195	188.2	7,810		20800
/08	Waterproof cement mortar plaster to eaves	m2	57.8	28.8	1,664	188.2	10,877		20800
	<b><u>Subtotal of Item C9.7</u></b>				30,478		200,087		
<b>C9.8 Painting Work</b>									
/01	Oil paint to metal surface	m2	71.3	7.2	513	47.4	3,379		20900
/02	Oil paint to wooden surface	m2	223.0	8.1	1,806	53.6	11,952		20900
/03	Vinyl emulsion paint on cement mortar	m2	1,550.0	6.2	9,610	41.3	64,015		20900
/04	Vinyl emulsion paint on asbestos cement sheet surface	m2	110.0	6.7	737	44.4	4,884		20900
	<b><u>Subtotal of Item C9.8</u></b>				12,666		84,230		
<b>C9.9 Carpentry and Joinery Work</b>									
/01	Wooden blind box, W200mm x H150mm x T25mm including required accessories	m	24.4	36.9	900	241.7	5,897		21000
	<b><u>Subtotal of Item C9.9</u></b>				900		5,897		

Item No.	Description	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9.10</b>	<b>Finishing Work</b>								
/01	Rockwool tile including suspension system and accessories	m2	220.0	25.9	5,698	170.0	37,400		21000
/02	Asbestos cement sheet including suspension system and accessories	m2	110.0	24.9	2,739	163.7	18,007		21000
/03	Vinyl floor tile including base cement mortar	m2	196.0	19.4	3,802	127.3	24,950		21000
/04	Vinyl strip base, H=100mm including base cement mortar	m	201.0	2.3	462	14.8	2,974		21000
	<b>Subtotal of Item C9.10</b>				12,701		83,331		
<b>C9.11</b>	<b>Doors and Windows</b>								
/01	Wooden door leaves and frames including louvers, hardware and accessories	m2	30.8	134.3	4,136	879.8	27,097		21200
/02	Steel door leaves and frames including hardware, accessories and calking to outside perimeter	m2	30.3	119.9	3,632	786.0	23,815		21300
/03	Aluminium doors and frames including hardware, accessories and calking to outside perimeter	m2	10.5	383.5	4,026	2,515.3	26,410		21400
/04	Aluminium windows and frames including hardware, accessories and calking to outside perimeter	m2	142.0	287.7	40,853	1,886.5	267,883		21400
/05	Jalousie windows and frames including hardware, accessories and calking to outside perimeter	m2	7.7	287.7	2,215	1,886.5	14,526		21400
	as per DWG. No. C-012								
	<b>Subtotal of Item C9.11</b>				54,862		359,731		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9.12 Glazing Work</b>									
/01	Plate glass 3mm thick including glazing bead	m2	76.8	16.9	1,297	109.4	8,401		21500
/02	Plate glass 5mm thick including glazing bead	m2	77.4	28.8	2,229	188.2	14,566		21500
/03	Plate wire glass 6.8mm thick including glazing bead	m2	8.2	39.0	319	255.9	2,098		21500
/04	Figured glass 4mm thick including glazing bead	m2	1.8	19.2	34	125.5	225		21500
	<b>Subtotal of Item C9.12</b>				<b>3,879</b>		<b>25,290</b>		
<b>C9.13 Miscellaneous Metal Work</b>									
/01	Roof drain, cast iron made, 100 mm dia.	nr	14	36.0	504	235.6	3,298		21600
/02	Steel pipe handrail, 50mm dia. including balusters	m	31.2	12.92	403	138.44	4,319		21600
/03	Steel pipe handrail, 50 mm dia. including balusters (removable type)	m	1.2	69.0	82	453.2	543		21600
/04	Stainless steel nosing w/non-slip rubber	m	44.0	13.4	589	88.7	3,902		21600
/05	Metal coping	m	104.0	36.0	3,744	235.8	24,523		21600
/06	Steel pipe handrail, 50mm dia. including balusters	m	40.3	12.92	520	138.44	5,579		21600
/07	Cable trench cover	m2	22.3	80.76	1,800	836.14	18,645		21600
/08	Steel ladder (iron step), ø19mm	nr	21	15.3	321	20.96	440		21600
/09	Manhole ø600mm	nr	1	269.4	269	369.08	369		21600
	<b>Subtotal of Item C9.13</b>				<b>8,232</b>		<b>61,618</b>		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Rcf. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9.14 Miscellaneous Work</b>									
/01	PVC downspout, 100mm dia. including accessories	m	60.8	10.0	608	26.44	1,607	21700	
/02	Laboratory table with two sinks and two drawer cabinets	m	9.6	167.8	1,610	1,100.1	10,560	21700	
/03	Laboratory cabinet	m	1.2	215.7	258	1,415.3	1,698	21700	
/04	Prefabricated glazed partition	m2	5.1	167.8	855	1,100.1	5,610	21700	
/05	Vinyl curtain for lavatory including accessories	nr	3	33.5	100	220.3	660	21700	
/06	Fire extinguishers	nr	20	67.1	1,342	440.1	8,802	22000	
/07	Desk(1) H740 x W1460 x D730	set	1	-	-	4,430	4,430	-	
/08	Desk(2) H740 x W915 x D635	set	6	-	-	2,640	15,840	-	
/09	Chair for desk (1)	set	1	-	-	2,630	2,630	-	
/10	Chairs for desk (2)	set	6	-	-	1,580	9,480	-	
/11	Cabinets	set	5	-	-	2,740	13,700	-	
/12	Meeting table	set	4	-	-	3,160	12,640	-	
/13	Chairs for meeting table	set	8	-	-	1,060	8,480	-	
	<b>Subtotal of Item C9.14</b>				4,773		96,137		
<b>C9.15 Indoor lighting and Auxiliary Service System</b>									
/01	Lighting panel (LP-OB1)	set	1	2,272.6	2,272	14,902.2	14,902	22200	
/02	Lighting panel (LP-OB2)	set	1	3,845.2	3,845	25,214.4	25,214	22200	
/03	Circuit breaker, water proof type (ELCB3P-50A)	set	4	575.3	2,301	3,773.0	15,092	22200	
/04	Circuit breaker, water proof type (ELCB2P-50A)	set	7	546.5	3,825	3,584.4	25,090	22200	
/05	Lighting fixture including lamp, ballast and fittings FL40Wx2 (B402)	set	4	96.9	387	635.0	2,540	22200	

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/06	Lighting fixture including lamp, ballast and fittings FL40Wx1 (B401)	set	33	62.3	2,055	408.5	13,480		22200
/07	Lighting fixture including lamp, ballast and fittings FL40Wx1 (B401, water proof type)	set	2	60.9	121	399.3	798		
/08	Lighting fixture including lamp, ballast and fittings FL40Wx1 (D401)	set	9	84.4	759	552.3	4,970		22200
/09	Lighting fixture including lamp, ballast and fittings FL40Wx1 (D402)	set	3	84.4	253	552.3	1,656		22200
/10	Lighting fixture including lamp, ballast and fittings FL40Wx2 (E402)	set	8	121.8	974	798.7	6,389		22200
/11	Lighting fixture including lamp, ballast and fittings FL40Wx1 (E401)	set	4	121.8	487	798.70	3,194		
/12	Lighting fixture including lamp, ballast and fittings B401WP	set	1	62.3	62	408.50	408		
/13	Lighting fixture including lamp, ballast and fittings FL20Wx1 (F201)	set	1	126.60	126	829.30	829		22200
/14	Lighting fixture including lamp, ballast and fittings IL40Wx1 (G401)	set	6	51.3	307	336.6	2,019		22200
/15	Tumbler switch with outlet box 1P-15A-300Vx1	m	19	15.8	300	104.0	1,976		22200

Item No.	Description	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/16	Tumbler switch with outlet box 1P-15A-300Vx2	nr	4	18.8	75	122.4	489		22200
/17	Tumbler switch with outlet box 1P-15A-300Vx3	nr	4	21.7	86	142.3	569		22200
/18	Tumbler switch with outlet box 1P-15A-300Vx1 (3 way)	nr	6	17.6	105	114.8	688		22200
/19	Receptacle with outlet box 3P-15A-250Vx1	nr	6	15.7	94	102.5	615		22200
/20	Receptacle with outlet box 3P-15A-250Vx2	nr	33	15.8	521	104.0	3,432		22200
/21	Electric conduit, including couplings, bushings, junction boxes and accessories 16mm dia.	m	516	6.2	3,199	41.3	21,310		22200
/22	Electric conduit, including couplings, bushings, junction boxes and accessories 22mm dia.	m	88	8.2	721	53.6	4,716		22200
/23	Electric conduit, including couplings, bushings, junction boxes and accessories 36mm dia.	m	3	13.0	39	84.2	252		22200
/24	Circuit breaker (ELCB50/20)	set	5.0	125.20	626	820.90	4,104		22200
/25	Electric wire, PVC insulated, 600V, with terminals, 1.6mm	m	808	0.9	727	6.1	4,928		22200
/26	Electric wire, PVC insulated, 600V, with terminals, 2.0mm	m	726	1.1	798	6.1	4,428		22200
/27	Electric wire, PVC insulated, 600V, with terminals, 22mm <sup>2</sup>	m	14	2.8	39	18.4	257		22200
<b>Subtotal of Item C9.15</b>					25,104		164,345		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C9.16 Building Service Work</b>									
1) Plumbing works									
<u>Water Supply</u>									
/01	Galvanized steel pipe DN50mm	m	4	13.3	53	20.2	80	21800, 22100	
/02	Galvanized steel pipe DN40mm	m	7	7.6	53	16.6	116	21800, 22100	
/03	Galvanized steel pipe DN32mm	m	5	6.8	34	15.1	75	21800, 22100	
/04	Galvanized steel pipe DN25mm	m	6	4.5	27	13.7	82	21800, 22100	
/05	Galvanized steel pipe DN20mm	m	67	2.8	187	11.5	770	21800, 22100	
/06	Gate valve DN50mm	nr	1	59.4	59	81.4	81	21800, 22100	
/07	Gate valve DN40mm	nr	1	47.6	47	65.2	65	21800, 22100	
/08	Valve casing	nr	1	86.3	86	565.9	565	21800, 22100	
/09	Insulation for pipe DN40mm	m	6	13.1	78	86.1	516	21800, 22100	
/10	Insulation for pipe DN32mm	m	2	12.5	25	81.7	163	21800, 22100	
/11	Insulation for pipe DN25mm	m	3	11.5	34	75.5	226	21800, 22100	
/12	Insulation for pipe DN20mm	m	16	11.0	176	72.3	1,156	21800, 22100	
/13	Anticorrosive tape for pipe DN50mm	m	4	12.5	50	81.7	326	21800, 22100	
/14	Anticorrosive tape for pipe DN40mm	m	1	10.0	10	66.0	66	21800, 22100	
/15	Anticorrosive tape for pipe DN32mm	m	4	9.6	38	62.9	251	21800, 22100	
/16	Anticorrosive tape for pipe DN25mm	m	4	8.2	32	53.4	213	21800, 22100	
/17	Anticorrosive tape for pipe DN20mm	m	49	7.4	362	48.7	2,386	21800, 22100	
/18	Painting to exposed pipe DN40mm	m	4	5.8	23	37.7	150	21800, 22100	
<b>Drainage and sewage</b>									
/01	P.V.C pipe DN140mm	m	3	5.6	16	16.2	48	21800	
/02	P.V.C pipe DN110mm	m	40	3.3	132	14.7	588	21800	
/03	P.V.C pipe DN90mm	m	44	2.2	96	11.1	488	21800	
/04	P.V.C pipe DN75mm	m	11	1.6	17	10.7	117	21800	



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/05	P.V.C pipe DN63mm	m	29	0.8	23	10.1	292	21800	21800
/06	P.V.C pipe DN50mm	m	16	0.6	9	7.8	124	21800	21800
/07	P.V.C pipe DN25mm	m	5	0.4	2	6.0	30	21800	21800
/08	Floor drain ø50mm	nr	6	19.1	114	13.1	78	21800	21800
/09	Pipe cleanout ø100mm	nr	1	33	33	22	22	21800	21800
/10	Vent cap ø100mm	nr	1	26	26	18	18	21800	21800
/11	Vent cap ø80mm	nr	1	21	21	15	15	21800	21800
/12	Vent cap ø65mm	nr	1	58	58	383	383	21800	21800
/13	Vent cap ø50mm	nr	1	35	35	232	232	21800	21800
/14	Catch basin 450x450 w/concrete cover	set	2	239.7	479	1,571.9	3,143	21800	21800
/15	Cesspool 450x450 w/cast iron cover	set	2	335.6	671	2,200.7	4,401		
<u>Plumbing fixture</u>									
/01	Water closet w/cistern tank	set	5	551.8	2,759	3,618.6	18,093	21800, 22100	21800, 22100
/02	Urinal, wall hung w/flush valve	set	4	421.4	1,685	2,763.4	11,053	21800, 22100	21800, 22100
/03	Lavatory sink, wall hung w/faucet, stop valve	set	1	198	198	1,298	1,298	21800, 22100	21800, 22100
/04	Lavatory sink, wall hung w/faucet, stop valve and mirror	set	6	238.8	1,432	1,565.6	9,393	21800, 22100	21800, 22100
/05	Service sink, floor mounted w/ faucet	set	1	451	451	2,961	2,961	21800, 22100	21800, 22100
/06	Shower set w/wall mounted head and stop valve	set	3	92.8	278	608.3	1,824	21800, 22100	21800, 22100
/07	Swing faucet	nr	4	23	92	154	616	21800, 22100	21800, 22100
<u>Septic tank</u>									
/01	Factory fabricated septic tank, complete, capacity 16 persons w/blower	set	1	3,020	3,020	19,806	19,806	21800, 22100	21800, 22100

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/02	Submerged drain pump 50 l/min., w/controls	set	2	316.4	632	2,074.9	4,149	21800, 22100	
/03	Drain pump pit	nr	1	719	719	4,715	4,715		
2) Airconditioning and ventilation systems									
/01	Airconditioner, cassette type room unit, 5,690 kcal/h x 1,080 m3/h w/condensing unit	set	4	2,728.1	10,912	17,888.4	71,553	21902, 22100	
/02	Airconditioner, cassette type room unit, 3,040 kcal/h x 900 m3/h w/condensing unit	set	4	2,080.8	8,323	13,644.2	54,576	21902, 22100	
/03	Exhaust propeller fan, ø250mm wall mounted, 900 m3/h	set	5	214.3	1,071	1,405.3	7,026	21903, 22100	
/04	Exhaust propeller fan, ø 250 mm wall mounted, 900 m3/h, motor ø1, 230v 0.025 kw	set	2						
/05	Refrigerant copper tube, ø15.9mm	m	50	38.4	1,920	251.5	12,575	21902	
/06	Refrigerant copper tube, ø12.7mm	m	41	29.2	1,197	191.8	7,863	21902	
/07	Refrigerant copper tube, ø6.4mm	m	91	18.7	1,701	122.6	11,156	21902	
/08	Condensed water pipe, PVC DN50mm	m	20	1.8	36	1.23	24		
/09	Condensed water pipe, PVC DN32mm	m	52	1.3	67	0.89	46		
				<b>Subtotal of Item C9.16</b>		39,599		255,993	
<b>C9.17 Laboratory Equipment</b>									
/01	Turbidimeter complete with sample cells and standard solutions	set	1	6,500	6,500		-	22300	
/02	pHmeter	set	1	1,385	1,385		-	22300	

Item No.	Description	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/03	Electric conductivity meter	set	1	2,310	2,310	-	-	22300	
/04	Laboratory flocculator (jar tester)	set	2	4,615	9,230	-	-	22300	
/05	Disc type comparator for colour, residual chlorine and ammonia complete with chemicals, sample cells, discs and attachment	set	1	2,310	2,310	-	-	22300	
/06	Disc type comparator for residual chlorine complete with chemicals, sample cells and discs	set	1	925	925	-	-	22300	
/07	Water sampler	set	1	925	925	-	-	22300	
/08	DO meter	set	1	1,850	1,850	-	-	22300	
/09	Glassware and miscellaneous	sum		4,615	4,615	-	-	22300	
	<b>Subtotal of Item C9.17</b>				30,050		0		
	<b>Total of Item C9</b>				355,564		2,609,648		

Item No.	Description	Unit	Quantity	Foreign Currency (\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C10</b>	<b>CHLORINATION BUILDING</b>								
<b>C10.1</b>	<b>Demolition works</b>	sum			2,397		15,719		
	Demolition of existing structures, and removal of existing equipment and fixtures in preparation for expansion works as per DWG. No. B-018 & B-019								
	<b>Subtotal of Item C10.1</b>				2,397		15,719		
<b>C10.2</b>	<b>Earthwork</b>								
/01	Excavation	m3	55.0	2.28	125	12.14	667		10202
/02	Backfill	m3	24.0	0.05	1	28.18	676		10205
/03	Disposal	m3	31.0	3.48	107	19.40	601		10206
/04	Gravel bedding	m3	3.4	10.21	34	105.35	358		10208
	<b>Subtotal of Item C10.2</b>				267		2,302		
<b>C10.3</b>	<b>Concrete Work</b>								
/01	Concrete Class A for structure	m3	37.1	114.79	4,258	1,096.02	40,662		10301
/02	Concrete Class D	m3	1.2	104.27	125	981.90	1,178		10301
/03	Form for plastering surface and natural	m2	159.0	6.30	1,001	344.00	54,696		10303
/04	Form for exposed surface	m2	79.0	6.90	545	379.00	29,941		10303
/05	Reinforcing bars	kg	4700	0.75	3,525	1.86	8,742		10304
	<b>Subtotal of Item C10.3</b>				9,454		135,219		

Item No.	Description	Unit	Quantity	Foreign Currency (\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C10.4 Masonry Work</b>									
/01	Concrete block wall, 200mm thick including filling cement mortar and with wire lath	m <sup>2</sup>	53.0	54.2	2,872	355.3	18,830	20400	
	<b>Subtotal of Item C10.4</b>				2,872		18,830		
<b>C10.5 Finishing Work</b>									
/01	Finishing work as per DWG. No. B-018 & B-019	sum			18,000		122,000	21100	
	<b>Subtotal of Item C10.5</b>				18,000		122,000		
<b>C10.6 Indoor lighting and Auxiliary Service</b>									
/01	Lighting panel (LP-CHL)	set	1	2,632.2	2,632	17,259.9	17,259	22200	
/02	Lighting fixture including lamp, ballast and fittings FL40Wx2 (A402)	set	12	264.2	3,170	1,732.0	20,784	22200	
/03	Lighting fixture including lamp, ballast and fittings FL40Wx1 (A401)	set	4	62.3	249	408.5	1,634	22200	
/04	Circuit breaker, water proof type (ELCB 3P-50A)	set	2	575.3	1,150	3,773.0	7,546	22200	
/05	Tumbler switch with outlet box 1P-15A-300Vx1	nr	4	15.8	63	104.0	416	22200	
/06	Tumbler switch with outlet box 1P-15A-300Vx1 (water proof type)	nr	4	18.8	75	122.4	489	22200	
/07	Receptacle with outlet box 2P-15A-250Vx1, water proof type	nr	10	17.7	177	116.3	1,163	22200	

Item No.	Description	Unit	Quantity	Foreign Currency (\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/08	Exhaust fan, wall mounted type 1,500 m3/h (1) motor 230v - 0.05kW	set	2	429.5	859	2,816.2	5,632	21900, 22100	
/09	Exhaust fan, wall mounted type 1,140 m3/h (3) motor 230V - 0.025 kW	set	2	367.7	735	2,411.3	4,822	21900, 22100	
/10	Electric wire, PVC insulated, 600V, with terminals, 1.6mm	m	150	0.9	135	6.1	915	22200	
/11	Electric wire, PVC insulated, 600V, with terminals, 2.0mm	m	203	1.1	223	6.1	1,238	22200	
/12	Electric conduit, including couplings bushing, junction boxes and accessories, 16mm dia.	m	164	6.2	1,016	41.3	6,773	22200	
	<b>Subtotal of Item C10.6</b>				10,484		68,671		
	<b>Total of Item C10</b>				<u>43,474</u>		<u>362,741</u>		

Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C11</b>	<b>WORKSHOP</b>								
<b>C11.1</b>	<b>Earthwork</b>								
/01	Excavation	m3	80.0	2.28	182	12.14	971		10202
/02	Backfill	m3	44.0	0.05	2	28.18	1,239		10205
/03	Disposal	m3	36.0	3.48	125	19.40	698		10206
/04	Gravel bedding	m3	70.4	10.21	718	105.35	7,416		10208
	<b>Subtotal of Item C11.1</b>				1,027		10,324		
<b>C11.2</b>	<b>Concrete Work</b>								
/01	Concrete Class A for structure	m3	214.0	114.79	24,565	1,096.02	234,548		10301
/02	Concrete Class D	m3	3.7	104.27	385	981.90	3,633		10301
/03	Form for plastering surface and natural	m2	569.0	6.30	3,584	344.00	195,736		10303
/04	Form for exposed surface	m2	576.0	6.90	3,974	379.00	218,304		10303
/05	Reinforcing bars	kg	27,100.0	0.75	20,325	1.86	50,406		10304
	<b>Subtotal of Item C11.2</b>				52,833		702,627		
<b>C11.3</b>	<b>Masonry Work</b>								
/01	Concrete block wall, 100mm thick including filling cement mortar and with wire lath	m2	172.0	31.2	5,366	204.3	35,139		20400
/02	Concrete block wall, 200mm thick including filling cement mortar and with wire lath	m2	229.0	54.2	12,411	355.3	81,363		20400
	<b>Subtotal of Item C11.3</b>				17,777		116,502		

Item No.	Work	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C11.4</b>	<b>Bituminous Waterproofing Work</b>								
/01	3-ply built-up asphalt roofing	m2	505.0	17.3	8,736	113.2	57,166		20501
	<b>Subtotal of Item C11.4</b>				8,736		57,166		
<b>C11.5</b>	<b>Terrazzo Work</b>								
/01	Terrazzo block door sill, W= including base cement mortar	m	0.7	86.3	60	566.1	396		20600
	<b>Subtotal of Item C11.5</b>				60		396		
<b>C11.6</b>	<b>Tile Work</b>								
/01	Ceramic tile to interior wall including base cement mortar	m2	42.3	54.7	2,313	358.0	15,143		20700
	<b>Subtotal of Item C11.6</b>				2,313		15,143		
<b>C11.7</b>	<b>Plastering Work</b>								
/01	Cement mortar plaster on floor	m2	476.0	8.6	4,093	56.6	26,941		20800
/02	Base cement mortar plaster 20mm thick for bituminous waterproofing	m2	505.0	6.7	3,383	44.4	22,422		
/03	Cement mortar plaster to interior skirting, H=100mm	m	233.0	7.7	1,794	50.5	11,766		
/04	Cement mortar plaster to interior wall	m2	721.0	17.7	12,761	116.3	83,852		
/05	Cement mortar plaster to exterior wall	m2	426.0	18.7	7,966	122.4	52,142		
	<b>Subtotal of Item C11.7</b>				29,997		197,123		



Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C11.8 Painting Work</b>									
/01	Oil paint to metal surface	m2	260.0	7.2	1,872	47.4	12,324		20900
/02	Oil paint to wooden surface	m2	23.0	8.1	186	53.6	1,232		20900
/03	Vinyl emulsion paint on cement mortar	m2	1,746.0	6.2	10,825	41.3	72,109		20900
	<b>Subtotal of Item C11.8</b>				12,883		85,665		
<b>C11.9 Doors and Windows</b>									
/01	Wooden door leaves and frames including louvers, hardware and accessories	m2	9.2	134.3	1,235	879.8	8,094		21200
/02	Steel door leaves and frames including hardware, accessories and calking to outside perimeter	m2	16.1	119.9	1,930	786.0	12,654		21300
/03	Steel windows and frames including hardware, accessories and calking to outside perimeter	m2	76.8	230.2	17,679	1,509.2	115,906		21300
/04	Jalousie windows and frames including hardware, accessories and calking to outside perimeter	m2	1.1	287.7	316	1,886.5	2,075		21300
/05	Steel rolling doors including operation devices, accessories and calking to outside perimeter	m2	23.6	551.4	13,013	3,615.4	85,323		
	<b>Subtotal of Item C11.9</b>				34,173		224,052		
<b>C11.10 Glazing Work</b>									
/01	Plate glass 3mm thick including glazing bead	m2	80.3	16.9	1,357	109.4	8,784		21500
/02	Plate wire glass 6.8mm thick including glazing bead	m2	1.1	39.0	42	255.9	281		21500

Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/03	Figured glass 4mm thick including glazing bead	m <sup>2</sup>	2.1	19.2	40	125.5	263		21500
<b>Subtotal of Item C11.10</b>					1,439		9,328		
<b>C11.11 Miscellaneous Metal Work</b>									
/01	Roof drain, cast iron made, 100mm dia.	nr	14	36.0	504	235.8	3,301		21600
/02	Steel hoist beam including base plate, anchor bolt and base cement plaster	kg	1,100.0	0.74	814	10.7	11,770		21600
/03	Metal coping	m	122.0	36.0	4,392	235.8	28,767		21600
<b>Subtotal of Item C11.11</b>					5,710		43,838		
<b>C11.12 Miscellaneous Work</b>									
/01	PVC downspout, 100mm dia. including accessories	m	60.0	10.0	600	26.4	1,586		21700
/02	Kitchen sink unit in kitchen	nr	1	287.7	287	1,886.5	1,886		21700
/03	Cupboard unit in kitchen	nr	1	95.9	95	628.8	628		21700
/04	Vinyl curtain for lavatory including accessories	nr	1	33.5	33	220.3	220		21700
/05	Work bench with four chaires	m	14.0	167.8	2,349	1,100.3	15,404		21700
<b>Subtotal of Item C11.12</b>					3,364		19,724		
<b>C11.13 Indoor lighting and Auxiliary Service</b>									
/01	Lighting panel (LP-WS)	set	1	6,434.3	6,434	42,189.7	42,189		22200
/02	Lighting fixture including lamp, ballast and fittings FL40Wx2 (B402)	set	12	96.9	1,162	635.0	7,620		22200

Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/03	Lighting fixture including lamp, ballast and fittings FL40Wx1 (B401)	set	5	62.3	311	635.0	3,175	22200	
/04	Lighting fixture including lamp, ballast and fittings FL40Wx2 (D402)	set	22	110.7	2,435	726.7	15,987	22200	
/05	Lighting fixture including lamp, ballast and fittings FL40Wx1 (D401)	set	6	84.4	506	552.3	3,313	22200	
/06	Lighting fixture including lamp, ballast and fittings FL20Wx1 (F201)	set	1	126.6	126	829.3	829	22200	
/07	Lighting fixture including lamp, ballast and fittings IL40Wx1 (G401)	set	2	51.3	102	336.6	673	22200	
/08	Circuit breaker (ELCB 3P-50A)	set	7	359.6	2,517	2357.7	16,503	22200	
/09	Circuit breaker (ELCB 3P-100A)	set	1	445.9	445	2923.8	2,923	22200	
/10	Circuit breaker (ELCB 3P-225A)	set	2	666.5	1,333	4369.7	8,739	22200	
/11	Circuit breaker, water proof type (ELCB 3P-50A)	set	6	575.3	3,451	3773	22,638	22200	
/12	Tumbler switch with outlet box 1P-15A-300Vx1	nr	7	15.8	110	104.0	728	22200	
/13	Tumbler switch with outlet box 1P-15A-300Vx2	nr	3	18.8	56	122.4	367	22200	
/14	Tumbler switch with outlet box 1P-15A-300Vx3	nr	2	21.7	43	142.3	284	22200	
/15	Tumbler switch with outlet box 1P-15A-300Vx1 (3 way)	nr	2	17.6	35	114.8	229	22200	

Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/16	Receptacle with outlet box 3P-15A-250Vx1	nr	2	15.7	31	102.5	205		22200
/17	Receptacle with outlet box 3P-15A-250Vx2	nr	23	15.8	363	104.0	2,392		22200
/18	Electric wire, PVC insulated, 600V, with terminals, 1.6mm	m	571	0.9	513	6.1	3,483		22200
/19	Electric wire, PVC insulated, 600V, with terminals, 2.0mm	m	907	1.1	997	6.1	5,532		22200
/20	Electric wire, PVC insulated, 600V, with terminals, 14mm2	m	149	2.2	327	15.3	2,279		22200
/21	Electric wire, PVC insulated, 600V, with terminals, 22mm2	m	77	2.8	215	18.4	1,416		22200
/22	Electric wire, PVC insulated, 600V, with terminals, 38mm2	m	77	3.9	300	26.0	2,002		22200
/23	Electric conduit, including couplings, bushings, junction boxes and accessories 16mm dia.	m	403	6.2	2,498	41.3	16,643		22200
/24	Electric conduit, including couplings, bushings, junction boxes and accessories 22mm dia.	m	136	8.2	1,115	53.6	7,289		22200
/25	Electric conduit, including couplings, bushings, junction boxes and accessories 28mm dia.	m	36	10.7	385	70.4	2,534		22200
/26	Electric conduit, including couplings, bushings, junction boxes and accessories 36mm dia.	m	18	13.0	234	84.2	1,515		22200

Item No.	Work	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/27	Electric conduit, including couplings, bushings, junction boxes and accessories 54mm dia.	m	18	13.2	237	87.2	1,569		22200
<b>Subtotal of Item C11.13</b>					26,281		173,056		
<b>C11.14 Building Service Work</b>									
1) Plumbing works									
<u>Water Supply</u>									
/01	Galvanized steel pipe DN25mm	m	6	4.5	27	13.7	82		21800
/02	Galvanized steel pipe DN20mm	m	21	2.8	58	11.5	241		21800
/03	Gate valve DN25mm	nr	1	18.0	18	25.0	25		21800
/04	Valve casing	nr	1	86.3	86	65.0	65		21800
/05	Anticorrosive tape for pipe DN25mm	m	6	8.2	49	53.4	320		21800
/06	Anticorrosive tape for pipe DN20	m	21	7.4	155	48.7	1,022		21800
<u>Drainage and sewage</u>									
/01	P.V.C pipe DN110mm	m	7	3.3	23	14.7	102		21800
/02	P.V.C pipe DN90mm	m	11	2.2	24	11.1	122		21800
/03	P.V.C pipe DN63mm	m	11	0.8	8	10.1	111		21800
/04	P.V.C pipe DN50mm	m	6	0.6	3	7.8	46		21800
/05	P.V.C pipe DN26mm	m	3	0.4	1	6.0	18		21800
/06	Floor drain ø50mm	nr	1	19	19	13	13		21800
/07	Pipe cleanout ø100mm	nr	1	33	33	22	22		21800
/08	Pipe cleanout ø80mm	nr	1	26	26	18	18		21800

Item No.	Work	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/09	Pipe cleanout ø50mm	nr	1	16	16	11	11	21800	21800
/10	Cesspool 450x450 w/cast iron cover	nr	1	335	335	2,200	2,200	21800	21800
<b>Plumbing fixture</b>									
/01	Water closet w/cistem tank	set	2	551.8	1,103	3,618.6	7,237	21800	21800
/02	Lavatory sink, wall hung w/faucet, stop valve and mirror	set	3	238.8	716	1,565.6	4,696	21800	21800
/03	Shower set w/wall mounted head and stop valve	set	1	92.8	92	608.3	608	21800	21800
/04	Swing faucet	nr	2	23.5	47	154.0	308	21800	21800
<b>Septic tank</b>									
/01	Factory fabricated septic tank, complete, capacity 10 persons w/ blower	set	1	1,534.2	1,534	10,060.3	10,060	21800	21800
/02	Submerged drain pump 50 l/min., w/controls	set	2	316.4	632	2,074.9	4,149	21800	21800
/03	Drain pump pit	nr	1	719.2	719	4,715.8	4,715	21800	21800
<b>2) Airconditioning and ventilation systems</b>									
/01	Airconditioner, suspended type room unit, 5690 kcal/h x 1,080 m <sup>3</sup> /h w/condensing unit	set	3	2,517.1	7,551	16,505.1	49,515	21900, 22100	21900, 22100
/02	Exhaust propeller fan, ø250mm wall mounted, 900 m <sup>3</sup> /h	set	3	214.3	642	1,405.3	4,215	21900, 22100	21900, 22100

Item No.	Work	Unit	Quantity	Foregin Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/03	Refrigerant copper tube, ø15.9mm	m	30	38.4	1,152	251.5	7,545	21900, 22100	
/04	Refrigerant copper tube, ø9.5mm	m	30	23.5	705	154.0	4,620	21900, 22100	
/05	Condensed water pipe, PVC DN50mm	m	13	1.8	23	1.23	15	21900, 22100	
/06	Condensed water pipe, PVC DN32mm	m	6	0.7	4	0.48	2	21900, 22100	
<b>Subtotal of Item CII.14</b>					15,801		102,103		
<b>Total of Item CII</b>					212,394		1,757,047		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C12</b>	<b>MECHANICAL FACILITIES</b>								
<b>C12.1</b>	<b>Plant water pumps</b>								
/01	Plant water pump (P-PW1,2) w/ accessories	set	2	3,300	6,600		8,400	30200	
/02	Valves, and flexible joints	lot	1		3,400		2,300	30207	
/03	Spare parts	lot	1		600		200	30209	
	<b>Subtotal of Item C12.1</b>				10,600		10,900		
<b>C12.2</b>	<b>Air-scouring Blower</b>								
/01	Air-scouring blowers (B-AS1,2) with appurtenance and accessories	set	2	46,900	93,800		122,000	30300	
/02	Spare parts	lot	1		16,900		6,000	30308	
	<b>Subtotal of Item C12.2</b>				110,700		128,000		
<b>C12.3</b>	<b>Alum Dosing System</b>								
/01	Alum solution mixers (MX-AL1,2)	set	2	12,700	25,400		33,000	30400, 30405	
/02	Alum dosing pumps (P-AL1 to 3) w/ accessories	set	3	6,900	20,700		27,000	30400, 30406	
/03	Alum solution baskets	set	2	9,600	19,200		10,000	30400	
/04	Wheelbarrow for solid alum package	set	1		300		100	30400	
/05	Wooden floor stepped for solid alum packages	lot	1		-		80,000	30400	
/06	Spare parts	lot	1		6,100		1,900	30411	
/07	Bridge walkway and mixer drive platform	sum			10,700		14,000	30407	
/08	All piping and valve installation works in the chemical building and from the chemical building to the dosing points	sum			17,000		44,000	30400, 30408	
	<b>Subtotal of Item C12.3</b>				99,400		210,000		



Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
<b>C12.4 Lime Dosing System</b>									
/01	Lime solution mixers (MX-LM 1,2)	set	2	11,500	23,000		30,000		30500, 30505
/02	Lime dosing pumps (P-LM 1,2) with accessories	set	2	6,900	13,800		18,000		30500, 30506
/03	Lime injection pumps (P-LMB 1,2) with accessories	set	2	5,100	10,200		8,800		30500, 30507
/04	Lime dosing injectors (IJ-LMB1,2)	set	2	3,400	6,800		6,600		30500, 30508
/05	Wheelbarrow for solid lime package	set	1		300		100		30500
/06	Spare parts	lot	1		9,200		3,500		30513
/07	Bridge walkway and mixer drive platform	sum			10,700		14,000		30500, 30509
/08	Wooden floor stepped for solid lime packages	lot	1		-		90,000		30500
/09	All piping and valve installation works in the chemical building and from the chemical building to the dosing points	sum			23,000		61,000		30500, 30510
	<b>Subtotal of Item C12.4</b>				97,000		232,000		
<b>C12.5 Chlorination System</b>									
/01	Chlorinators (CH-CHL1,2)	set	2	23,800	47,600		62,000		30600, 30607
/02	Chlorinator (CH-CHL 3)	set	1		21,500		28,000		30600, 30607
/03	Booster pumps (P-CHL 1,2) w/ accessories	set	2	5,400	10,800		14,000		30600, 30609
/04	Booster pump (P-CHL 3) w/ accessories	set	1		2,500		4,000		30600, 30609
/05	Weighing scales (WS-CHL 1,2)	set	2	31,500	63,000		82,000		30600, 30608
/06	Chlorine containers	set	10	3,800	38,000		25,000		30600, 30610
/07	Chlorine container grabs	set	3	1,500	4,500		3,000		30600, 30611
/08	Accessories and spare parts	lot	1		44,600		15,000		30615

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/09	All piping and valve installation works in the chlorination building and from the chlorination building to the dosing points	sum		53,000		138,000		30600, 30612	
/10	Existing system translocation works and reinstallation works	sum		-		80,000		30600, 30606	
	<b><u>Subtotal of Item C12.5</u></b>			285,500		451,000			
<b>C12.6 Flush Water Pumps and Portable Sump Pump</b>									
/01	Flush water pumps (P-FW 1,2) w/ accessories	set	2	3,300	6,600	8,400		30700	
/02	Valves and flexible joints	lot	1		4,100	2,700		30700, 30707	
/03	Portable sump pump (P-SP 1,2) Complete with accessories, flexible drain pipe, etc. as shown on the Specifications	set	2	3,920	7,840	10,740	5,370	30800	
/04	Accessories and spare parts	lot	1		400	100		30711	
	<b><u>Subtotal of Item C12.6</u></b>			18,940		21,940			
<b>C12.7 Ventilation Fans</b>									
/01	Ventilation fans (EF-FIL 1,2)	set	2	800	1,600	10,000		30900	
/02	Accessories	lot	1		1,500	3,000		30900	
	<b><u>Subtotal of Item C12.7</u></b>				3,100	13,000			
<b>C12.8 Chain Hoists</b>									
/01	Hand operated chain hoist (C-CHE1)	set	1		1,500	1,000		31000	
/02	Hand operated chain hoist (C-CHE2)	set	2	1,400	2,800	2,000	1,000	31000	
/03	Hand operated chain hoist (C-CHE3)	set	1		1,300	1,000		31000	
/04	Hand operated chain hoist (C-CHL1)	set	1		1,700	1,000		31000	

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/05	Hand operated chain hoist (C-WS1)	set	2	1,700	3,400	1,000	2,000		31000
/06	Hand operated chain hoist (G-CHL1)	set	1		4,000		2,600		31000
	<b>Subtotal of Item C12.8</b>				14,700		9,600		
<b>C12.9 Pipe work for Elevated Tank</b>									
/01	All piping and valves for elevated tank inlet, outlets, overflow, and drain in the chemical building	sum			27,000		72,000		31100
	<b>Subtotal of Item C12.9</b>				27,000		72,000		
	<b>Total of Item C12</b>				666,940		1,148,440		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C13</b>	<b>ELECTRICAL FACILITIES</b>								
<b>C13.1</b>	<b>Low-Voltage Switchgear</b>								
/01	Low-voltage switchgear (LVS-MAIN)	set	1	17,500		12,000		40300	40300
/02	Low-voltage switchgear (LVS-P)	set	1	14,500		10,000		40300	40300
/03	Low-voltage switchgear (LVS-L)	set	1	14,500		10,000		40300	40300
/04	Existing power distribution system removal works	sum		-		30,000		40300	40300
/05	Accessories and spare parts	lot	1	8,000		2,700		40300	40300
	<b>Subtotal of Item C13.1</b>			54,500		64,700			
<b>C13.2</b>	<b>Emergency Generator System</b>								
/01	Generator (G-OB)	set	1	35,000		23,000		40400	40400
/02	Diesel engine (DE-OB)	set	1	66,500		46,000		40400	40400
/03	Generator control panel (GCP-OB)	set	1	24,500		16,000		40400	40400
/04	Battery and charger (B-OB, BC-OB)	set	1	47,500		31,000		40400	40400
/05	Fuel system	lot	1	13,500		18,000		40400	40400
/06	Engine cooling water system	lot	1	3,500		5,000		40400	40400
/07	Silencer and exhaust system	lot	1	17,000		11,000		40400	40400
/08	Existing generator sets removal works	lot	1	-		30,000		40400	40400
/09	Accessories and spare parts	lot	1	4,000		1,400		40400	40400
	<b>Subtotal of Item C13.2</b>			211,500		181,400			

Item No.	Description	Unit Quantity		Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C13.3 Motor Control Centres</b>									
/01	Motor control centre (MCC-FIL)	set	1		32,500		23,000		40500
/02	Motor control centre (MCC-CHE)	set	1		20,500		16,000		40500
/03	Motor control centre (MCC-CHL)	set	1		17,500		13,000		40500
/04	Motor control centre (MCC-TRP)	set	1		14,500		11,000		40500
/05	Auxiliary relay panel (AUX-FIL)	set	1		15,500		14,000		40500
/06	Auxiliary relay panel (AUX-CH)	set	1		13,000		11,000		40500
/07	Existing panels removal works	sum			-		30,000		40500
/08	Spare Parts	lot	1		4,000		1,400		40500
	<b>Subtotal of Item C13.3</b>				117,500		119,400		
<b>C13.4 Local Control Panels</b>									
/01	Local control panel (LCP-RW1)	set	1		3,500		2,200		40500
/02	Local control panel (LCP-RW2)	set	1		4,200		2,700		40500
/03	Local control panel (LCP-FIL1)	set	1		4,200		2,800		40500
/04	Local control panel (LCP-FIL2)	set	1		4,200		2,500		40500
/05	Local control panel (LCP-FIL3)	set	1		4,900		3,200		40500
/06	Local control panel (LCP-FIL4)	set	1		2,400		1,600		40500
/07	Local control panel (LCP-AL1)	set	1		3,100		2,000		40500
/08	Local control panel (LCP-AL2)	set	1		4,600		3,100		40500
/09	Local control panel (LCP-LM1)	set	1		3,100		2,000		40500
/10	Local control panel (LCP-LM2)	set	1		3,700		2,500		40500
/11	Local control panel (LCP-LM3)	set	1		3,100		2,000		40500
/12	Local control panel (LCP-LM4)	set	1		1,500		1,000		40500
/13	Local control panel (LCP-CHL1)	set	1		3,500		2,300		40500

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
/14	Local control panel (LCP-CHL2)	set	1		3,700		2,400		40500
/15	Local control panel (LCP-CHL3)	set	1		2,600		1,700		40500
/16	Local control panel (LCP-CHL4)	set	1		1,500		1,000		40500
/17	Local control panel (LCP-TRP1)	set	1		2,200		1,400		40500
/18	Local control panel (LCP-TRP2)	set	1		1,700		1,100		40500
/19	Accessories and spare parts	lot	1		2,300		800		40500
	<b>Subtotal of Item C13.4</b>				60,000		38,300		
<b>C13.5 Flowmeters</b>									
/01	Raw water flowmeter (Fa-2, Ft, Fm)	set	1		15,200		10,500		40600, 40605
/02	Raw water flowmeter (Fa-5, Ft, Fm)	set	1		15,200		10,500		40600, 40605
/03	Filtered water flowmeter - 1(Fo-6, Ft, Fm)	set	1		8,800		5,500		40600, 40605
/04	Filtered water flowmeter - 2(Fa-7, Ft, Fm)	set	1		16,400		10,000		40600, 40605
/05	Filtered water flowmeter - 3(Fa-8, Ft, Fm)	set	1		15,200		10,500		40600, 40605
/06	Air scouring flowmeter (Fa-15,Fm FI-15)	set	1		4,000		2,600		40600, 40605
/07	Backwash water flowmeter (Fo-16,Fm FI-16)	set	1		4,100		1,600		40600, 40605
/08	Plant water outlet flowmeter (Fq-17)	set	1		3,700		2,600		40600, 40605
/09	Existing equipment removal works	sum			-		30,000		40600
/10	Spare parts	lot			4,000		1,400		40600, 40605
	<b>Subtotal of Item C13.5</b>				86,600		85,200		
<b>C13.6 Level Meters and Switches</b>									
/01	Clear water tank level meters (LTfg-1,2, valves)	set	2	4,600	9,200		7,200		40600, 40606
/02	Lime solution tank level meters (LTfg-3,4, valves)	set	2	4,600	9,200		7,200		40600, 40606

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs)	Ref. Clause or Sub-clause
				Unit Price	Amount	Unit Price	Amount		
/03	Alum solution tank level meters (LTfg-5,6, valves)	set	2	4,600	9,200		7,200	40600, 40606	
/04	Receiving tank level switch (ER-RM)	set	1		500		500	40600, 40606	
/05	Filter unit level switches (ER-F1 to 6)	set	6	400	2,400		3,000	40600, 40606	
/06	Elevated tank level switches (ER-ELT 1,2)	set	2	500	1,000		1,000	40600, 40606	
/07	Filtered water effluent pit level switch (ER-FEP)	set	1		400		500	40600, 40606	
/08	Spare parts	lot	1		4,000		1,400	40600, 40611	
	<b>Subtotal of Item C13.6</b>				35,900		28,000		
<b>C13.7</b>	<b>Chlorine Gas Leakage Meters</b>								
/01	Chlorine container room meter (CGD-1,2,C12IA)	set	2	6,700	13,400		10,000	40600, 40607	
/02	Chlorinator room meter (CGD-3, C12IA)	set	1		6,700		5,000	40600, 40607	
/03	Spare parts	lot	1		5,500		1,900	40600, 40607	
	<b>Subtotal of Item C13.7</b>				25,600		16,900		
<b>C13.8</b>	<b>Panel Mounted Instrumentation Equipment</b>								
/01	Local control panel mounted equipment	lot	1		2,600		900	40600, 40608	
/02	Monitor and control panel mounted equipment	lot	1		70,200		24,000	40600, 40608	
/03	Accessories for all instrumentation and spare parts for panel mounted instrument	lot	1		5,000		1,700	40600, 40608	
	<b>Subtotal of Item C13.8</b>				77,800		26,600		

Item No.	Description	Unit	Quantity	Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
				Unit Price	Amount	Unit Price	Amount		
<b>C13.9</b>	<b>Monitor and Control Panels</b>								
/01	Monitor and control panels (MCP-OB)	set	1	67,000		43,000		40700	40700
/02	Spare parts	lot	1	5,000		1,700		40707	40707
	<b>Subtotal of Item C13.9</b>			72,000		44,700			
<b>C13.10</b>	<b>Lighting Fixtures (Indoor)</b>								
/01	Lighting panel board (LP-FIL)	set	1	800		2,000		40800, 40804	40800, 40804
/02	Lighting fixture with auxiliary devices	sum		1,200		6,000		40800, 40804	40800, 40804
/03	Accessory and spare parts	lot	1	200		100		40800, 40804	40800, 40804
	<b>Subtotal of Item C13.10</b>			2,200		8,100			
<b>C13.11</b>	<b>Lighting Fixtures (Outdoor)</b>								
/01	Street lighting fixture (A)	set	1	1,500		2,000		40800, 40804	40800, 40804
/02	Street lighting fixture (B)	set	3	1,600	4,800	4,400		40800, 40804	40800, 40804
/03	Street lighting fixture (C)	set	4	2,400	9,600	13,000		40800, 40804	40800, 40804
/04	Street lighting fixture (D)	set	2	2,500	5,000	6,600		40800, 40804	40800, 40804
/05	Poto-switch	nr	1	20		1,000		40800, 40804	40800, 40804
/05	Accessories and spare parts	lot	1	780		300		40800, 40804	40800, 40804
	<b>Subtotal of Item C13.11</b>			21,700		27,300			
<b>C13.12</b>	<b>Intercom System</b>								
/01	Exchange with terminal board and power unit	set	1	2,500		5,000		40800, 40805	40800, 40805
/02	Hand set (G)	set	8	300	2,400	8,000		40800, 40805	40800, 40805
/03	Hand set (H)	set	15	100	1,500	15,000		40800, 40805	40800, 40805
/04	Telephone	set	3	100	300	3,000		40800, 40805	40800, 40805



Item No.	Description	Unit	Quantity		Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
			Price	Amount	Price	Amount				
/05	Terminal boards TB-CHE, CHL, WS1, CWR OW,DH, WS2, SH, FIL, PS	set	10	3,000		20,000		40800, 40806		
/06	Existing radio telephony system re-installation works	sum		-		30,000		40800		
/07	Spare parts	lot	1	700		300		40800, 40809		
	<b>Subtotal of Item C13.12</b>			10,400		81,300				
<b>C13.13 Public Address System</b>										
/01	Power amplifier	set	1	980		2,000		40800, 40806		
/02	Paging microphone	set	1	60		1,000		40800, 40806		
/03	Speaker (3W)	set	11	90		11,000		40800, 40806		
/04	Speaker (10W)	set	3	100		4,500		40800, 40806		
/05	Spare parts	lot	1	170		-		40800, 40806		
	<b>Subtotal of Item C13.13</b>			2,500		18,500				
<b>C13.14 Wiring System</b>										
/01	Power receiving system	sum		10,000		52,000		40900		
/02	Cable wiring system	sum		70,000		364,000		40900		
/03	Conduit system	sum		9,200		48,000		40900		
/04	Electrical flexible conduit, manhole and handhole system	sum		43,000		230,000		40900		
/05	Cable racks, duct and pit system	sum		2,700		10,000		40900		
/06	Spare materials	lot	1	2,300		800		40900, 40906		
	<b>Subtotal of Item C13.14</b>			137,200		704,800				

Item No.	Description	Unit Quantity		Foreign Currency (US\$)		Local Currency (Rs)		Total Equivalent (Rs) or Sub-clause	Ref. Clause
		Unit	Quantity	Unit Price	Amount	Unit Price	Amount		
	<b>Total of Item C13</b>				<u>915,400</u>		<u>1,418,600</u>		
	<b>TOTAL OF ITEM C</b>				<u>5,227,464</u>		<u>27,289,375</u>		