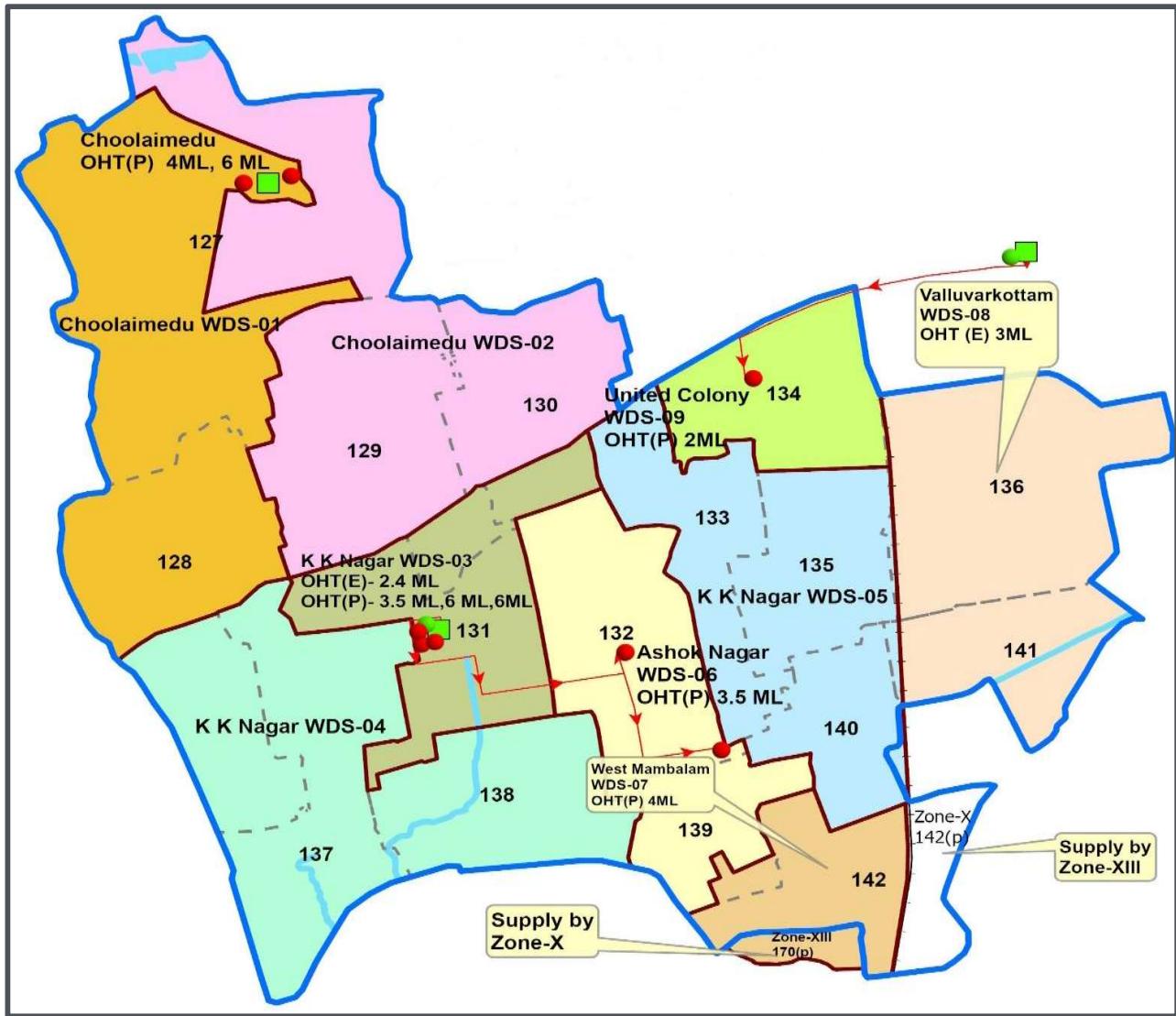




JICA Assisted “Project For Construction of 400 MLD Capacity Seawater Reverse Osmosis Desalination Plant At Perur And Allied Works (JICA Loan Id-P267)

Contract No. : CNT/ CON/DESAL /ICB/Gol/016/2018-19

**DRAFT DETAILED DESIGN REPORT FOR AREA X**  
(Package CP4: Improvement of the Existing Water Distribution Networks- Chennai Core City)  
[Volume 2 of 4]- Cost Estimate



SMEC International Pty. Ltd.  
in consortium with:  
NJS Engineers India Private Limited,  
Tata Consulting Engineers Limited,  
SMEC (India) Private Limited.

PMC Chennai Office, 13th Floor, Puravankara Primus,  
No.236 Okkiyampet, Old Mahabalipuram  
Road,Thuraipakkam, Chennai 600 097, Tamil Nadu, India.

	BY:	SMEC-TCE-NJS		
DATE:	CLIENT: Chennai Metropolitan Water supply and Sewarage Board (CMWSSB)			
CHD.:	PROJECT: CP-4 Distribution Improvement works		REV:	P0
DATE:	SUBJECT: General Abstract - CP4 works in Area-X		PAGE:	

**IMPROVEMENT OF WATER SUPPLY DISTRIBUTION SYSTEM FOR CHENNAI CORE CITY AREA- X**

**GENERAL ABSTRACT OF DRAFT COST ESTIMATE**

S. No	Description of Item	Amount in lakhs.	Amount in INR Cr.
1	Providing comprehensive water supply scheme to Area-X of core city (A)	51,911.33	519.11
2	Contingencies and Unforeseen items @ 2.5% of (A)	1,297.78	12.98
	<b>Sub-Total (B)</b>	<b>53,209.11</b>	<b>532.09</b>
3	GST @ 18%	9,577.64	95.78
4	Provision for Investigation charges @ 0.5% of (A)	259.56	2.60
5	Supervision Charges @ 5% of (B)	2,660.46	26.60
6	Labour Welfare cess @ 1% of (A)	519.11	5.19
7	Road Restoration charges	29,316.41	293.16
8	Third party inspection charges @ 1% of (A)	519.11	5.19
9	TNEB service connection charges @ 0.25% of (A)	129.78	1.30
10	Provision for Dewatering arrangements (LS)	10.00	0.10
11	Demolition of existing structures @ 0.15% of (A)	77.87	0.78
12	Provision for environmental monitoring charges @ 0.1% of (A) (As applicable)	51.91	0.52
13	Provision for social intervention charges @ 0.15% of (A) (As applicable)	77.87	0.78
14	Shifting of Underground utilities @ 2% of (B)	1,064.18	10.64
15	Prvision for Rehabilitation of existing PH & UGT 0.1% of (A)	51.91	0.52
16	Provision for Trenchless Technology (LS)	20.00	0.20
17	Provision for pipe carrying bridge (As applicable)	0.00	0.00
18	Provision for price escalation for the First year @ 5% of the Base Cost (A)	2,595.57	25.96
19	Provision for price escalation for the Second year @ 5% of 70% of Base Cost (A)	1,816.90	18.17
	<b>Grand Total</b>	<b>101,957.38</b>	<b>1,019.57</b>
<b>Note:</b>	Provision for price escalation is considered for 2 years only and if project duration is more than 2 years then the provision for further years to be considered.		

<b>IMPROVEMENT OF WATER SUPPLY DISTRIBUTION SYSTEM FOR CHENNAI CORE CITY AREA- ZONE X</b>		
<b>SUMMARY OF COST ESTIMATE- 35.0 ML OHT CONSTRUCTION</b>		
<b>Item No</b>	<b>Description of Item</b>	<b>Amount in INRs.</b>
<b>A</b>	<b>OHT CONSTRUCTION</b>	
1	United India Colony rectangular OHT (2 ML of 17 m staging)	61,649,653
2	Ashok Nagar rectangular OHT (3.5 ML of 17 m staging)	76,292,797
3	West Mambalam rectangular OHT (4.0 ML of 17 m staging)	80,185,236
4	K K Nagar circular OHT (3.5 ML of 20 m staging)	96,785,243
5	K K Nagar circular OHT (6.0 ML of 20 m staging) - 2 Nos.	291,404,116
6	Choolaimedu circular OHT (4.0 ML of 20 m staging)	100,338,514
7	Choolaimedu circular OHT (6.0 ML of 20 m staging)	145,702,058
	<b>Sub Total (A) Rs. in Crores for 35.0 ML OHT construction</b>	<b>852,357,617</b>
<b>B</b>	<b>SERVICE BUILDINGS</b>	
1	Chlorination building	11,022,213
2	DG Room	
3	Transformer Room	
	<b>Sub Total (B) Rs. in Crores for service buildings construction</b>	<b>11,022,213</b>
<b>C</b>	<b>INFRASTRUCTURE CONSTRUCTION</b>	
1	Office construction	9,868,527
2	Storm Water Drain	16,075,362
3	Boundary Wall	7,412,803
4	Road/Paving Work	3,929,231
5	Green Cover	60,989
6	Rain Water Harvesting	147,000
	<b>Sub Total (C) Rs. in Crores for 35.0 ML infrastructure works</b>	<b>37,493,912</b>
	<b>Total Cost of OHT and allied infrastructure works in Area-X for 35.0 ML (A+B+C)</b>	<b>900,873,742</b>
	<b>TOTAL Rs. in Crores</b>	<b>90.09</b>

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
<b>EARTH WORK</b>									
1	CMWSSB	88	2.1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m					
				Earth work excavation in soil (average rate)	cum	1	106.3	116.93	10% extra as per note.1 of page-1
		88	Note 6.2.3	Add 100% extra	cum	1	106.3	116.93	
								233.86	
				0-2m depth	cum	1		<b>233.86</b>	
		88	2.3	2-3m depth	cum	1	10.20	<b>245.08</b>	for additional 1m
		88	2.3	3-4m depth	cum	1	10.20	<b>256.30</b>	for additional 1m
<b>FILLING WORK</b>									
2	CMWSSB	89	3.2	Refilling with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	cum	1	37.00	40.70	
3	CMWSSB	169	13	Supply & filling stone dust	cum	1	412.60	412.60	
4	CMWSSB	169	13	Supply & filling quarry rubbish	cum	1	385.80	385.80	
5	TWAD	143	48	Sand for filling	cum	1	447.00	<b>447.00</b>	
<b>DISPOSAL OF SURPLUS EARTH</b>									
6	CMWSSB	1	1	Disposal of surplus earth	cum	1	140.75	140.75	
7	CMWSSB	91	4.12	Plain Cement concrete 1:2:4 using Crushed stone sand (Msand) and 12 to 20mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.					
				Foundation Basement (0-1.5m below ground)	cum	1	6089.00	<b>6089.00</b>	
		89	Note 2	PCC Works (-1.5 to -4.5 m below ground)	cum	1	111.87	<b>6200.87</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
8	CMWSSB	130	22.3	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
					cum		6870.00	<b>6870.00</b>	
				<b>Foundation Basement (0-1.5m below ground)</b>					
				RCC M30				<b>6870.00</b>	
CMWSSB	89	Note 2		RCC Works (-1.5 to -4.5 m below ground)		6870.00	+ 111.87	<b>6981.87</b>	
				<b>Above ground</b>					
CMWSSB	89	Note 2		<b>Upto 4.50m height (0m to 4.50 m ht)</b>					
				RCC M30		6870.00	+ 113.63	<b>6983.63</b>	
CMWSSB	89	Note 3		<b>(4.5 to 9.0 m)</b>					
				RCC M30		6983.63	+ 223.85	<b>7207.48</b>	
CMWSSB	89	Note 3		<b>(9.0 to 13.5 m)</b>					
				RCC M30		7207.48	+ 223.85	<b>7431.33</b>	
CMWSSB	89	Note 3		<b>(13.5 to 18.0 m)</b>					
				RCC M30		7431.33	+ 223.85	<b>7655.18</b>	
CMWSSB	89	Note 3		<b>(18.0 to 22.5 m)</b>					
				RCC M30		7655.18	+ 223.85	<b>7879.03</b>	
CMWSSB	89	Note 3		<b>(22.5 to 27.0 m)</b>					
				RCC M30		7879.03	+ 223.85	<b>8102.88</b>	
<b>CENTERING</b>									
9	CMWSSB	93	4.20	Providing form work with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	sqm			<b>1146.00</b>	
		93	4.21	Strutting to centerings of reinforced cement concrete slabs or plain surfaces upto 3m high	sqm	1146.00	+ 101.00	<b>1247.00</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
				Centering for Plain surface upto 3 m	sqm	1247.00	0	<b>1247.00</b>	
				3 m to 4 m	sqm	1247.00	+ 34.00	<b>1281.00</b>	
				4 m to 5 m	sqm	1281.00	+ 34.00	<b>1315.00</b>	
				5 m to 6 m	sqm	1315.00	+ 34.00	<b>1349.00</b>	
				6 m to 7 m	sqm	1349.00	+ 34.00	<b>1383.00</b>	
				7 m to 8 m	sqm	1383.00	+ 34.00	<b>1417.00</b>	
				8 m to 9 m	sqm	1417.00	+ 34.00	<b>1451.00</b>	
				9 m to 10 m	sqm	1451.00	+ 34.00	<b>1485.00</b>	
				10 m to 11 m	sqm	1485.00	+ 34.00	<b>1519.00</b>	
				11 m to 12 m	sqm	1519.00	+ 34.00	<b>1553.00</b>	
				12 m to 13 m	sqm	1553.00	+ 34.00	<b>1587.00</b>	
				13 m to 14 m	sqm	1587.00	+ 34.00	<b>1621.00</b>	
				14 m to 15 m	sqm	1621.00	+ 34.00	<b>1655.00</b>	
				15 m to 16 m	sqm	1655.00	+ 34.00	<b>1689.00</b>	
				16 m to 17 m	sqm	1689.00	+ 34.00	<b>1723.00</b>	
				17 m to 18 m	sqm	1723.00	+ 34.00	<b>1757.00</b>	
				18 m to 19 m	sqm	1757.00	+ 34.00	<b>1791.00</b>	
				19 m to 20 m	sqm	1791.00	+ 34.00	<b>1825.00</b>	
				20 m to 21 m	sqm	1825.00	+ 34.00	<b>1859.00</b>	
				21 m to 22 m	sqm	1859.00	+ 34.00	<b>1893.00</b>	
				22 m to 23 m	sqm	1893.00	+ 34.00	<b>1927.00</b>	
				23 m to 24 m	sqm	1927.00	+ 34.00	<b>1961.00</b>	
				24 m to 25 m	sqm	1961.00	+ 34.00	<b>1995.00</b>	
				25 m to 26 m	sqm	1995.00	+ 34.00	<b>2029.00</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
<b>PLASTERING</b>									
10	CMWSSB	100	11.1	Plastering with cement mortar 1:3 mix (Crushed stone sand M-sand), 12 mm thick including cost and conveyance of all materials to site, loading and unloading charges and labour charges for mixing, laying and curing etc. complete complying with std. specifications	sqm			255.00	
11	CMWSSB	101	11.8	Plastering with cement mortar 1:5 mix (Crushed stone sand M-sand), 20 mm thick including cost and conveyance of all materials to site, loading and unloading charges and labour charges for mixing, laying and curing etc. complete complying with std. specifications	sqm			478.00	
<b>STEEL REINFORCEMENT</b>									
12	CMWSSB	93	4.19.2	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	CMWSSB	93	4.19.2 (i)	8 mm dia rod (Fe-500 D Grade with CRS material)	kg			84.00	
	CMWSSB	93	4.19.2 (ii)	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	kg			83.00	
<b>PILING WORKS</b>									
13	CPWD	451	20.2A	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap).					
			20.2A.1	600 mm dia piles	metre			4514.40	
			20.2A.2	750 mm dia piles	metre			6505.75	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
14	CPWD	453	20.6.2	Vertical load test of single pile above 50 tone and upto 100 tone safe capacity					
			20.6.2.1	Initial test	Per test			57531.30	
			20.6.2.2	Routine test	Per test			30505.00	
15	CPWD	453	20.8	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load					
			20.8.2	Above 50 tonne and upto 100 tonne capacity pile	Per test			30906.35	
FINISHING WORKS									
16	CMWSSB	98	8.7	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sqm			146.00	
WATER PROOFING WORKS									
17	CPWD	473	22.23	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures					
			22.23.1	For vertical surface two coats @ 0.70 kg per sqm	sqm			406.25	
			22.23.2	For horizontal surface one coat @1.10 kg per sqm.	sqm			311.50	
PAINTING WORKS									
18	CMWSSB	103	15.2	Painting primary coat on new plaster surface	sqm			82.00	
19	CMWSSB	102	13.6	Distempering two coats (aquatinta distember oil bound) new work	sqm			121.00	
20	CPWD	283	13.52.2	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
				On Concrete work	each			198.40	
TERRACE WORKS									
21	CMWSSB	100	10.1	Concrete with broken brick jelly 20mm gauge in pure slackened lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum			3778.00	
22	CMWSSB	100	10.2	Terrace flooring with two course of flat tiles of 15cm x 15cm x 12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	sqm			1503.00	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
23	CMWSSB	93	4.23	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	sqm			1688.00	
24	CMWSSB	51	39.1	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	each			3925.00	
MISCELLANEOUS WORKS									
25	CPWD	227	10.26	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
			10.26.1	MS tubes	kg			157.15	
			10.26.3	G.I Pipes	kg			180.20	
26	CPWD	470	22.4.1	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
				Serrated with central bulb (225 mm wide, 8-11 mm thick)	metre			285.60	
27	CMWSSB	168	7	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	metre			981.00	
28	CMWSSB	169	12	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	metre			1869.00	
29				Testing of the OHT by retaining water for 48 hours in side the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
				OHT capacity				2000000	I
				Quantity of water required				2000000	I
	CMWSSB	25	22.1	Cost of water @ Rs. 73.00 / 1000 litres				146000	
				Pumping cost					
				hp		7.5			

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
				head		28 m			
				discharge (Q) in lpm		649			
				discharge (Q) in lps		11			
				discharge (Q) in lph		38942			
				volume		2112000			
				No of hrs		54.2			
				say		54.0			
	CMWSSB	43	m	Hire charges for diesel pumpset for 7.5 HP with fuel and crew charges including transportation	Per Hr.		405.8		
				Pumping cost				21913.2	
				<b>Total Cost for Hydrotesting of 2 ML OHT</b>				<b>167,913</b>	
				<b>3.5 ML OHT</b>					
				OHT capacity				3500000 I	
				Quantity of water required				3500000 I	
	CMWSSB	25	22.1	Cost of water @ Rs. 73.00 / 1000 litres				255500	
				Pumping cost					
				hp		7.5			
				head		28 m			
				discharge (Q) in lpm		649			
				discharge (Q) in lps		11			
				discharge (Q) in lph		38942			
				volume		3736800			
				No of hrs		96.0			
				say		96.0			
	CMWSSB	43	m	Hire charges for diesel pumpset for 7.5 HP with fuel and crew charges including transportation	Per Hr.		405.8		
				Pumping cost				38956.8	
				<b>Total Cost for Hydrotesting of 3.5 ML OHT</b>				<b>294,457</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
				<b>4.0 ML OHT</b>					
				OHT capacity				4000000	I
				Quantity of water required				4000000	I
CMWSSB	25	22.1		Cost of water @ Rs. 73.00 / 1000 litres				292000	
				Pumping cost					
				hp		7.5			
				head		28 m			
				discharge (Q) in lpm		649			
				discharge (Q) in lps		11			
				discharge (Q) in lph		38942			
				volume		4378800			
				No of hrs		112.4			
				say		113.0			
CMWSSB	43	m		Hire charges for diesel pumpset for 7.5 HP with fuel and crew charges including transportation	Per Hr.		405.8		
				Pumping cost				45855.4	
				<b>Total Cost for Hydrotesting of 4 ML OHT</b>				<b>337,855</b>	
				<b>6.0 ML OHT</b>					
				OHT capacity				6000000	I
				Quantity of water required				6000000	I
CMWSSB	25	22.1		Cost of water @ Rs. 73.00 / 1000 litres				438000	
				Pumping cost					
				hp		7.5			
				head		28 m			
				discharge (Q) in lpm		649			
				discharge (Q) in lps		11			
				discharge (Q) in lph		38942			

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
				volume		6283185			
				No of hrs		161.3			
				say		162.0			
	CMWSSB	43	m	Hire charges for diesel pumpset for 7.5 HP with fuel and crew charges including transportation	Per Hr.		405.8		
				Pumping cost				65739.6	
				<b>Total Cost for Hydrotesting of 6 ML OHT</b>				<b>503,740</b>	
DI FLANGED PIPE									
30	CMWSSB	143	1B	DUCTILE IRON PIPES AS PER IS 8329/2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10		per 4 mtr	per m	Rate per m	
				100 mm	Each	6757.00	1689.25	<b>1689.25</b>	
				150 mm	Each	9731.00	2432.75	<b>2432.75</b>	
				200 mm	Each	13086.00	3271.50	<b>3271.50</b>	
				250 mm	Each	17237.00	4309.25	<b>4309.25</b>	
				300 mm	Each	22181.00	5545.25	<b>5545.25</b>	
				350 mm	Each	29895.00	7473.75	<b>7473.75</b>	
				400 mm	Each	38287.00	9571.75	<b>9571.75</b>	
				450 mm	Each	46349.00	11587.25	<b>11587.25</b>	
				500 mm	Each	54211.00	13552.75	<b>13552.75</b>	
				600 mm	Each	70164.00	17541.00	<b>17541.00</b>	
				700 mm	Each	93326.00	23331.50	<b>23331.50</b>	
				750 mm	Each	108273.00	27068.25	<b>27068.25</b>	
				800 mm	Each	120173.00	30043.25	<b>30043.25</b>	
				900 mm	Each	163992.00	40998.00	<b>40998.00</b>	
				1000 mm	Each	192429.00	48107.25	<b>48107.25</b>	
31	CMWSSB	145	2	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000					
				100 mm - 200 mm	Kg	134		<b>134.00</b>	
				250 mm - 300 mm	Kg	134		<b>134.00</b>	
				350 mm - 450 mm	Kg	134		<b>134.00</b>	
				500 mm - 600 mm	Kg	134		<b>134.00</b>	
				700 mm - 750 mm	Kg	197		<b>197.00</b>	
				800 mm	Kg	197		<b>197.00</b>	
				900 mm	Kg	215		<b>215.00</b>	
				1000 mm	Kg	215		<b>215.00</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
32	TWAD	279	7.0	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
				0 to 2 m	Qty	226.50		<b>226.50</b>	
				2 to 4 m	Qty	341.10		<b>341.10</b>	
				4 to 6 m	Qty	535.00		<b>535.00</b>	
				6 to 8 m	Qty	739.90		<b>739.90</b>	
				8 to 10 m	Qty	944.80		<b>944.80</b>	
				10 to 12 m	Qty	1147.00		<b>1147.00</b>	
				12 to 14 m	Qty	1357.10		<b>1357.10</b>	
				14 to 16 m	Qty	1545.90		<b>1545.90</b>	
				16 to 18 m	Qty	1750.40		<b>1750.40</b>	
				18 to 20 m	Qty	1955.10		<b>1955.10</b>	
				20 to 22 m	Qty	2154.80		<b>2154.80</b>	
				22 to 24 m	Qty	2356.60		<b>2356.60</b>	
33	CMWSSB	14	5.0	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
				100 mm	Each	545		<b>545.00</b>	
				150 mm	Each	630		<b>630.00</b>	
				200 mm	Each	799		<b>799.00</b>	
				250 mm	Each	994		<b>994.00</b>	
				300 mm	Each	1118		<b>1118.00</b>	
				350 mm	Each	1278		<b>1278.00</b>	
				400 mm	Each	1443		<b>1443.00</b>	
				450 mm	Each	1656		<b>1656.00</b>	
				500 mm	Each	2158		<b>2158.00</b>	
				600 mm	Each	3086		<b>3086.00</b>	
				700 mm	Each	4203		<b>4203.00</b>	
				750 mm	Each	4935		<b>4935.00</b>	
				900 mm	Each	6171		<b>6171.00</b>	
				1050 mm	Each	7602		<b>7602.00</b>	
				1200 mm	Each	9033		<b>9033.00</b>	
34	TWAD	71	12.9	DI Sluice valve					
				100 mm	1 No.	12929		<b>12929.00</b>	
				150 mm	1 No.	20364		<b>20364.00</b>	
				200 mm	1 No.	32583		<b>32583.00</b>	
				250 mm	1 No.	46865		<b>46865.00</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
				300 mm	1 No.	70836		<b>70836.00</b>	
				350 mm	1 No.	206448		<b>206448.00</b>	
				400 mm	1 No.	221335		<b>221335.00</b>	
35	CMWSSB	16	6	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes/valves, covers.					
				100 mm	1 No.	1278		<b>1278.00</b>	
				150 mm	1 No.	1491		<b>1491.00</b>	
				200 mm	1 No.	1789		<b>1789.00</b>	
				250 mm	1 No.	2236		<b>2236.00</b>	
				300 mm	1 No.	2982		<b>2982.00</b>	
				350 mm	1 No.	4472		<b>4472.00</b>	
				400 mm	1 No.	5591		<b>5591.00</b>	
				450 mm	1 No.	7454		<b>7454.00</b>	
				500 mm	1 No.	17265		<b>17265.00</b>	
				600 mm	1 No.	25428		<b>25428.00</b>	
				700 mm	1 No.	29526		<b>29526.00</b>	
				750 mm	1 No.	31576		<b>31576.00</b>	
				900 mm	1 No.	37723		<b>37723.00</b>	
				1050 mm	1 No.	42635		<b>42635.00</b>	
36	TWAD	71	12.10	DI Butterfly valve PN 16					
				400 mm	1 No.	178093		<b>178093.00</b>	
				450 mm	1 No.	195516		<b>195516.00</b>	
				500 mm	1 No.	197380		<b>197380.00</b>	
				600 mm	1 No.	258694		<b>258694.00</b>	
				700 mm	1 No.	495835		<b>495835.00</b>	
				800 mm	1 No.	553655		<b>553655.00</b>	
				900 mm	1 No.	724068		<b>724068.00</b>	
				1000 mm	1 No.	907654		<b>907654.00</b>	
				1100 mm	1 No.	1043810		<b>1043810.00</b>	
				1200 mm	1 No.	1216154		<b>1216154.00</b>	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
37	CMWSSB	33	Sch 38	Construction of RCC chamber for sluice/butterfly valves					
			1	100 to 250 mm dia	Each	53000		53000.00	
			2	300 to 400 mm dia	Each	63000		63000.00	
			5	450 to 600 mm dia	Each	136000		136000.00	
38	CMWSSB	36	Sch 39	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete at 2 m depth					
				300 mm 90 bend	Each	10582		10582.00	
				300 mm 45 bend	Each	5772		5772.00	
				350 mm 90 bend	Each	11134		11134.00	
				350 mm 45 bend	Each	6071		6071.00	
				400 mm 90 bend	Each	11990		11990.00	
				400 mm 45 bend	Each	6338		6338.00	
				450 mm 90 bend	Each	12722		12722.00	
				450 mm 45 bend	Each	6657		6657.00	
				500 mm 90 bend	Each	13760		13760.00	
				500 mm 45 bend	Each	7584		7584.00	
				600 mm 90 bend	Each	18291		18291.00	
				600 mm 45 bend	Each	11044		11044.00	
				750 mm 45 bend	Each	15804		15804.00	
				750 mm 90 bend	Each	29954		29954.00	
				900 mm 45 bend	Each	19117		19117.00	
				900 mm 90 bend	Each	34776		34776.00	
39	CMWSSB	50	30, 31.1	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with AC vent cowl.	Each	2069.5		2069.50	
40	BWSSB			Level indicator					
				upto 2.5 mtr	2.5 mtr	3888		3888.00	
				every 0.5 mtr	0.5 mtr	425		425.00	
41	BWSSB			Lightening arrestor					
				upto 15 mtr height	15 mtr	14441		14441.00	

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
42	CMWSSB	95	5.4	Stock brick work with liclass bricks in cement mortar1:5 (Crushed stone sand (M-sand)) for over 23 cm thick wall including curing etc complete	Cum	7359		<b>7359.00</b>	
43	CMWSSB	95	5.11	Extra labour 11 cm thick wall	Cum	7359.00	2783	<b>10142.00</b>	
44	CMWSSB	100	11.1	Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12 mm thick including curing, etc., complete.	Sqm	255		<b>255.00</b>	
45	CMWSSB	101	11.8	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 20 mm thick including curing, etc., complete.	Sqm	478		<b>478.00</b>	
46	CMWSSB	97	8.3	Flooring with 100 mm thick base cement concrete 1:4:10 using 40 mm gauge, hard broken stone jelly including laying ramming, curing, etc., complete.	Sqm	446		<b>446.00</b>	
47	CMWSSB	127	18	Flooring with Macrona Marble slabs, of size 1200x1800x20 mm free from all defects in all floors over a base layer of CM 1:, 20 mm thick	Sqm	4319		<b>4319.00</b>	
48	CMWSSB	127	19	Supplying and fixing in position Cement based hydraulically pressed Anti-Skid tiles (pattern design) 20 mm thick in cement mortar 1:3 , 20 mm thick & pointed with same colour of cement etc., complete.	Sqm	1300		<b>1300.00</b>	
49	CMWSSB	126	17	Paving the floor with palin/design ceramic tiles (colour and shade as directed) of size 305 mm x 305mm x 6 mm in all floors over a base layer of cement mortar 1:3 (one cement and three sand ) 20mm thick laid in-situ and pointed with same coloured cement	Sqm	985		<b>985.00</b>	
50	CMWSSB	102	13.14	Painting two coats with approved cement paint over one coat of cement paint over cement plastered wall surface, ceiling including cleaning preparing the surface and curing, etc., complete	Sqm	183		<b>183.00</b>	
				Internal area					
				External area					
51	CMWSSB	126	17	White washing two coats	Sqm	37		<b>37.00</b>	
				Ceiling					

SOR / DATA									
SI No	SOR 2021-22	Pg No	ITEM NO	Description of item	Unit	Quantity	Basic Rate (Rs)	Final Rate (Rs)	Remarks/ Input ref.
52	CMWSSB	119	4	Aluminium Door Single Leaf Size 2.1M X 1.0 M	Sqm	8096		<b>8096.00</b>	
53	CMWSSB	120	6	Aluminium Double Leaf Door	Sqm	6940		<b>6940.00</b>	
54	CMWSSB	121	7	ALUMINIUM THREE TRACK WINDOW SIZE 1.8 M X 1.3 M	Sqm	4330		<b>4330.00</b>	
55	CMWSSB	121	8	ALUMINIUM Two TRACK WINDOW SIZE 1.2 M X 1.3 M	Sqm	4605		<b>4605.00</b>	
56	CMWSSB	123	9	ALUMINIUM FIXED WINDOW OF SIZE 1.5 M X 1.3 M	Sqm	4396		<b>4396.00</b>	
57	CMWSSB	123	10	ALUMINIUM openable type WINDOW SIZE 1.2 M X 1.3 M	Sqm	5053		<b>5053.00</b>	
58	CMWSSB	124	11	ALUMINIUM OPENABLE TYPE WINDOW (Three Leaves) Size 1.30 x 1.80m	Sqm	4688		<b>4688.00</b>	
59	CMWSSB	124	12	Louvered Ventilator	Sqm	5718		<b>5718.00</b>	
60	TWAD	150	16	Rubber moulded hydraulic pressed paver block					
			i	83 mm thick	Sqm	547		<b>547.00</b>	
			ii	63 mm thick	Sqm	455		<b>455.00</b>	

**Block Cost Estimate for Chlorination building, DG and Transformer buildings in Zone-X as per CPWD PAR rate 2021**

S. No.	Building	Size			Area in Sqm.	Additional / less height above 3.6 m	Rate in Rs. Per Sqm	Extra for every 0.3 m or part thereof, additional / less height above 3.6 m	Additional rate	Total Rate in Rs. Per Sqm	Amount
		L	B	H							
1	Chlorination building	27.0	12.0	3.6	324.0	0.0	27090.0	370.0	0	27090.0	8,777,160
2	DG room	12.0	8.0	6.5	96.0	2.9	27090.0	370.0	3576.67	30666.7	2,944,000
3	Transformer room	6.0	5.5	4.5	33.0	0.9	27090.0	370.0	1110	28200.0	930,600
										<b>Sub-Total</b>	<b>12,651,760.00</b>
										Less GST @ 12%	-1,518,211.20
										Less labour welfare cess @ 1%	-111,335.49
										<b>Total</b>	<b>11,022,213.31</b>

CONSTRUCTION OF OHT AT UNITED INDIA COLONY IN ZONE - X (2.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 2.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
I	<b>EARTHWORK</b>					
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
a)	0-2 m	Cum	653.40	233.86	152,804.12	
b)	2 - 3 m	Cum	151.00	245.08	37,007.08	
c)	3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
a)	0-2 m	Cum	0.00	483.56	-	
b)	2 - 3 m	Cum	0.00	492.47	-	
c)	3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	560.00	40.70	22,792.00	
4	Disposal of Surplus earth	Cum	93.30	140.75	13,131.98	
	<b>TOTAL OF EARTHWORKS :</b>				<b>225,735.18</b>	
II	<b>CONCRETE AND ALLIED WORKS</b>					
	<b>Plain Cement Concrete</b>					
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
a)	0 m to 1.5 m below G.L.	Cum	12.70	6089.00	77,330.30	
b)	1.5 m to 4.5 m below G.L.	Cum	20.10	6200.87	124,637.49	
	<b>Reinforced Cement Concrete</b>					
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	0 to 1.5m (below ground)					
6.1	Pile cap and column	Cum	73.00	6981.87	509,676.51	
	1.5 to 4.5m (below ground)					
6.2	Column and plinth beam	Cum	138.70	6870.00	952,869.00	
	Above ground					
6.3	0 to 4.5 m	Cum	118.30	6983.63	826,163.43	
6.4	4.5 to 9.0 m	Cum	118.30	7207.48	852,644.88	
6.5	9.0 to 13.5 m	Cum	118.30	7431.33	879,126.34	
6.6	13.5 to 18.0 m	Cum	435.70	7655.18	3,335,361.93	
6.7	18.0 to 22.5m	Cum	196.90	7879.03	1,551,381.01	
6.8	22.5 to 23.2 m	Cum	129.80	8102.88	1,051,753.82	
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	Column & Beam	sq m	358.40	1146.00	410,726.40	
	1.5 to 2.5 m below GL					
7.2	Pile Cap & Column	sq m	243.20	1146.00	278,707.20	
	Above ground level					

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
7.3	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	288.40	1247.00	359,634.80	
7.4	3.0 m to 4.0 m	sq m	83.20	1281.00	106,579.20	
7.5	4.0 m to 5.0 m	sq m	439.70	1315.00	578,205.50	
7.6	5.0 m to 6.0 m	sq m	83.20	1349.00	112,236.80	
7.7	6.0 m to 7.0 m	sq m	96.20	1383.00	133,044.60	
7.8	7.0 m to 8.0 m	sq m	95.60	1417.00	135,465.20	
7.9	8.0 m to 9.0 m	sq m	427.30	1451.00	620,012.30	
7.10	9.0 m to 10.0 m	sq m	95.60	1485.00	141,966.00	
7.11	10.0 m to 11.0 m	sq m	96.20	1519.00	146,127.80	
7.12	11.0 m to 12.0 m	sq m	95.60	1553.00	148,466.80	
7.13	12.0 m to 13.0 m	sq m	427.30	1587.00	678,125.10	
7.14	13.0 m to 14.0 m	sq m	95.60	1621.00	154,967.60	
7.15	14.0 m to 15.0 m	sq m	97.90	1655.00	162,024.50	
7.16	15.0 m to 16.0 m	sq m	95.60	1689.00	161,468.40	
7.17	16.0 m to 17.0 m	sq m	1225.40	1723.00	2,111,364.20	
7.18	17.0 m to 18.0 m	sq m	282.50	1757.00	496,352.50	
7.19	18.0 m to 19.0 m	sq m	263.20	1791.00	471,391.20	
7.20	19.0 m to 20.0 m	sq m	263.80	1825.00	481,435.00	
7.21	20.0 m to 21.0 m	sq m	263.20	1859.00	489,288.80	
7.22	21.0 m to 22.0 m	sq m	273.30	1893.00	517,356.90	
7.23	22.0 m to 23.0 m	sq m	883.10	1927.00	1,701,733.70	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	174.40	83000.00	14,475,200.00	
	<b>TOTAL OF CONCRETE WORKS :</b>					<b>35,232,825.21</b>
<b>III</b>	<b>PILING WORKS</b>					
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	2400.00	4514.40	10,834,560.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification <b>&amp; the direction of Engineer in-charge.</b>					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	1	30505.00	30,505.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008, including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	92.60	83000.00	7,685,800.00	
	<b>TOTAL OF PILING WORKS :</b>				<b>18,639,302.65</b>	
<b>IV</b>	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
13	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	2408.60	146.00	351,655.60	
14	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	773.00	255.00	197,115.00	
	<b>Painting and protective coatings:</b>					
15	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after thoroughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	4650.00	203.00	943,950.00	
16	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	1939.90	198.40	384,876.16	
	<b>Terrace Works:</b>					
17	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	43.20	3778.00	163,209.60	
18	Terrace flooring with two course of flat tiles of 15 cm x 15 cm x 12 mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	540.40	1503.00	812,221.20	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>2,853,027.56</b>	
<b>V</b>	<b>MISCELLANEOUS WORKS</b>					
19	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embeded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
20	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	58.30	1688.00	98,410.40	
21	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
22	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	2.00	3925.00	7,850.00	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
23	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	11497.60	157.15	1,806,847.84	
24	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	300.00	981.00	294,300.00	
25	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	18.00	1869.00	33,642.00	
26	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	205.60	285.60	58,719.36	
27	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowl.	Each	10.00	2069.50	20,695.00	
28	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	2.0 ML OHT	LS	1.00	167913.20	167,913.20	
<b>TOTAL OF MISCELLANEOUS :</b>					<b>2,517,383.67</b>	
<b>VI</b>	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	300 mm (Scour Pipe)	mts	24.00	5545.25	133,086.00	
b)	350 mm (Inlet & Overflow pipe)	mts	60.00	7473.75	448,425.00	
c)	450 mm (Outlet pipe)	mts	24.00	11587.25	278,094.00	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
	0 to 2 m	Qtl	12.55	226.50	2,843.48	
	2 to 4 m	Qtl	12.55	341.10	4,282.17	
	4 to 6 m	Qtl	12.55	535.00	6,716.39	
	6 to 8 m	Qtl	12.55	739.90	9,288.70	
	8 to 10 m	Qtl	12.55	944.80	11,861.02	
	10 to 12 m	Qtl	12.55	1147.00	14,399.44	
	12 to 14 m	Qtl	12.55	1357.10	17,037.03	
	14 to 16 m	Qtl	12.55	1545.90	19,407.23	
	16 to 18 m	Qtl	9.22	1750.40	16,145.05	
	18 to 20 m	Qtl	5.89	1955.10	11,520.16	
	20 to 22 m	Qtl	5.89	2154.80	12,696.87	
	22 to 24 m	Qtl	2.95	2356.60	6,942.97	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends,Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers.required for the following pipes.					
a)	300 mm (Scour Pipe)	kgs	70.00	134.00	9,380.00	
b)	350 mm (Inlet & Overflow pipe)	kgs	194.00	134.00	25,996.00	
c)	450 mm (Outlet pipe)	kgs	445.00	134.00	59,630.00	
31	Conveying and fixing specials like "C.I. Tee" branches, bends and tapers including earth work excavation at any depth					
a)	300 mm bend (Scour Pipe)	Each	1.00	1118.00	1,118.00	
b)	350 mm bend (Inlet & Overflow pipe)	Each	2.00	1278.00	2,556.00	
c)	450 mm bend (Outlet pipe)	Each	3.00	1656.00	4,968.00	
32	Supply and delivery of DI D/F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves / Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100 % leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	300 mm (Scour Pipe)	Nos	1.00	70836.00	70,836.00	
b)	350 mm (Inlet & Overflow pipe)	Nos	2.00	206448.00	412,896.00	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	450 mm (Outlet pipe)	Nos	1.00	195516	195,516.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					
a)	300 mm (Scour Pipe)	Each	1.00	2982.00	2,982.00	
b)	350 mm (Inlet & Overflow pipe)	Each	2.00	4472.00	8,944.00	
c)	450 mm (Outlet pipe)	Each	1.00	7454.00	7,454.00	
35	Construction of RCC chamber for 300mm to 400mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	3.00	63000.00	189,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	1.00	136000.00	136,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete					
	300 mm 90 bend	Each	1.00	5772	5,772.00	
	350 mm 90 bend	Each	2.00	11990	23,980.00	
	450 mm 45 bend	Each	2.00	6657	13,314.00	
	450 mm 90 bend	Each	1.00	18291	18,291.00	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>					<b>2,181,378.51</b>
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>					<b>61,649,652.78</b>
	<b>TOTAL COST FOR PROPOSED 2.0 ML OHT (1 nos)</b>					<b>61,649,653.00</b>
<b>VII</b>	<b>OFFICE WORKS</b>					
	<b>Reinforced Cement Concrete</b>					
1	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20 mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	Above ground					
	0 to 4.5 m level	Cum	76.40	6771.63	517,352.53	
	<b>Form work</b>					
2	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	Above ground level					
3	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls					
	3.0 m to 4.0 m	sq m	305.70	1281.00	391,601.70	
	<b>Reinforcement Steel</b>					
4	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	6877.60	83.00	570,840.80	
	<b>Brick Work</b>					
5	Stock brick work with II class bricks in cement mortar 1:5 (Crushed stone sand (M-sand)) for over 23 cm thick wall including curing etc complete	Cum	58.80	7359.00	432,709.20	CMWSSB SOR, Pg no. 95, Item. No.5.4
6	Extra labour for 11 cm thick wall	Cum	7.70	10142.00	78,093.40	CMWSSB SOR, Pg no. 95, Item. No.5.11
	<b>Plastering Work</b>					
7	Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12 mm thick including curing, etc., complete.	Sqm	1097.90	255.00	279,964.50	CMWSSB SOR, Pg no. 100, Item. No.11.1
8	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 20 mm thick including curing, etc., complete.	Sqm	505.40	478.00	241,581.20	CMWSSB SOR, Pg no. 101, Item. No.11.7
	<b>Flooring Work</b>					
9	Flooring with 100 mm thick base cement concrete 1:4:10 using 40 mm gauge, hard broken stone jelly including laying ramming, curing, etc., complete.	Sqm	169.89	446.00	75,769.78	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
10	Flooring with Macrona Marble slabs, of size 1200x1800x20mm free from all defects in all floors over a base layer of CM 1; 20 mm thick. The marble slab shall be laid over the cement mortar by applying white cement slurry in between base mortar and marble slab. The marble slabs are to be laid that there shall be in line with another joint and uniform by using marble cutting machine without any damage to the sides of corners of the marble slab. The entire area at themarble flooring so laid shall be pointed with white cement neatly including apolishing with polishing stone of grade 80 for rough,grade 200 for medium, and grade 360 for nice using necessary oxalic acid etc. so as to glassy and smooth and including hire charges for polishing machine and power consumption charges etc. The Macrona marble slabs,polishing stones, oxolic acid, tin oxide etc., proposed for the work shall be shown to the Board officers and got approved by them before use in the work etc., complete.	Sqm	169.89	4319.00	733,743.68	CMWSSB SOR, Pg no. 127, Item.No.18
11	Supplying and fixing in position Cement based hydraulically pressed Anti-Skid tiles (pattern design) 20 mm thick in cement mortar 1:3, 20 mm thick & pointed with same colour of cement etc.,complete.	Sqm	24.32	1300.00	31,611.13	CMWSSB SOR, Pg no. 127, Item.No.19
12	Paving the floor with palin/design ceramic tiles (colour and shade as directed) of size 305 mm x 305mm x 6 mm in all floors over a base layer of cement mortar 1:3 (one cement and three sand) 20mm thick laid in-situ and pointed with same coloured cement	Sqm	24.32	985.00	23,951.51	CMWSSB SOR, Pg no. 126, Item.No.17
	<b>Painting Work</b>					
13	Painting two coats with approved cement paint over one coat of cement paint over cement plastered wall surface, ceiling including cleaning preparing the surface and curing, etc., complete					
	Internal area	Sqm	1097.90	183.00	200,915.70	
	External area	Sqm	505.40	183.00	92,488.20	
14	White washing two coats					
	Ceiling	Sqm	0	37.00	-	
	<b>Joineries</b>					
15	Supplying, fabricating and fixing in position of Alumi.Anod.natural colour matt finish door half glazed and half PLB board using 12 mm thick PLB board and 5.5 mm thick glazed door using rectangular Alu.Box section of size (Frame : Section 101.60 x 44.45 x 3.18 mm @ 2.399 Kg/m, Shutter : Top, Middle, Vertical style- 50 x 44.45 x 2.5mm @ 1.292 Kg/m, Bottom - 100 x 44.45 x 2.5mm @ 1.974 Kg/m) with necessary accessories such as rubber beading, Al. Clips, Best double action floor springs, Aluminium Handles on both sides, floor stopper,Tower bolt, Locks and glass including all materials,Labour, power consenption charges required for fabrication if necessary chipping, dismantling making necessary holes in RCC Coloums, Beams or Masonry wherever necessary with power drill to the extent required and made good to the original conditions after fixing etc.,complete. The Alumi. surface must be anodised with matt finish under electrically controlled condition in accordance with IS specification 1868 / 1962 of Anodic fil thickness of not less than 15 Microns (Fifteen) for all sections.All the materials should be got approved by the Site Engineer before fixing as directed.					
(i)	Aluminium Door Single Leaf Size 2.1 X 1.0 M	Sqm	6.30	8096.00	51,004.80	CMWSSB SOR, Pg no. 119, Item.No. 4
(ii)	Aluminium Door Single Leaf Size 2.1 X 0.8 M	Sqm	8.40	8096.00	68,006.40	

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
16	Supplying, fabricating and fixing in position of aluminium natural colour matt finish double leaf door half glazed and half PLB board using 12 mm thick PLB board and 5.5 mm thick glazed door using rectangular Aluminium box section of size (Frame : Section - 101.60 x 44.45 x 3.18 mm @ 2.399 Kg/m, Shutter : Top, Middle, Vertical style- 50 x 44.45 x 2.5mm @ 1.292 Kg/m, Bottom - 100 x 44.45 x2.5mm @ 1.974 Kg/m) with necessary accessories such as rubber beading, aluminium clips, best double action Floor spring, handle on both sides, locks,Tower bolt and glass including all materials labour and power consumption charges required for fabrication if necessary chipping dismantling making necessary holes in RCC Coloums, Beams or Masonry wherever necessary with power drill to the extent required and made good to the original conditions after fixing etc.complete. The Alumi. surface must be anodised with matt finish under electrically controlled condition in accordance with IS specification 1868 / 1962 of Anodic film thickness of not less than 15 Microns (Fifteen) for all sections.All the materials should be got approved by the Site Engineer before fixing as directed.					
	ALUMINIUM DOUBLE LEAF DOORS	Sqm	6.30	6940.00	43,722.00	CMWSSB SOR, Pg no. 120, Item.No.6
	<b>Aluminium openable type window</b>					
17	Maufacturing supplying and fixing in position Anodised Alu. Natural colour mat finish with openable type window with extruded Alu. Sections with two panels of size (Frame - 38 x 33 x21 x 2.4mm @ 0.615 Kg/m, Shutter: Bottom, Top - 38.5 x 33 x 24.5 x 3 & 4mm @ 0.706 Kg/m, Interlocking vertical - 59 x 33 x 25 x 2.5mm @ 1.135 Kg/m) with necessary accessories such as rubber beadings best quality of lock handle hinges,stays and fixing 4 mm thick plain / frosted/ pin headed glass including cost of all materials labour for electrical consumption required for drilling holes in RCC columns, beams, masonry wherever necessary with power drill to the extent required and made good to the original conditions after fixing as directed by the Board officers.The Al.Surfaces is to be anodised with matt finish under electrically condition in accordance with ISI 1868/1962 pecification for an average anodic film thick of not less than 15 microns. (All materials should be got approved by the Site Engineer before fixing in position).	Sqm	18.00	5053.00	90,954.00	CMWSSB SOR, Pg no. 123, Item.No.10
	<b>Louvered Ventilator</b>					
18	Supplying and fixing in position of aluminium anodised colour matt finish Louvered Ventilator. The outer frame will be 62x38x2mm @ 1.17 Kg / m and the louvers with moving arrangements will be made with Alu. Channel of size 60x30x4 mm @ 1.27 kg /m with necessary glass pans for louvers 4mm thick Al. Clips, including all materials, labour & power consumption charges required for fabrication if necessary chipping dismantling making holes in RCC columns,beams or masonry wherever necessary with power drill to the extent required and make good to the original conditions after fixing etc., complete. The Aluminium surface is to be anodised with matt finish under electrically controlled condition in accordance with ISI specification 1868/1962 of anodic film thickness of not less than15 microns (fifteen) for all sections. All the materials should be got approved by the Site Engineer before fixing in position as directed.	Sqm	5.60	5718.00	32,020.80	CMWSSB SOR, Pg no. 124, Item.No.12
	<b>PLUMBING &amp; SANITARY WORKS</b>					

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
19	Supplying G.I. pipes and specials of the following sizes including cutting threading and jointing with necessary specials including carting the materials, fixing to wall with necessary clamps and screws, making holes in roof, repacking the same with necessary brick work and plastering wherever necessary with scaffolding, etc., complete for:					
	20 mm dia	m	100.00	334	33,400.00	
20	Supplying and fixing wheel valve of the following sizes					
	20 mm dia	Each	10.00	363	3,630.00	CMWSSB SOR, Pg no. 47,
21	Supplying and fixing gate valve of the following sizes					
	20 mm dia	Each	5.00	472	2,360.00	CMWSSB SOR, Pg no. 47,
22	Supplying and fixing G.I union of the following sizes					
	20 mm dia	Each	10.00	194	1,940.00	CMWSSB SOR, Pg no. 48,
23	Supplying and fixing C.P.Towel rails 45cm x 20mm	Each	6.00	564	3,384.00	CMWSSB SOR, Pg no. 48,
24	Supplying and fixing C.P.Screw down tap of size 20 mm dia	Each	4.00	362	1,448.00	CMWSSB SOR, Pg no. 48,
25	Supplying and fixing C.P. flush cock of size 20mm	Each	4.00	394	1,576.00	CMWSSB SOR, Pg no. 48,
26	Supplying and fixing chromium plated brass soap dish	Each	6.00	388	2,328.00	CMWSSB SOR, Pg no. 48,
27	Providing and fixing 75mm dia Nahini trap (floor trap) with brass gratings	Each	7.00	1015	7,105.00	CMWSSB SOR, Pg no. 50, Item. No. 25
28	Supplying and fixing best mirror of size 60cm x 45cm of 6mm thick with plywood back including necessary fittings, etc., complete	Each	6.00	711	4,266.00	CMWSSB SOR, Pg no. 48, Item.No.16
29	Providing and fixing 15X10cm S.W.gully trap with C.I. gratings in B.J.concrete in C.M. 1:4:10 with silt pit diaphragm arrangements, etc., complete.	Each	1.00	3105	3,105.00	CMWSSB SOR, Pg no. 50, Item.No.24
30	Supplying and fixing flat back white glazed tipped or tongued urinals of 46.50x35.5x26.5cm with 32mm dia lead wastepipe with Bell mouth opening of 75cm long 15mm dia wheel valve with lead and brass connection, etc. complete	Each	2.00	2087	4,174.00	CMWSSB SOR, Pg no. 49, Item.No.19
31	Providing and fixing colour glazed European water closet with rose wood seatings (Black) low level flushing tank with fittings, etc., complete.	Each	4.00	4510	18,040.00	CMWSSB SOR, Pg no. 49, Item.No.22.2
32	Supplying and fixing 55cm x 40cm colour glazed wash basin with lead and brass connections, C.P. Pillar Tap and other fittings, etc., complete	Each	6.00	3954	23,724.00	CMWSSB SOR, Pg no. 48, Item.No.17.2
33	Construction of inspection chambers of following sizes with earth work excavation for foundation, 23 cm thick concrete bed using 40 mm brick jelly concrete in C.M. 1:4:10 for foundation, brick work in C.M. 1:6 for chamber, plastering with C.M. 1:3,12mm thick, benching, channelling, supplying and fixing 60 x 60 cm FRC cover and frame, etc., complete for					
	60 x 60 x 150 cm	Each	1.00	19389	19,389.00	CMWSSB SoR, Pg no. 51, Item. No.38.1
34	Supply and delivery and fixing of HDPE tank as per IS 12701/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc.,					

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	2000 litres	Each	1.00	16000	16,000.00	CMWSSB SoR, Pg no. 160, Item. No.28 (iv)
<b>TOTAL OF OFFICE WORKS :</b>				<b>4,102,200.32</b>		
<b>VIII</b>	<b>Storm Water Drain</b>					
1	Excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m	Cum	329.50	233.86	77,056.87	
2	Cement concrete 1:2:4 using Crushed stone sand (M sand) and 20 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15cm thick including ramming curing, etc., complete	Cum	14.80	6089.00	90,117.20	
3	Supplying and fabricating <b>CRS/Thermo Mechanically Treated High Corrosion Resistance bars</b> manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786-2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10-32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	7996.80	83.00	663,734.40	
4	Providing formwork with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	Sqm	618.80	1146.00	709,144.80	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M 25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.	Cum	80.20	6658.00	533,971.60	
<b>TOTAL OF STORM WATER DRAIN :</b>				<b>2,074,024.87</b>		
<b>IX</b>	<b>BOUNDARY WALL</b>					
1	Earth work excavation in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders as per SS 20 B with initial lead of 10 m and lift of 2 m	Cum	255.00	233.86	59,634.30	
2	Supplying and filling sand for foundations and basement including watering, consolidating, ramming etc complete.	Cum	24.80	447.00	11,085.60	
3	Cement concrete 1:3:6 using 40 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc. complete.	Cum	18.60	5129.00	95,399.40	CMWSSB SoR, Pg no. 90, Item.No.4.5
4	Random Rubble masonry in C.M. 1:3 including curing etc complete	Cum	60.50	9634.00	582,857.00	CMWSSB SoR, Pg no. 97, Item.No.6.1
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete	Cum	73.80	9148.00	675,122.40	CMWSSB SoR, Pg no. 97, Item.No.6.2
6	Pointing to the RR masonry in cement mortar 1:3.	Sqm	686.70	270.00	185409.00	CMWSSB SoR, Pg no. 101, Item.No. 12.3
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc. complete for coping	Cum	14.50	6089.00	88290.50	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.	Sqm	63.10	325.00	20507.50	CMWSSB SoR, Pg no. 113, Item.No. 18.4

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling holes in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.	m	136.00	485.00	65960.00	CMWSSB SoR, Pg no. 115, Item.No. 18.14
10	Band course work flat 10mm to 12mm thick and 50mm deep with C.M.1:3 including curing etc. complete as directed.	m	272.00	209.00	56848.00	CMWSSB SoR, Pg no. 113, Item.No. 18.5
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.	Cum	151.10	40.70	6149.77	
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.compete as directed.	kg	350.00	62.60	21910.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	kg	45.00	62.60	2817.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour two coats	Sqm	43.90	139.00	6102.10	CMWSSB SoR, Pg no. 104, Item.No. 15.13
<b>TOTAL OF BOUNDARY WALL :</b>					<b>1,878,092.57</b>	
X	<b>ROAD/PAVING WORKS</b>					
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	Cum	99.40	226.38	22,502.17	CMWSSB SoR 2021-22, item no.1, pg no.131
2	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57 m3 of sand and 0.65 m3 of gravel including mixing, spreading, watering & consolidation by power roller	Sqm	497.00	175.40	87,173.80	CMWSSB SoR 2021-22, item no.5, pg no.131
3	Rubber moulded hydraulic pressed paver block					
	83 mm thick	Sqm	497.00	547.00	271,859.00	
<b>TOTAL OF PAVING WORK :</b>					<b>381,534.97</b>	
XI	<b>GREEN COVER WORKS</b>					
1	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)					
	Holes 90 cm dia, and 90 cm deep	Each	38.00	143.10	5,437.80	DSR-20, Pg no. 85, Item no. 2.14.2
2	Supplying of Vermicompost of 5 kg pack for each pit	Each	38.00	37.50	1,425.00	TN Horticulture Dept. rate (Extra rate 25% considered for transporting & CPOH)
3	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	21.40	36.55	782.17	DSR-20, Pg no. 83, Item no.2.9

S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
4	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded)	Cum	21.40	18.25	390.55	DSR-20, Pg no. 87, Item no.2.20
5	Providing and stacking of Putranjiva roxburghii (Putranjeevi) of height 90-105 cm. in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no. 169, Item no.7.79
6	Providing and stacking of Bauhinia tomentosa (yellow) (Iravatchi) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no. 175, Item no.8.2
7	Providing and stacking of Bauhinia purpurea (Mantharai) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	15.00	50.00	750.00	DSR-20, Pg no. 161, Item no.7.8
8	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	50.00	750.00	DSR-20, Pg no. 169, Item no.7.73
9	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	65.00	975.00	DSR-20, Pg no. 161, Item no.7.5
<b>TOTAL OF GREEN COVER :</b>					<b>11,860.52</b>	
<b>XII</b>	<b>RAIN WATER HARVESTING</b>					
1	Construction of Rain water Harvesting Structure at the WDS premises	LS	1.00	21,000.00	21,000.00	
<b>TOTAL OF RAIN WATER HARVESTING :</b>					<b>21,000.00</b>	
<b>GRAND TOTAL (VII+VIII+IX+X+XI+XII) Rs.</b>					<b>8,468,713.26</b>	
<b>TOTAL COST FOR PROPOSED 2.0 ML OHT (1 nos)</b>					<b>70,118,367.00</b>	
<b>Note:</b>						
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022					

CONSTRUCTION OF OHT AT UNITED INDIA COLONY IN ZONE - X (2.0 ML)						
Basic Data						
Clear size of tank	37.20	x	12.60	m		
Staging Height	17.00	m				
Depth of water	5.00	m				
Thickness of wall @ bottom	0.60	m				
Thickness of wall @ top	0.30	m				
Total depth of wall	5.75	m				
Thickness of roof slab	0.20	m				
Size of roof beams	0.00	x	0.00	m		
Thickness of floor slab	0.40	m				
Size of floor beams	0.45	x	0.85	m		
Size of floor beams (below wall)	0.75	x	1.00	m		
Platform width	1.50	m				
Thickness of platform slab	0.15					
Column size - C1	0.80	x	0.50	m		
No. of columns	20	Nos				
Column size - C2	0.80	x	0.80	m		
Column cap @ roof slab	1.50	x	1.50	x	0.25	m
No. of columns	8	Nos	7	x	4	
Column size - C3	0.40	x	0.40	m		
No. of columns	8	Nos	4	x	2	
Size of bracing beam	0.40	x	0.60	m		
Bracing beam c/c distance	4.25	m				
Size of plinth beam	0.45	x	0.60	m		
Column size (for stair case) - C4	0.35	x	0.35	m		
No. of columns	4	Nos				
Staircase tie beams	0.30	x	0.45	m		
Size of STAIR CASE well	4.30	x	3.55	m		
Waist slab thickness	0.175	m				
Steps raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0		m			
Founding level	-1.70		m			
Staging level	17.00		m			
Top of tank level	22.95		m			
Pile cap	PC					
PC-1 size	2.40	x	2.40	x	0.80	m
Nos	28	Nos				
PC-2 size	0.90	x	2.40	x	0.80	m
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m	dia			
Depth of pile	20.00	m				
No. of pile	120	Nos				
Pile cap connecting beam	0.45	x	0.60			
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

Sl. No.	Description of Work	No.	Measurement			Qty	Total	
			Length	Breadth	Height		Qty	Qty
	<b>Excavation works</b>							
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.							
a)	0 to -2 m Lvl							
	Pile cap PC-1	1 x	28	2.90	2.90	2.00	470.96	
	Pile cap PC-2	1 x	4	1.40	2.90	2.00	32.48	
	Plinth beam (3-7)	1 x	4	30.70	1.10	0.70	94.56	
	Plinth beam (A-D)	1 x	7	9.40	1.10	0.70	50.67	
	Staircase beam	1 x	2	1.90	1.10	0.70	2.93	
	Staircase beam	1 x	2	1.15	1.10	0.70	1.77	
							653.36	<b>653.40</b>
b)	-2 to -3 m Lvl							
	Pile cap PC-1	1 x	28	2.90	2.90	0.60	141.29	
	Pile cap PC-2	1 x	4	1.40	2.90	0.60	9.74	
							151.03	<b>151.00</b>
2	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement							
	Excavation qty - Concrete qty.	1 x	1				560.02	
							560.02	<b>560.00</b>
								cum

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
3	Disposal of surplus earth								
	Excavation qty - Refilling qty.	1	x	1			93.34	93.30	cum
<b>Concrete works</b>									
4	Plain Cement concrete 1:2:4 using Crushed stone sand (Msand) and 12 to 20 mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.								
	<u>0 m to 1.5 m below G.L.</u>								
	Plinth beam (3-7)	1	x	4	30.70	0.65	0.10	7.98	
	Plinth beam (A-D)	1	x	7	9.40	0.65	0.10	4.28	
	Staircase plinth beam	1	x	2	1.90	0.65	0.10	0.25	
	Staircase plinth beam	1	x	2	1.15	0.65	0.10	0.15	
							12.66	12.70	cum
	<u>1.5 m to 2.5 m below G.L.</u>								
	Pile cap PC-1	1	x	28	2.60	2.60	0.10	18.93	
	Pile cap PC-2	1	x	4	1.10	2.60	0.10	1.14	
							20.07	20.10	cum
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C-1	1	x	20	0.80	0.50	1.50	12.00	
	Column C-2	1	x	8	0.80	0.80	1.50	7.68	
	Column C-4	1	x	4	0.35	0.35	1.50	0.74	
	Plinth beam (3-7)	1	x	4	30.70	0.45	0.60	33.16	
	Plinth beam (A-D)	1	x	7	9.40	0.45	0.60	17.77	
	Staircase plinth beam	1	x	2	1.90	0.45	0.60	1.03	
	Staircase plinth beam	1	x	2	1.15	0.45	0.60	0.62	
							72.98	73.00	cum
b)	<u>1.5 m to 2.5 m below G.L.</u>								
	Pile cap PC-1	1	x	28	2.40	2.40	0.80	129.02	
	Pile cap PC-2	1	x	4	0.90	2.40	0.80	6.91	
	Column C-1	1	x	20	0.80	0.50	0.20	1.60	
	Column C-2	1	x	8	0.80	0.80	0.20	1.02	
	Column C-4	1	x	4	0.35	0.35	0.20	0.10	
							138.66	138.70	cum
	<u>Above G.L.</u>								
c)	<u>0 m to 4.5 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	8	0.80	0.80	4.50	23.04	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 4.25 m lvl								
	Grid 3-7	1	x	4	32.40	0.40	0.60	31.10	
	Grid A-D	1	x	7	10.20	0.40	0.60	17.14	
	Staircase bracing beam	1	x	2	3.95	0.30	0.45	1.07	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 2.125 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							118.29	118.30	cum
d)	<u>4.5 m to 9.0 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	8	0.80	0.80	4.50	23.04	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 8.50 m lvl								
	Grid 3-7	1	x	4	32.40	0.40	0.60	31.10	
	Grid A-D	1	x	7	10.20	0.40	0.60	17.14	
	Staircase bracing beam	1	x	2	3.95	0.30	0.45	1.07	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 6.375 m	1	x	2	3.20	0.30	0.45	0.86	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							118.29	<b>118.30</b>	cum
e)	<u>9.0 m to 13.5 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	8	0.80	0.80	4.50	23.04	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 12.75 m lvl								
	Grid 3-7	1	x	4	32.40	0.40	0.60	31.10	
	Grid A-D	1	x	7	10.20	0.40	0.60	17.14	
	Staircase bracing beam	1	x	2	3.95	0.30	0.45	1.07	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 10.625 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							118.29	<b>118.30</b>	cum
f)	<u>13.5 m to 18.0 m</u>								
	Column C-1	1	x	20	0.80	0.50	2.65	21.20	
	Column C-2	1	x	8	0.80	0.80	2.65	13.57	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bottom slab	1	x	1	37.20	12.60	0.40	187.49	
	walkway platform	1	x	2	38.70	1.50	0.15	17.42	
		1	x	2	14.10	1.50	0.15	6.35	
	Kerb wall around platform	1	x	2	38.70	0.10	0.15	1.16	
		1	x	2	14.10	0.10	0.15	0.42	
	Column C-3	1	x	8	0.40	0.40	1.00	1.28	
	Tank wall	1	x	2	38.00	0.55	1.00	41.80	
		1	x	2	13.40	0.55	1.00	14.74	
	Tank wall @ grid 6	1	x	1	13.40	0.55	1.00	7.37	
	Bottom slab beam @ 17.00 m lvl								
	Grid 3-7	1	x	2	32.40	0.45	0.85	24.79	
	Grid A-D	1	x	4	10.20	0.45	0.85	15.61	
	Beam under wall b/w grid 3-9	1	x	2	32.40	0.75	1.00	48.60	
	Beam under wall b/w grid A-D	1	x	3	10.20	0.75	1.00	22.95	
	Staircase bracing beam	1	x	2	3.95	0.30	0.45	1.07	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 14.875 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							435.75	<b>435.70</b>	cum
g)	<u>18.0 m to 22.5 m</u>								
	Column C-3	1	x	8	0.40	0.40	4.50	5.76	
	Tank wall upto 20.0 m lvl	1	x	2	38.00	0.40	2.00	60.80	
		1	x	2	13.40	0.40	2.00	21.44	
	Tank wall @ grid 6	1	x	1	13.40	0.40	2.00	10.72	
	Tank wall from 20.0 to 22.5 m lvl	1	x	2	38.00	0.30	2.50	57.00	
		1	x	2	13.40	0.30	2.50	20.10	
	Tank wall @ grid 6	1	x	1	13.40	0.30	2.50	10.05	
	Stair case column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Staircase bracing beam @ 21.25 m	1	x	2	3.95	0.30	0.45	1.07	
		1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 19.125 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							196.88	<b>196.90</b>	cum
h)	<u>22.5 m to 22.95 m</u>								
	Column C-3	1	x	8	0.40	0.40	0.25	0.32	
	Tank wall from 22.5 to 23.0 m lvl	1	x	2	38.00	0.30	0.25	5.70	
		1	x	2	13.40	0.30	0.25	2.01	
	Tank wall @ grid 6	1	x	1	13.40	0.30	0.25	1.01	
	Roof slab	1	x	1	38.60	14.00	0.20	108.08	
	Column cap	1	x	8	1.50	1.50	0.25	4.50	
	Stair case column C-4	1	x	4	0.35	0.35	0.70	0.34	
	Staircase landing beam @ 23.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	1	4.75	1.78	0.18	1.48	
	Steps	0.5	x	15	1.78	0.30	0.15	0.60	
	landing slab	1	x	1	5.55	1.50	0.18	1.46	
	Kerb wall for manhole opening	1	x	2	5.60	0.20	0.60	1.34	
	Stub column for ventilator opening	4	x	4	0.15	0.15	0.75	0.27	
	Kerb wall for ventilator opening	1	x	2	4.80	0.15	0.15	0.22	
	Kerb wall around roof slab	1	x	2	38.60	0.10	0.15	1.16	
		1	x	2	14.00	0.10	0.15	0.42	

Sl. No.	Description of Work	No.	Measurement			Qty	Total	
			Length	Breadth	Height		Qty	
						129.76	129.80	cum
	Total RCC (M-30) Qty.						1329.00	cum
	<b>Shuttering works</b>							
6	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high							
a)	<u>0 m to 1.5 m below G.L.</u>							
	Column C-1	2 x	20	0.80		1.50	48.00	
		2 x	20	0.50		1.50	30.00	
	Column C-2	2 x	8	0.80		1.50	19.20	
		2 x	8	0.80		1.50	19.20	
	Column C-4	2 x	4	0.35		1.50	4.20	
		2 x	4	0.35		1.50	4.20	
	Plinth beam (3-7)	2 x	4	30.70		0.60	147.36	
	Plinth beam (A-D)	2 x	7	9.40		0.60	78.96	
	Staircase plinth beam	2 x	2	1.90		0.60	4.56	
	Staircase plinth beam	2 x	2	1.15		0.60	2.76	
							358.44	358.40 Sqm
b)	<u>1.5 m to 2.5 m below G.L.</u>							
	Pile cap PC-1	4 x	28	2.40		0.80	215.04	
	Pile cap PC-2	4 x	4	0.90		0.80	11.52	
	Column C-1	2 x	20	0.80		0.20	6.40	
		2 x	20	0.50		0.20	4.00	
	Column C-2	2 x	8	0.80		0.20	2.56	
		2 x	8	0.80		0.20	2.56	
	Column C-4	2 x	4	0.35		0.20	0.56	
		2 x	4	0.35		0.20	0.56	
							243.20	243.20 Sqm
	<u>Above G.L.</u>							
c)	<u>0 m to 3.0 m</u>							
	Column C-1	2 x	20	0.80		3.00	96.00	
		2 x	20	0.50		3.00	60.00	
	Column C-2	2 x	8	0.80		3.00	38.40	
		2 x	8	0.80		3.00	38.40	
	Staircase column C-4	4 x	4	0.35		3.00	16.80	
	Staircase landing beam @ 2.125 m	2 x	2	3.20		0.45	5.76	
		1 x	2	4.75		0.30	2.85	
	waist slab	1 x	2	4.75		1.78	16.87	
	Steps	2 x	15	1.78		0.15	7.99	
	landing slab	1 x	1	3.55		1.50	5.33	
							288.39	288.40 Sqm
c)	<u>3.0 m to 4.0 m</u>							
	Column C-1	2 x	20	0.80		1.00	32.00	
		2 x	20	0.50		1.00	20.00	
	Column C-2	2 x	8	0.80		1.00	12.80	
		2 x	8	0.80		1.00	12.80	
	Staircase column C-4	4 x	4	0.35		1.00	5.60	
							83.20	83.20 Sqm
d)	<u>4.0 m to 5.0 m</u>							
	Column C-1	2 x	20	0.80		1.00	32.00	
		2 x	20	0.50		1.00	20.00	
	Column C-2	2 x	8	0.80		1.00	12.80	
		2 x	8	0.80		1.00	12.80	
	Staircase column C-4	4 x	4	0.35		1.00	5.60	
	Bracing beam @ 4.25 m lvl							
	Grid 3-7	2 x	4	32.40		0.60	155.52	
		1 x	4	32.40		0.40	51.84	
	Grid A-D	2 x	7	10.20		0.60	85.68	
		1 x	7	10.20		0.40	28.56	
	Staircase bracing beam	2 x	2	3.95		0.45	7.11	
		1 x	2	3.95		0.30	2.37	
	Staircase bracing beam	2 x	2	3.20		0.45	5.76	
		1 x	2	3.20		0.30	1.92	
	waist slab	1 x	1	4.75		1.78	8.43	
	Steps	1 x	15	1.78		0.15	3.99	
	landing slab	1 x	1	3.55		1.50	5.33	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
							439.71	<b>439.70</b>	Sqm
e)	<u>5.0 m to 6.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
							83.20	<b>83.20</b>	Sqm
e)	<u>6.0 m to 7.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 6.375 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							96.21	<b>96.20</b>	Sqm
f)	<u>7.0 m to 8.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							95.63	<b>95.60</b>	Sqm
g)	<u>8.0 m to 9.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 8.5 m lV								
	Grid 3-7	2	x	4	32.40		0.60	155.52	
		1	x	4	32.40		0.40	51.84	
	Grid A-D	2	x	7	10.20		0.60	85.68	
		1	x	7	10.20		0.40	28.56	
	Staircase bracing beam	2	x	2	3.95		0.45	7.11	
		1	x	2	3.95		0.30	2.37	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							427.29	<b>427.30</b>	Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							95.63	<b>95.60</b>	Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 10.625 m	2	x	2	3.20		0.45	5.76	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
j)	<u>11.0 m to 12.0 m</u>						96.21	<b>96.20</b>	Sqm
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							95.63	<b>95.60</b>	Sqm
k)	<u>12.0 m to 13.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 12.75 m lvl								
	Grid 3-7	2	x	4	32.40		0.60	155.52	
		1	x	4	32.40		0.40	51.84	
	Grid A-D	2	x	7	10.20		0.60	85.68	
		1	x	7	10.20		0.40	28.56	
	Staircase bracing beam	2	x	2	3.95		0.45	7.11	
		1	x	2	3.95		0.30	2.37	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							427.29	<b>427.30</b>	Sqm
l)	<u>13.0 m to 14.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							95.63	<b>95.60</b>	Sqm
m)	<u>14.0 m to 15.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 14.875 m	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	landing slab	1	x	1	3.55		1.50	5.33	
							97.89	<b>97.90</b>	Sqm
n)	<u>15.0 m to 16.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							95.63	<b>95.60</b>	Sqm
o)	<u>16.0 m to 17.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	8	0.80		1.00	12.80	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		2	x	8	0.80		1.00	12.80	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Bottom slab	1	x	1	37.20		12.60	468.72	
	walkway platform	1	x	2	38.70		1.50	116.10	
		1	x	2	14.10		1.50	42.30	
	Floor beam @ 17.0 m lvl								
	Grid 3-7	2	x	2	32.40		0.85	110.16	
		1	x	2	32.40		0.45	29.16	
	Grid A-D	2	x	4	10.20		0.85	69.36	
		1	x	4	10.20		0.45	18.36	
	Beam under wall b/w grid 3-9	2	x	2	32.40		1.00	129.60	
		1	x	2	32.40		0.75	48.60	
	Beam under wall b/w grid A-D	2	x	3	10.20		1.00	61.20	
		1	x	3	10.20		0.75	22.95	
	Staircase bracing beam	2	x	2	3.95		0.60	9.48	
		1	x	2	3.95		0.40	3.16	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								1225.36	<b>1225.40</b>
	Sqm								
<u>o)</u>	<u>17.0 m to 18.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	Kerb wall around platform	2	x	2	38.70		0.15	23.22	
		2	x	2	14.10		0.15	8.46	
								282.48	<b>282.50</b>
	Sqm								
<u>p)</u>	<u>18.0 m to 19.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
								263.23	<b>263.20</b>
	Sqm								
<u>q)</u>	<u>19.0 m to 20.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	Staircase landing beam @ 19.125 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								263.81	<b>263.80</b>
	Sqm								
<u>r)</u>	<u>20.0 m to 21.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
								263.23	<b>263.20</b>
	Sqm								
<u>s)</u>	<u>21.0 m to 22.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	Staircase bracing beam @ 21.25 m	2	x	2	3.95		0.45	7.11	
		1	x	2	3.95		0.30	2.37	
		2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								273.29	<b>273.30</b>
	Sqm								

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
t)	22.0 m to 23.0 m								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	8	0.40		1.00	12.80	
	Tank wall	2	x	2	38.00		1.00	152.00	
		2	x	3	13.40		1.00	80.40	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
	Staircase landing beam @ 23.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	5.55		1.50	8.33	
	Roof slab	1	x	1	38.60		14.00	540.40	
	Column cap	1	x	8	6.00		0.25	12.00	
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44	
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60	
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88	
	Kerb wall around roof slab	2	x	2	38.60		0.15	23.16	
		2	x	2	14.00		0.15	8.40	
							883.11	883.10	Sqm
								5971.90	
	<b>Reinforcement Steel</b>								
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings								
	125 kg per cum	1	x	1			166.13		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			8.31		
							174.43	174.40	MT
	For pile foundation								
	130 kg per cum	1	x	1			88.22		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			4.41		
							92.63	92.60	MT
	<b>Piling works</b>								
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.								
	600 mm dia piles	1	x	120	20.00		2400.00		
							2400.00	2400.00	meters
9	Vertical load Test								
	Single pile above 50 tonne Safe capacity	1	x				1.00		No.
10	Horizontal load Test	1	x				1.00		No.
11	Pull out Test	1	x				1.00		No.
	<b>Finishing works</b>								
12	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.								
	Bottom slab	1	x				468.72		
	Walkway platform	1	x				158.40		
	Staircase waist slab	1	x				84.34		
	Landing slab	1	x				61.58		
							773.04	773.00	Sqm.

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete									
	External plastering	1	x					4650.03	<b>4650.00</b>	Sqm.
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x					468.72	<b>468.70</b>	Sqm.
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x					1939.92	<b>1939.90</b>	Sqm.
16	Concrete with broken brick jelly 20mm gauge in pure slacked lime over R.C.C. roof slab for 80 mm thick	1	x		38.60	14.00	0.08	43.23	<b>43.20</b>	cum
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x		38.60		14.00	540.40	<b>540.40</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.									
	Precast Concrete jolly	2	x	16	1.20	0.60		23.04		
	Precast Concrete slab	2	x	4	2.10	2.10		35.28		
								58.32	<b>58.30</b>	Sqm
19	Colour washing two coats over one coat of white washing.									
	All external surfaces	1	x	1				4650.03	<b>4650.00</b>	Sqm.
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures									
	Vertical surface	1	x	1				1471.20		
	Horizontal surface	1	x	1				468.72		
								1939.92	<b>1939.90</b>	Sqm.
	<b>Miscellaneous works</b>									
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	2				2.00		
22	Supplying and fixing lightening arrestor	1	x	1				1.00		
23	Providing and fixing level indicator	1	x	1				1.00		
24	Providing and fixing Hand rails with MS tube									
	walkway platform									
	Horizontal top pipe 50 mm dia	2	x	1	40.20		5.44	437.38	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India website	
		2	x	1	15.60		5.44	169.73		
	Horizontal 20 mm square rod	4	x	61	0.60		3.14	458.54	Weight 3.14 kg/m	
		4	x	23	0.60		3.14	173.33		
	Vertical 20 mm square rod	4	x	62	0.85		3.14	660.27		
		4	x	24	0.85		3.14	256.22		
	Insert plate 5 mm thick	2	x	62	0.15	0.10	0.005	72.82	7850 kg/m3	
		2	x	24	0.15	0.10	0.005	28.26		
	Roof slab									
	Horizontal top pipe 50 mm dia	2	x	1	38.60		5.44	419.97		
		2	x	1	14.00		5.44	152.32		
	Vertical 20 mm square rod	4	x	59	0.60		3.14	447.52		
		4	x	22	0.60		3.14	162.31		
	Horizontal 20 mm square rod	4	x	58	0.60		3.14	439.99		
		4	x	21	0.60		3.14	154.78		
	Insert plate 5 mm thick	2	x	59	0.15	0.10	0.005	69.93		
		2	x	22	0.15	0.10	0.005	25.36		
	Staircase									
	Horizontal top pipe 50 mm dia	2	x	11	9.80		5.44	1173.06		
	Vertical 20 mm square rod	44	x	15	1.00		3.14	2083.38		
	Horizontal 20 mm square rod	44	x	14	0.60		3.14	1167.13		
	Insert plate 5 mm thick	332	x	15	0.15	0.10	0.005	2945.27		
								11497.56	<b>11497.60</b>	Kg
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.									
		1	x	12	25.00			300.00	<b>300.00</b>	Mtr.

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	1	x	2	9.00			18.00	<b>18.00</b>	Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	2	38.00			152.00		
		2	x	2	13.40			53.60		
								205.60	<b>205.60</b>	Mtr.
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10									
	Inlet pipe 350 dia	1	x	1	30.00			30.00		
	Over flow pipe 350 dia	1	x	1	30.00			30.00		
								60.00	<b>60.00</b>	Mtr.
	Outlet pipe 450 dia	1	x	1	24.00			24.00		
								24.00	<b>24.00</b>	Mtr.
	Scour pipe 300 dia	1	x	1	24.00			24.00		
								24.00	<b>24.00</b>	Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection									
	300 mm dia	1	x	1	24.00			116.87	116.87	Weight per mtr arrived as per online data
	350 mm dia	1	x	2	30.00			147.31	294.62	
	450 mm dia	1	x	1	24.00			216.25	216.25	
								627.75	<b>627.70</b>	Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000									
	<u>Inlet pipe 350 dia</u>									
	Bend 90	1	x	1	97			97.00		
	<u>Over flow pipe 350 dia</u>									
	Bend 90	1	x	1	97			97.00		
								194.00	<b>194.00</b>	Kg
	<u>Outlet pipe 450 dia</u>									
	Bend 90	1	x	1	165			165.00		
	Bend 45	1	x	2	140			280.00		
								445.00	<b>445.00</b>	Kg
	<u>Scour pipe 300 dia</u>									
	Bend 90	1	x	1	70.0			70.00		
								70.00	<b>70.00</b>	Kg
27	DI Sluice valve									
	300 mm	1	x	1				1.00		Each
	350 mm	1	x	2				2.00		Each
28	DI Butterfly valve									
	450 mm	1	x	1				1.00		Each
29	Concrete of thrust blocks for pipe support									
	300 mm									
	90 Bend	1	x	1				1.00		Each
	350 mm									
	90 Bend	1	x	2				2.00		Each
	450 mm									
	90 Bend	1	x	1				1.00		Each
	45 Bend	1	x	2				2.00		Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	10				10.00		Each
	<b>Office work under OHT</b>									

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	<b>Concrete work</b>								
	RCC slab	1	x	1	18.60	12.60	0.15	35.15	
	Grade slab	1	x	1	18.60	12.60	0.15	35.15	
	Lintel	1	x	3	17.10	0.23	0.30	3.54	
		1	x	2	10.80	0.23	0.30	1.49	
	Sunshade	1	x	10	1.80	0.60	0.10	1.08	
							76.42	<b>76.40</b>	Cum
	<b>Shuttering work</b>								
	RCC slab	1	x	1	18.60		12.60	234.36	
	Lintel	2	x	3	17.10		0.30	30.78	
		1	x	3	17.10		0.23	11.80	
		2	x	2	10.80		0.30	12.96	
		1	x	2	10.80		0.23	4.97	
	Sunshade	1	x	10	1.80		0.60	10.80	
							305.67	<b>305.70</b>	Sqm
	Reinforcement steel @ 90 kg/cum	1	x	1	6877.63			6877.63	
							6877.63	<b>6877.60</b>	Kg
	<b>Masonry work</b>								
	Grid A,B,D b/w 6-9	1	x	3	17.10	0.23	3.65	43.07	
	Grid 6,9 b/w A-D	1	x	2	10.80	0.23	3.65	18.13	
	Grid 7,8 b/w A-B	1	x	2	3.50	0.23	3.65	5.88	
	Deduction								
	Door-D1	-1	x	2	1.50	0.23	2.10	<b>1.45</b>	
	Door-D2	-1	x	3	1.00	0.23	2.10	<b>1.45</b>	
	Door-D3	-1	x	0	0.80	0.23	2.10	0.00	
	Window-W1	-1	x	10	1.50	0.23	1.20	<b>4.14</b>	
	Ventilator-V	-1	x	0	1.50	0.23	0.90	0.00	
	Ventilator-V1	-1	x	7	1.00	0.23	0.80	<b>1.29</b>	
	<b>Total</b>						58.75	<b>58.80</b>	Cum
	Office room Toilet partition wall	1	x	1	4.50	0.115	3.65	1.89	
	Male toilet wall	1	x	1	3.15	0.115	3.65	1.32	
		1	x	1	2.50	0.115	3.65	1.05	
		1	x	1	4.30	0.115	3.65	1.80	
	Female toilet wall	1	x	1	4.30	0.115	3.65	1.80	
		1	x	1	2.00	0.115	3.65	0.84	
	Deduction								
	Door-D3	-1	x	5	0.80	0.12	2.10	<b>0.97</b>	
	<b>Total</b>						7.74	<b>7.70</b>	Cum
	<b>Internal Plastering</b>								
	Grid A,B,D b/w 6-9	4	x	3	17.10		3.65	748.98	
	Grid 6,9 b/w A-D	2	x	2	10.80		3.65	157.68	
	Grid 7,8 b/w A-B	4	x	2	3.50		3.65	102.20	
	Office room Toilet partition wall	2	x	1	4.50		3.65	32.85	
	Male toilet wall	2	x	1	3.15		3.65	23.00	
		2	x	1	2.50		3.65	18.25	
		2	x	1	4.30		3.65	31.39	
	Female toilet wall	2	x	1	4.30		3.65	31.39	
		2	x	1	2.00		3.65	14.60	
	Deduction								
	Door-D1	-1.5	x	2	1.50		2.10	<b>9.45</b>	
	Door-D2	-2	x	3	1.00		2.10	<b>12.60</b>	
	Door-D3	-2	x	5	0.80		2.10	<b>16.80</b>	
	Window-W1	-1	x	10	1.50		1.20	<b>18.00</b>	
	Ventilator-V	-1	x	0	1.50		0.90	0.00	
	Ventilator-V1	-1	x	7	1.00		0.80	<b>5.60</b>	
	<b>Total</b>						1097.90	<b>1097.90</b>	Sqm
	<b>External Plastering</b>								
	Grid A,B,D b/w 6-9	2	x	3	17.10		3.65	374.49	
	Grid 6,9 b/w A-D	2	x	2	10.80		3.65	157.68	

Sl. No.	Description of Work	No.		Measurement			Qty	Total		
				Length	Breadth	Height		Qty		
	Deduction									
	Door-D1	-1	x	1	1.50		2.10	3.15		
	Door-D2	-1	x	0	1.00		2.10	0.00		
	Door-D3	-1	x	0	0.80		2.10	0.00		
	Window-W1	-1	x	10	1.50		1.20	18.00		
	Ventilator-V	-1	x	0	1.50		0.90	0.00		
	Ventilator-V1	-1	x	7	1.00		0.80	5.60		
	<b>Total</b>						505.40	<b>505.40</b>	Sqm.	
	<b>Flooring work</b>									
	Office area	1	x	1	18.42		7.97	146.81		
	Utility room	1	x	1	6.13		3.97	24.32		
	Office room	1	x	1	5.77		4.00	23.08		
	Toilet floor	1	x	1	6.13		3.97	24.32		
	<b>Total</b>						218.50	<b>218.50</b>	Sqm.	
	<b>Joineries</b>									
	Door-D1	Sqm	2		1.50		2.10	6.30		
	Door-D2	Sqm	3		1.00		2.10	6.30		
	Door-D3	Sqm	5		0.80		2.10	8.40		
	Window-W1	Sqm	10		1.50		1.20	18.00		
	Ventilator-V	Sqm	0		1.50		0.90	0.00		
	Ventilator-V1	Sqm	7		1.00		0.80	5.60		
	<b>Total</b>						44.60	<b>44.60</b>	Sqm.	
	<b>Storm Water Drain</b>									
	Excavation	1	x	1	136.00	1.90	1.28	329.46	<b>329.50</b>	cum
	PCC M10	1	x	1	136.00	1.45	0.08	14.79	<b>14.80</b>	cum
	Shuttering works BGL									
	for PCC	1	x	2	136.00		0.08	20.40		
	for base slab	1	x	2	136.00		0.20	54.40		
	for wall inner	1	x	2	136.00		1.00	272.00		
	for wall outer	1	x	2	136.00		1.00	272.00		
							618.80	<b>618.80</b>	Sqm	
	Reinforcement									
	for base slab	1	x	1	35.36		90.00	3182.40		
	For Wall	1	x	1	40.80		110.00	4488.00		
	Cover slab	1	x	1	4.08		80.00	326.40		
							7996.80	<b>7996.80</b>	kg	
	RCC Concrete M25									
	For base slab	1	x	1	136.00	1.30	0.20	35.36		
	For Wall	1	x	2	136.00	1.00	0.15	40.8		
	Cover slab	1	x	1	136.00	0.60	0.05	4.08		
							80.24	<b>80.20</b>	cum	
	<b>Boundary Wall</b>									
1.	Earth work excavation and depositing on bank with initial leadof 10m and lift of 2m in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed stoney earth and earth mixed stoney earth and earth mixed with small sizes boulders andwith small sizes boulders andhard gravelly soil as per SS 20 B	1	x	1	136.00	1.50	1.25	255.00	<b>255.00</b>	cu.m
2	Supplying and filling with sand for foundation and basement ramming etc complete.									
	For walls	1	x	1	54.40	0.90	0.20	9.79		cu.m
	For Pillars	1	x	91	0.90	0.90	0.20	14.69		cu.m
	For gate pillars	1	x	2	0.90	0.90	0.20	0.32		cu.m
							24.80	<b>24.80</b>	cu.m	
3	Cement concrete 1:3:6 using 40mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc complete.									
	For walls	1	x	1	54.40	0.90	0.15	7.34		cu.m
	For Pillars	1	x	91	0.90	0.90	0.15	11.02		cu.m
	For gate pillars	1	x	2	0.90	0.90	0.15	0.24		cu.m
							18.60	<b>18.60</b>	cu.m	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
4	Random Rubble masonry in C.M. 1:3 including curing etc complete								
	For walls								
	I footing	1	x	1	85.23	0.56	0.45	21.48	
	II footing	1	x	1	85.23	0.45	0.45	17.26	
	For pillars								
	I footing	1	x	91	0.56	0.56	0.45	12.79	
	II footing	1	x	91	0.45	0.45	0.45	8.26	
	For gate pillars								
	I footing	1	x	2	0.65	0.65	0.45	0.38	
	II footing	1	x	2	0.56	0.56	0.45	0.28	
								60.45	<b>60.50</b>
									cu.m
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete								
	Above G.L								
	For walls	1	x	1	95.20	0.30	2.50	71.40	
	For pillars	1	x	1	0.45	0.45	2.50	0.51	
	For gate pillars	1	x	2	0.56	0.56	3.00	1.88	
								73.79	<b>73.80</b>
									cu.m
6	Pointing to the RR masonry in cement mortar 1:3, 20mm thick								
	For main wall	1	x	2	95.20		2.50	476.00	
	Intermediate pillars	2	x	91	0.45		2.50	204.00	
	For gate pillars	2	x	2	0.56		3.00	6.72	
								686.72	<b>686.70</b>
									sqm
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc.complete.for coping								
	For main wall	1	x	1	95.20	(1/2)*0.3	0.15	14.28	
	Intermediate pillars	1	x	1	0.45	1/2*0.45	0.15	0.07	
	For gate pillars	1	x	2	0.56	(1/2)*0.56	0.15	0.17	
								14.52	<b>14.50</b>
									cu.m
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc ., complete as directed.								
	For main wall	1	x	2	95.20	0.21		40.36	
	Intermediate pillars	2	x	91	0.45	0.27		22.03	
	For gate pillars	2	x	2	0.56	0.32		0.72	
								63.11	<b>63.10</b>
									sqm
9	Supplying and fixing barbed wire encing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecing all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling hole in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.								
		1	x	1	136.00			136.00	<b>136.00</b>
									m
10	Band course work flat 10mm to 12mm thick and 65mm deep with C.M:1:3 including curing etc. complete as directed.								
	For main wall	1	x	2	136.00			272.00	<b>272.00</b>
									m
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.								
	Earthwork quantity	1	x	1				255.00	
	Deduct below GL Elements	1	x	1				-103.86	
								151.14	<b>151.10</b>
									cu.m
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.								
		1	x	4				87.50	<b>350.00</b>
									kg
									considered 87.5 kg/m kg/m

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	1	x	1	45.00			45.00	45.00	kg
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour. New Iron work two coats.					coeff				
	Main gate	1	x	3	2.00	2.25	2.50	33.75		
	Wicket gate	1	x	3	0.75	2.25	2.00	10.13		
								43.88	43.90	sq.m
	<b>Road/Paving Work</b>									
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)									
		1.00	x	1.00	49.00	3.00	0.20	29.40		
		1.00	x	1.00	49.00	2.80	0.20	27.44		
		1.00	x	1.00	19.00	6.20	0.20	23.56		
		1.00	x	1.00	19.00	5.00	0.20	19.00		
								99.40	99.40	Cum
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100 mm using 0.57m <sup>3</sup> of sand and 0.65m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller									
		1.00	x	1.00	49.00	3.00		147.00		
		1.00	x	1.00	49.00	2.80		137.20		
		1.00	x	1.00	19.00	6.20		117.80		
		1.00	x	1.00	19.00	5.00		95.00		
								497.00	497.00	Sqm
	Rubber moulded hydraulic pressed paver block	1.00	x	1.00				497.00	497.00	Sqm
	<b>GREEN COVER</b>									
1.	Earth work excavation in manually for planting pits of size 2'6"x2'6"x3'0" along the boundary wall as per GCC circular (Length of boundary wall 142 m, distance b/w the plant is 5 m & 10 extra considered)	1.00	x	38.00				38.00	38.00	Each
2	Vermicompost of 5 kg pack for each pit	1.00	x	38.00				38.00	38.00	Each
3	Backfilling of excavated earth	1.00	x	38.00	0.75	0.75	1.00	21.38	21.40	Cum

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
I	<b>EARTHWORK</b>					
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
	a) 0-2 m	Cum	827.80	233.86	193,589.31	
	b) 2 - 3 m	Cum	0.00	245.08	-	
	c) 3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
	a) 0-2 m	Cum	0.00	483.56	-	
	b) 2 - 3 m	Cum	0.00	492.47	-	
	c) 3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	700.50	40.70	28,510.35	
4	Disposal of Surplus earth	Cum	313.60	140.75	44,139.20	
	<b>TOTAL OF EARTHWORKS :</b>					<b>266,238.86</b>
II	<b>CONCRETE AND ALLIED WORKS</b>					
	<b>Plain Cement Concrete</b>					
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
	0 m to 1.5 m below G.L.	Cum	17.40	6089.00	105,948.60	
	<b>Reinforced Cement Concrete</b>					
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	0 to -1.5m ( below ground)					
6.1	Pile cap and beam	Cum	99.60	6981.87	695,394.25	
	Above ground					
6.2	0 to 4.5 m	Cum	156.50	6983.63	1,092,938.10	
6.3	4.5 to 9.0 m	Cum	156.50	7207.48	1,127,970.62	
6.4	9.0 to 13.5 m	Cum	156.50	7431.33	1,163,003.15	
6.5	13.5 to 18.0 m	Cum	595.30	7655.18	4,557,128.65	
6.6	18.0 to 22.5m	Cum	201.00	7879.03	1,583,685.03	
6.7	22.5 to 23.2 m	Cum	191.60	8102.88	1,552,511.81	
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	For pile cap & beams etc.,	sq m	480.40	1146.00	550,538.40	
	Above ground level					
7.2	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	355.60	1247.00	443,433.20	

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
7.3	3.0 m to 4.0 m	sq m	105.60	1281.00	135,273.60	
7.4	4.0 m to 5.0 m	sq m	545.30	1315.00	717,069.50	
7.5	5.0 m to 6.0 m	sq m	105.60	1349.00	142,454.40	
7.6	6.0 m to 7.0 m	sq m	118.60	1383.00	164,023.80	
7.7	7.0 m to 8.0 m	sq m	118.00	1417.00	167,206.00	
7.8	8.0 m to 9.0 m	sq m	532.90	1451.00	773,237.90	
7.9	9.0 m to 10.0 m	sq m	118.00	1485.00	175,230.00	
7.10	10.0 m to 11.0 m	sq m	118.60	1519.00	180,153.40	
7.11	11.0 m to 12.0 m	sq m	118.00	1553.00	183,254.00	
7.12	12.0 m to 13.0 m	sq m	532.90	1587.00	845,712.30	
7.13	13.0 m to 14.0 m	sq m	118.00	1621.00	191,278.00	
7.14	14.0 m to 15.0 m	sq m	120.30	1655.00	199,096.50	
7.15	15.0 m to 16.0 m	sq m	118.00	1689.00	199,302.00	
7.16	16.0 m to 17.0 m	sq m	1726.60	1723.00	2,974,931.80	
7.17	17.0 m to 18.0 m	sq m	296.30	1757.00	520,599.10	
7.18	18.0 m to 19.0 m	sq m	273.20	1791.00	489,301.20	
7.19	19.0 m to 20.0 m	sq m	273.80	1825.00	499,685.00	
7.20	20.0 m to 21.0 m	sq m	273.20	1859.00	507,878.80	
7.21	21.0 m to 22.0 m	sq m	283.20	1893.00	536,097.60	
7.22	22.0 m to 23.0 m	sq m	1195.10	1927.00	2,302,957.70	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	226.90	83000.00	18,832,700.00	
	<b>TOTAL OF CONCRETE WORKS :</b>					<b>43,609,994.40</b>
<b>III PILING WORKS</b>						
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	2960.00	4514.40	13,362,624.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	2	30505.00	61,010.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	114.20	83000.00	9,478,600.00	
<b>TOTAL OF PILING WORKS :</b>					<b>22,990,671.65</b>	
<b>IV</b>	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
12	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	3026.00	146.00	441,796.00	
13	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	1070.90	255.00	273,079.50	
	<b>Painting and protective coatings:</b>					
14	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after throughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	5539.50	203.00	1,124,518.50	
15	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	2278.60	198.40	452,074.24	
	<b>Terrace Works:</b>					
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	66.20	3778.00	250,103.60	
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	828.00	1503.00	1,244,484.00	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>3,786,055.84</b>	
<b>V</b>	<b>MISCELLANEOUS WORKS</b>					
18	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embeded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
19	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	29.20	1688.00	49,289.60	

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
20	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
21	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	1.00	3925.00	3,925.00	
22	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	11987.70	157.15	1,883,867.06	
23	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	500.00	981.00	490,500.00	
24	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	9.00	1869.00	16,821.00	
25	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	231.20	285.60	66,030.72	
26	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowls.	Each	16.00	2069.50	33,112.00	
27	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	3.5 ML OHT	LS	1.00	294456.80	294,456.80	
<b>TOTAL OF MISCELLANEOUS :</b>					<b>2,867,008.04</b>	
<b>VI</b>	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	350 mm (Scour Pipe)	mts	24.00	7473.75	179,370.00	
b)	400 mm (Inlet & Overflow pipe)	mts	60.00	9571.75	574,305.00	
c)	600 mm (Outlet pipe)	mts	24.00	17541.00	420,984.00	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
	0 to 2 m	Qtl	16.90	226.50	3,828.30	

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	2 to 4 m	Qty	16.90	341.10	5,765.27	
	4 to 6 m	Qty	16.90	535.00	9,042.57	
	6 to 8 m	Qty	16.90	739.90	12,505.79	
	8 to 10 m	Qty	16.90	944.80	15,969.01	
	10 to 12 m	Qty	16.90	1147.00	19,386.59	
	12 to 14 m	Qty	16.90	1357.10	22,937.70	
	14 to 16 m	Qty	16.90	1545.90	26,128.80	
	16 to 18 m	Qty	12.04	1750.40	21,081.18	
	18 to 20 m	Qty	7.19	1955.10	14,048.28	
	20 to 22 m	Qty	7.19	2154.80	15,483.22	
	22 to 24 m	Qty	3.59	2356.60	8,466.62	
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends, Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers.required for the following pipes.					
a)	350 mm (Scour Pipe)	kgs	97.00	134.00	12,998.00	
b)	400 mm (Inlet & Overflow pipe)	kgs	256.00	134.00	34,304.00	
c)	600 mm (Outlet pipe)	kgs	851.00	134.00	114,034.00	
31	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
a)	350 mm bend (Scour Pipe)	Each	1.00	1278.00	1,278.00	
b)	400 mm bend (Inlet & Overflow pipe)	Each	2.00	1443.00	2,886.00	
c)	600 mm bend (Outlet pipe)	Each	3.00	3086.00	9,258.00	
32	Supply and delivery of DI D / F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves / Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100 % leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	350 mm (on Scour Pipe)	Nos	1.00	206448.00	206,448.00	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	400 mm (Inlet & Overflow pipe)	Nos	2.00	178093	356,186.00	
b)	600 mm (Outlet pipe)	Nos	1.00	258694	258,694.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
a)	350 mm (on Scour Pipe)	Each	1.00	4472.00	4,472.00	
b)	400 mm (Inlet & Overflow pipe)	Each	2.00	5591.00	11,182.00	
c)	600 mm (Outlet pipe)	Each	1.00	25428.00	25,428.00	
35	Construction of RCC chamber for 300mm to 400mm dia.sllice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	3.00	63000.00	189,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.sllice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	1.00	136000.00	136,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete					
	350 mm 90 bend	Each	1.00	5772	5,772.00	
	400 mm 90 bend	Each	2.00	11990	23,980.00	
	450 mm 45 bend	Each	2.00	6657	13,314.00	
	600 mm 90 bend	Each	1.00	18291	18,291.00	
<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>					<b>2,772,827.35</b>	
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>					<b>76,292,796.14</b>
	<b>TOTAL COST FOR PROPOSED 3.5 ML OHT (1 nos)</b>					<b>76,292,797.00</b>
<b>VII</b>	<b>OFFICE WORKS</b>					
	<b>Reinforced Cement Concrete</b>					
1	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20 mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	Above ground					
	0 to 4.5 m level	Cum	119.40	6771.63	808,532.62	
	<b>Form work</b>					
2	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	Above ground level					
	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls					
	3.0 m to 4.0 m	sq m	458.90	1247.00	572,248.30	
	<b>Reinforcement Steel</b>					
3	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	10746.30	83.00	891,942.90	
	<b>Brick Work</b>					
3	Stock brick work with II class bricks in cement mortar 1:5 (Crushed stone sand (M-sand)) for over 23 cm thick wall including curing etc complete	Cum	72.00	7359.00	529,848.00	CMWSSB SoR, Pg no. 95, Item. No. 5.4
4	Extra labour for 11 cm thick wall	Cum	8.10	10142.00	82,150.20	CMWSSB SoR, Pg no. 95, Item. No. 5.11

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	<b>Plastering Work</b>					
5	Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12 mm thick including curing, etc., complete.	Sqm	1208.90	255.00	308,269.50	CMWSSB SoR, Pg no. 100, Item. No. 11.1
6	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 20 mm thick including curing, etc., complete.	Sqm	609.20	478.00	291,197.60	CMWSSB SoR, Pg no. 101, Item. No. 11.7
	<b>Flooring Work</b>					
7	Flooring with 100 mm thick base cement concrete 1:4:10 using 40 mm gauge, hard broken stone jelly including laying ramming, curing, etc., complete.	Sqm	357.10	446.00	159,266.60	
8	Flooring with Macrona Marble slabs, of size 1200x1800x20mm free from all defects in all floors over a base layer of CM 1:, 20 mm thick. The marble slab shall be laid over the cement mortar by applying white cement slurry in between base mortar and marble slab. The marble slabs are to be laid that there shall be in line with another joint and uniform by using marble cutting machine without any damage to the sides of corners of the marble slab. The entire area at themarble flooring so laid shall be pointed with white cement neatly including apolishing with polishing stone of grade 80 for rough,grade 200 for medium, and grade 360 for nice using necessary oxalic acid etc. so as to glassy and smooth and including hire charges for polishing machine and power consumption charges etc. The Macrona marble slabs,polishing stones, oxolic acid, tin oxide etc., proposed for the work shall be shown to the Board officers and got approved by them before use in the work etc., complete.	Sqm	300.59	4319.00	1,298,258.14	CMWSSB SOR, Pg no. 127, Item.No.18
9	Supplying and fixing in position Cement based hydraulically pressed Anti-Skid tiles (pattern design) 20 mm thick in cement mortar 1:3, 20 mm thick & pointed with same colour of cement etc.,complete.	Sqm	29.32	1300.00	38,119.90	CMWSSB SOR, Pg no. 127, Item. No. 19
10	Paving the floor with palin/design ceramic tiles (colour and shade as directed) of size 305 mm x 305mm x 6 mm in all floors over a base layer of cement mortar 1:3 (one cement and three sand) 20mm thick laid in-situ and pointed with same coloured cement	Sqm	27.19	985.00	26,778.11	CMWSSB SOR, Pg no. 126, Item. No. 17
	<b>Painting Work</b>					
11	Painting two coats with approved cement paint over one coat of cement paint over cement plastered wall surface, ceiling including cleaning preparing the surface and curing, etc., complete					
	Internal area	Sqm	1208.90	183.00	221,228.70	CMWSSB SOR, Pg no. 102,
	External area	Sqm	609.20	183.00	111,483.60	Item.No.13.14
12	White washing two coats					
	Ceiling	Sqm	0	37.00	-	
	<b>Joineries</b>					

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
13	Supplying, fabricating and fixing in position of Alumi.Anod.natural colour matt finish door half glazed and half PLB board using 12 mm thick PLB board and 5.5 mm thick glazed door using rectangular Alu.Box section of size (Frame : Section 101.60 x 44.45 x 3.18 mm @ 2.399 Kg/m, Shutter : Top, Middle, Vertical style- 50 x 44.45 x 2.5mm @ 1.292 Kg/m, Bottom - 100 x 44.45 x 2.5mm @ 1.974 Kg/m) with necessary accessories such as rubber beading, Al. Clips, Best double action floor springs, Aluminium Handles on both sides, floor stopper,Tower bolt, Locks and glass including all materials,Labour, power consumption charges required for fabrication if necessary chipping, dismantling making necessary holes in RCC Coloums, Beams or Masonry wherever necessary with power drill to the extent required and made good to the original conditions after fixing etc.,complete. The Alumi. surface must be anodised with matt finish under electrically controlled condition in accordance with IS specification 1868 / 1962 of Anodic fil thickness of not less than 15 Microns (Fifteen) for all sections.All the materials should be got approved by the Site Engineer before fixing as directed.					
(i)	Aluminium Door Single Leaf Size 2.1 X 1.0 M	Sqm	6.30	8096.00	51,004.80	CMWSSB SOR, Pg no. 119, Item.No. 4
(ii)	Aluminium Door Single Leaf Size 2.1 X 0.8 M	Sqm	8.40	8096.00	68,006.40	
14	Supplying, fabricating and fixing in position of aluminium natural colour matt finish double leaf door half glazed and half PLB board using 12 mm thick PLB board and 5.5 mm thick glazed door using rectangular Aluminium box section of size (Frame : Section - 101.60 x 44.45 x 3.18 mm @ 2.399 Kg/m, Shutter : Top, Middle, Vertical style- 50 x 44.45 x 2.5mm @ 1.292 Kg/m, Bottom - 100 x 44.45 x 2.5mm @ 1.974 Kg/m) with necessary accessories such as rubber beading, aluminium clips, best double action Floor spring, handle on both sides, locks,Tower bolt and glass including all materials labour and power consumption charges required for fabrication if necessary chipping dismantling making necessary holes in RCC Coloums, Beams or Masonry wherever necessary with power drill to the extent required and made good to the,original conditions after fixing etc.complete. The Alumi. surface must be anodised with matt finish under electrically controlled condition in accordance with IS specification 1868 / 1962 of Anodic film thickness of not less than 15 Microns (Fifteen) for all sections.All the materials should be got approved by the Site Engineer before fixing as directed.					
	ALUMINIUM DOUBLE LEAF DOORS	Sqm	6.30	6940.00	43,722.00	CMWSSB SOR, Pg no. 120, Item.No.6
	Aluminium openable type window					

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
15	Manufacturing supplying and fixing in position Anodised Alu. Natural colour matt finish with openable type window with extruded Alu. Sections with two panels of size (Frame - 38 x 33 x 21 x 2.4mm @ 0.615 Kg/m, Shutter: Bottom, Top - 38.5 x 33 x 24.5 x 3 & 4mm @ 0.706 Kg/m, Interlocking vertical - 59 x 33 x 25 x 2.5mm @ 1.135 Kg/m) with necessary accessories such as rubber beadings best quality of lock handle hinges, stays and fixing 4 mm thick plain / frosted/ pin headed glass including cost of all materials labour for electrical consumption required for drilling holes in RCC columns, beams, masonry wherever necessary with power drill to the extent required and made good to the original conditions after fixing as directed by the Board officers. The Al.Surfaces is to be anodised with matt finish under electrically controlled condition in accordance with ISI 1868/1962 specification for an average anodic film thickness of not less than 15 microns. (All materials should be got approved by the Site Engineer before fixing in position).	Sqm	18.00	5053.00	90,954.00	CMWSSB SOR, Pg no. 123, Item.No.10
	<b>Louvered Ventilator</b>					
16	Supplying and fixing in position of aluminium anodised colour matt finish Louvered Ventilator. The outer frame will be 62x38x2mm @ 1.17 Kg / m and the louvers with moving arrangements will be made with Alu. Channel of size 60x30x4 mm @ 1.27 kg /m with necessary glass pans for louvers 4mm thick Al. Clips, including all materials, labour & power consumption charges required for fabrication if necessary chipping dismantling making holes in RCC columns,beams or masonry wherever necessary with power drill to the extent required and make good to the original conditions after fixing etc., complete. The Aluminium surface is to be anodised with matt finish under electrically controlled condition in accordance with ISI specification 1868/1962 of anodic film thickness of not less than 15 microns (fifteen) for all sections. All the materials should be got approved by the Site Engineer before fixing in position as directed.	Sqm	4.80	5718.00	27,446.40	CMWSSB SOR, Pg no. 124, Item.No.12
	<b>PLUMBING &amp; SANITARY WORKS</b>					
17	Supplying G.I. pipes and specials of the following sizes including cutting threading and jointing with necessary specials including carting the materials, fixing to wall with necessary clamps and screws, making holes in roof, repacking the same with necessary brick work and plastering wherever necessary with scaffolding, etc., complete for:					
	20 mm dia	m	100.00	334	33,400.00	CMWSSB SOR, Pg no. 47, Item.No.1.4
18	Supplying and fixing wheel valve of the following sizes					
	20 mm dia	Each	10.00	363	3,630.00	CMWSSB SOR, Pg no. 47, Item.No.2.5
19	Supplying and fixing gate valve of the following sizes					
	20 mm dia	Each	5.00	472	2,360.00	CMWSSB SOR, Pg no. 47, Item.No.4.5
20	Supplying and fixing G.I union of the following sizes					
	20 mm dia	Each	10.00	194	1,940.00	CMWSSB SOR, Pg no. 48, Item.No.7.5

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
21	Supplying and fixing C.P.Towel rails 45cm x 20mm	Each	6.00	564	3,384.00	CMWSSB SOR, Pg no. 48, Item.No.12
22	Supplying and fixing C.P.Screw dountap of size 20 mm dia	Each	4.00	362	1,448.00	CMWSSB SOR, Pg no. 48, Item.No.9.1
23	Supplying and fixing C.P. flush cock of size 20mm	Each	4.00	394	1,576.00	CMWSSB SOR, Pg no. 48, Item.No.14.2
24	Supplying and fixing chromium plated brass soap dish	Each	6.00	388	2,328.00	CMWSSB SOR, Pg no. 48, Item.No.15
25	Providing and fixing 75mm dia Nahini trap (floor trap) with brass gratings	Each	7.00	1015	7,105.00	CMWSSB SOR, Pg no. 50, Item.No.25
26	Supplying and fixing best mirror of size 60cm x 45cm of 6mm thick with plywood back including necessary fittings, etc., complete	Each	6.00	711	4,266.00	CMWSSB SOR, Pg no. 48, Item.No.16
27	Providing and fixing 15X10cm S.W.gully trap with C.I. gratings in B.J.concrete in C.M. 1:4:10 with silt pit diaphragm arrangements, etc., complete.	Each	1.00	3105	3,105.00	CMWSSB SOR, Pg no. 50, Item.No.24
28	Supplying and fixing flat back white glazed tipped or tongued urinals of 46.50x35.5x26.5cm with 32mm dia lead wastepipe with Bell mouth opening of 75cm long 15mm dia wheel valve with lead and brass connection, etc. complete	Each	2.00	2087	4,174.00	CMWSSB SOR, Pg no. 49, Item.No.19
29	Providing and fixing colour glazed European water closet with rose wood seatings (Black) low level flushing tank with fittings, etc., complete.	Each	4.00	4510	18,040.00	CMWSSB SOR, Pg no. 49, Item.No.22.2
30	Supplying and fixing 55cm x 40cm colour glazed wash basin with lead and brass connections, C.P. Pillar Tap and other fittings, etc., complete	Each	6.00	3954	23,724.00	CMWSSB SOR, Pg no. 48, Item.No.17.2
31	Construction of inspection chambers of following sizes with earth work excavation for foundation, 23cm thick concrete bed using 40mm brick jelly concrete in C.M. 1:4:10 for foundation, brick work in C.M. 1:6 for chamber, plastering with C.M. 1:3,12mm thick, benching, channelling, supplying and fixing 45 x 45 cm FRC cover and frame, etc., complete for					
	60 x 60 x 150 cm	Each	1.00	19389	19,389.00	CMWSSB SoR, Pg no. 51, Item. No. 38.1
32	Supply and delivery and fixing of HDPE tank as per IS 12701/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc.,					
	2000 litres	Each	1.00	16000	16,000.00	CMWSSB SoR, Pg no. 160, Item. No. 28 (iv)
<b>TOTAL OF OFFICE WORKS :</b>					<b>5,766,326.78</b>	
<b>VIII</b>	<b>Storm Water Drain</b>					
1	Excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m	Cum	344.00	233.86	80,447.84	

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
2	Cement concrete 1:2:4 using Crushed stone sand (M sand) and 20 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15cm thick including ramming curing, etc., complete	Cum	15.40	6089.00	93,770.60	
3	Supplying and fabricating <b>CRS/Thermo Mechanically Treated High Corrosion Resistance bars</b> manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786-2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10-32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	8349.60	83.00	693,016.80	
4	Providing formwork with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	Sqm	646.10	1146.00	740,430.60	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M 25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.	Cum	83.80	6658.00	557,940.40	
<b>TOTAL OF STORM WATER DRAIN :</b>					<b>2,165,606.24</b>	
<b>IX</b>	<b>BOUNDARY WALL</b>					
1	Earth work excavation in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders as per SS 20 B with initial lead of 10 m and lift of 2 m	Cum	266.30	233.86	62,276.92	
2	Supplying and filling sand for foundations and basement including watering, consolidating, ramming etc complete.	Cum	25.90	447.00	11,577.30	
3	Cement concrete 1:3:6 using 40 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc. complete.	Cum	19.40	5129.00	99,502.60	CMWSSB SoR, Pg no. 90, Item.No.4.5
4	Random Rubble masonry in C.M. 1:3 including curing etc complete	Cum	63.10	9634.00	607,905.40	CMWSSB SoR, Pg no. 97, Item.No.6.1
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete	Cum	76.90	9148.00	703,481.20	CMWSSB SoR, Pg no. 97, Item.No.6.2
6	Pointing to the RR masonry in cement mortar 1:3.	Sqm	716.70	270.00	193509.00	CMWSSB SoR, Pg no. 101, Item.No. 12.3
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc. complete for coping	Cum	15.10	6089.00	91943.90	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.	Sqm	65.90	325.00	21417.50	CMWSSB SoR, Pg no. 113, Item.No. 18.4

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE						
(CAPACITY: 3.5 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling holes in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.	m	142.00	485.00	68870.00	CMWSSB SoR, Pg no. 115, Item.No. 18.14
10	Band course work flat 10mm to 12mm thick and 50mm deep with C.M.1:3 including curing etc. complete as directed.	m	284.00	209.00	59356.00	CMWSSB SoR, Pg no. 113, Item.No. 18.5
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.	Cum	157.90	40.70	6426.53	
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.	kg	350.00	62.60	21910.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	kg	45.00	62.60	2817.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour two coats	Sqm	43.90	139.00	6102.10	CMWSSB SoR, Pg no. 104, Item.No. 15.13
<b>TOTAL OF BOUNDARY WALL :</b>				<b>1,957,095.45</b>		
<b>X</b>	<b>ROAD/PAVING WORKS</b>					
	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	Cum	100.20	226.38	22,683.28	CMWSSB SoR 2021-22, item no.1, pg no.131
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57 m3 of sand and 0.65 m3 of gravel including mixing, spreading, watering & consolidation by power roller	Sqm	500.80	175.40	87,840.32	CMWSSB SoR 2021-22, item no.5, pg no.131
	Rubber moulded hydraulic pressed paver block					
	83 mm thick	Sqm	500.80	547.00	273,937.60	
<b>TOTAL OF PAVING WORK :</b>				<b>384,461.20</b>		
<b>XI</b>	<b>GREEN COVER WORKS</b>					
1.1	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)					

**CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)**

ABSTRACT ESTIMATE									
(CAPACITY: 3.5 ML & STAGING: 17 m)									
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks			
	Holes 90 cm dia, and 90 cm deep	Each	39.00	143.10	5,580.90	DSR-20, Pg no.85, Item no. 2.14.2			
1.2	Supplying of Vermicompost of 5 kg pack for each pit	Each	39.00	37.50	1,462.50	TN Horticulture Dept. rate (Extra rate 25% considered for transporting & CPOH)			
1.3	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	21.90	36.55	800.45	DSR-20, Pg no.83, Item no.2.9			
1.4	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded)	Cum	21.90	18.25	399.68	DSR-20, Pg no.87, Item no.2.20			
2.1	Providing and stacking of Putranjiva roxburghii (Putranjeevi) of height 90-105 cm. in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.169, Item no.7.79			
2.2	Providing and stacking of Bauhinia tomentosa (yellow) (Iruvatchi) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.175, Item no.8.2			
2.3	Providing and stacking of Bauhinia purpurea (Mantharai) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	15.00	50.00	750.00	DSR-20, Pg no.161, Item no.7.8			
2.4	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	50.00	750.00	DSR-20, Pg no.169, Item no.7.73			
2.5	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	65.00	975.00	DSR-20, Pg no.161, Item no.7.5			
<b>TOTAL OF GREEN COVER :</b>					<b>12,068.52</b>				
<b>XII</b>	<b>RAIN WATER HARVESTING</b>								
1	Construction of Rain water Harvesting Structure at the WDS premises	LS	1.00	21,000.00	21,000.00				
<b>TOTAL OF RAIN WATER HARVESTING :</b>					<b>21,000.00</b>				
		<b>GRAND TOTAL (VII+VIII+IX+X+XI+XII) Rs.</b>			<b>10,306,558.18</b>				
		<b>TOTAL COST FOR PROPOSED 3.5 ML OHT (1 nos)</b>			<b>86,599,355.00</b>				
<b>Note:</b>									
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022								

CONSTRUCTION OF OHT AT ASHOK NAGAR IN ZONE - X (3.5 ML)						
Basic Data						
Clear size of tank	34.60	x	21.60	m		
Staging Height	17.00	m				
Depth of water	5.00	m				
Thickness of wall @ bottom	0.60	m				
Thickness of wall @ top	0.30	m				
Total depth of wall	5.75	m				
Thickness of roof slab	0.20	m				
Size of roof beams	0.00	x	0.00	m		
Thickness of floor slab	0.40	m				
Size of floor beams	0.45	x	0.85	m		
Size of floor beams (below wall)	0.75	x	1.00	m		
Platform width	1.50	m				
Thickness of platform slab	0.15					
Column size - C1	0.80	x	0.50	m		
No. of columns	20	Nos				
Column size - C2	0.80	x	0.80	m		
Column cap @ roof slab	1.50	x	1.50	x	0.25	m
No. of columns	15	Nos	7	x	5	
Column size - C3	0.40	x	0.40	m		
No. of columns	15	Nos	5	x	3	
Size of bracing beam	0.45	x	0.60	m		
Bracing beam c/c distance	4.25	m				
Size of plinth beam	0.45	x	0.60	m		
Column size (for stair case) - C4	0.35	x	0.35	m		
No. of columns	4	Nos				
Staircase tie beams	0.30	x	0.45	m		
Size of STAIR CASE well	4.25	x	3.55	m		
Waist slab thickness	0.175	m				
Steps raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0	m				
Founding level	-1.70	m				
Staging level	17.00	m				
Top of tank level	22.95	m				
Pile cap	PC					
PC-1 size	2.40	x	2.40	x	0.80	m
Nos	35	Nos				
PC-2 size	0.90	x	2.40	x	0.80	m
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m	dia			
Depth of pile	20.00	m				
No. of pile	148	Nos				
Pile cap connecting beam	0.45	x	0.60			
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
	<b>Excavation works</b>									
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.									
a)	0 to -2 m Lvl									
	Pile cap PC-1	1	x	35	2.90	2.90	2.00	588.70		
	Pile cap PC-2	1	x	4	1.40	2.90	2.00	32.48		
	Plinth beam (1-7)	1	x	5	28.10	1.10	0.70	108.19		
	Plinth beam (A-E)	1	x	7	17.40	1.10	0.70	93.79		
	Staircase plinth beam	1	x	2	1.85	1.10	0.70	2.85		
	Staircase plinth beam	1	x	2	1.15	1.10	0.70	1.77		
								827.77	<b>827.80</b>	cum
b)	-2 to -3 m Lvl									
	Pile cap PC-1	1	x	35	2.90	2.90	0.60	176.61		
	Pile cap PC-2	1	x	4	1.40	2.90	0.60	9.74		
								186.35	<b>186.40</b>	cum



Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	15	0.80	0.80	4.50	43.20	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 8.50 m lvl								
	Grid 1-9	1	x	7	29.80	0.45	0.60	56.32	
	Grid A-D	1	x	2	18.40	0.45	0.60	9.94	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 6.375 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								156.46	<b>156.50</b> cum
e)	<u>9.0 m to 13.5 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	15	0.80	0.80	4.50	43.20	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 12.75 m lvl								
	Grid 1-9	1	x	7	29.80	0.45	0.60	56.32	
	Grid A-D	1	x	2	18.40	0.45	0.60	9.94	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 10.625 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								156.46	<b>156.50</b> cum
f)	<u>13.5 m to 18.0 m</u>								
	Column C-1	1	x	20	0.80	0.50	2.65	21.20	
	Column C-2	1	x	15	0.80	0.80	2.65	25.44	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bottom slab	1	x	1	34.60	21.60	0.40	298.94	
	walkway platform	1	x	2	36.10	1.50	0.15	16.25	
		1	x	2	23.10	1.50	0.15	10.40	
	Kerb wall around platform	1	x	2	36.10	0.10	0.15	1.08	
		1	x	2	23.10	0.10	0.15	0.69	
	Column C-3	1	x	15	0.40	0.40	1.00	2.40	
	Tank wall	1	x	2	35.40	0.55	1.00	38.94	
		1	x	2	22.40	0.55	1.00	24.64	
	Bottom slab beam @ 17.00 m lvl								
	Grid 1-9	1	x	2	29.80	0.45	0.85	22.80	
	Grid A-D	1	x	7	18.40	0.45	0.85	49.27	
	Beam under wall b/w grid 1-9	1	x	2	29.80	0.75	1.00	44.70	
	Beam under wall b/w grid A-D	1	x	2	18.40	0.75	1.00	27.60	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 14.875 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								595.34	<b>595.30</b> cum
g)	<u>18.0 m to 22.5 m</u>								
	Column C-3	1	x	15	0.40	0.40	4.50	10.80	
	Tank wall upto 20.0 m lvl	1	x	2	35.40	0.40	2.00	56.64	
		1	x	2	22.40	0.40	2.00	35.84	
	Tank wall from 20.0 to 22.5 m lvl	1	x	2	35.40	0.30	2.50	53.10	
		1	x	2	22.40	0.30	2.50	33.60	
	Stair case column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Staircase bracing beam @ 21.25 m	1	x	2	3.90	0.30	0.45	1.05	
		1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 19.125 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								200.98	<b>201.00</b> cum
h)	<u>22.5 m to 22.95 m</u>								
	Column C-3	1	x	15	0.40	0.40	0.25	0.60	
	Tank wall from 22.5 to 23.0 m lvl	1	x	2	35.40	0.30	0.25	5.31	
		1	x	2	22.40	0.30	0.25	3.36	
	Roof slab	1	x	1	36.00	23.00	0.20	165.60	



Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Grid 1-9	2	x	7	29.80		0.60	250.32	
		1	x	7	29.80		0.45	93.87	
	Grid A-D	2	x	2	18.40		0.60	44.16	
		1	x	2	18.40		0.45	16.56	
	Staircase bracing beam	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
	landing slab	1	x	1	3.55		1.50	5.33	
							545.30	<b>545.30</b>	Sqm
e)	<u>5.0 m to 6.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
							105.60	<b>105.60</b>	Sqm
e)	<u>6.0 m to 7.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 6.375 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							118.61	<b>118.60</b>	Sqm
f)	<u>7.0 m to 8.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							118.03	<b>118.00</b>	Sqm
g)	<u>8.0 m to 9.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	<u>Bracing beam @ 8.5 m lvl</u>								
	Grid 1-9	2	x	7	29.80		0.60	250.32	
		1	x	7	29.80		0.45	93.87	
	Grid A-D	2	x	2	18.40		0.60	44.16	
		1	x	2	18.40		0.45	16.56	
	Staircase bracing beam	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							532.88	<b>532.90</b>	Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							118.03	<b>118.00</b>	Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 10.625 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							118.61	<b>118.60</b>	Sqm
j)	<u>11.0 m to 12.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							118.03	<b>118.00</b>	Sqm
k)	<u>12.0 m to 13.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 12.75 m lvl								
	Grid 1-9	2	x	7	29.80		0.60	250.32	
		1	x	7	29.80		0.45	93.87	
	Grid A-D	2	x	2	18.40		0.60	44.16	
		1	x	2	18.40		0.45	16.56	
	Staircase bracing beam	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							532.88	<b>532.90</b>	Sqm
l)	<u>13.0 m to 14.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							118.03	<b>118.00</b>	Sqm
m)	<u>14.0 m to 15.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 14.875 m	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	landing slab	1	x	1	3.55		1.50	5.33	
							120.29	<b>120.30</b>	Sqm
n)	<u>15.0 m to 16.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							118.03	<b>118.00</b>	Sqm
o)	<u>16.0 m to 17.0 m</u>								
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Bottom slab	1	x	1	34.60		21.60	747.36	
	walkway platform	1	x	2	36.10		1.50	108.30	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		1	x	2	23.10		1.50	69.30	
	Floor beam @ 17.0 m lvl								
	Grid 1-7	2	x	2	29.80		0.85	101.32	
		1	x	2	29.80		0.45	26.82	
	Grid A-E	2	x	7	18.40		0.85	218.96	
		1	x	7	18.40		0.45	57.96	
	Beam under wall b/w grid 1-7	2	x	2	29.80		1.00	119.20	
		1	x	2	29.80		0.75	44.70	
	Beam under wall b/w grid A-E	2	x	2	18.40		1.00	73.60	
		1	x	2	18.40		0.75	27.60	
	Staircase bracing beam	2	x	2	3.90		0.60	9.36	
		1	x	2	3.90		0.45	3.51	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								1726.60	<b>1726.60</b>
									Sqm
o)	<u>17.0 m to 18.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	
		2	x	2	22.40		1.00	89.60	
	Kerb wall around platform	2	x	2	36.10		0.15	21.66	
		2	x	2	23.10		0.15	13.86	
								296.32	<b>296.30</b>
									Sqm
p)	<u>18.0 m to 19.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	
		2	x	2	22.40		1.00	89.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
								273.23	<b>273.20</b>
									Sqm
q)	<u>19.0 m to 20.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	
		2	x	2	22.40		1.00	89.60	
	Staircase landing beam @ 19.125 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								273.81	<b>273.80</b>
									Sqm
r)	<u>20.0 m to 21.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	
		2	x	2	22.40		1.00	89.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
								273.23	<b>273.20</b>
									Sqm
s)	<u>21.0 m to 22.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	
		2	x	2	22.40		1.00	89.60	
	Staircase bracing beam @ 21.25 m	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
		2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								283.17	<b>283.20</b>
									Sqm
t)	<u>22.0 m to 23.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	35.40		1.00	141.60	

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
		2	x	2	22.40		1.00	89.60		
	waist slab	1	x	1	4.75		1.78	8.43		
	Steps	1	x	15	1.78		0.15	3.99		
	Staircase landing beam @ 23.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	5.55		1.50	8.33		
	Roof slab	1	x	1	36.00		23.00	828.00		
	Column cap	1	x	15	6.00		0.25	22.50		
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44		
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60		
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88		
	Kerb wall around roof slab	2	x	2	36.00		0.15	21.60		
		2	x	2	23.00		0.15	13.80		
								1195.05	<b>1195.10</b>	Sqm
									<b>7446.80</b>	
	<b>Reinforcement Steel</b>									
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings									
	125 kg per cum	1	x	1				216.10		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1				10.81		
								226.91	<b>226.90</b>	MT
	For pile foundation									
	130 kg per cum	1	x	1				108.80		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1				5.44		
								114.24	<b>114.20</b>	MT
	<b>Piling works</b>									
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.									
	600 mm dia piles	1	x	148	20.00			2960.00		
								2960.00	<b>2960.00</b>	meters
9	Vertical load Test									
	Single pile above 50 tonne Safe capacity	2	x					2.00		No.
10	Horizontal load Test	1	x					1.00		No.
11	Pull out Test	1	x					1.00		No.
	<b>Finishing works</b>									
12	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.									
	Bottom slab	1	x					747.36		
	Walkway platform	1	x					177.60		
	Staircase waist slab	1	x					84.34		
	Landing slab	1	x					61.58		
								1070.88	<b>1070.90</b>	Sqm.

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete								
	External plastering	1	x				5539.49	<b>5539.50</b>	Sqm.
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x				747.36	<b>747.40</b>	Sqm.
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x				2278.56	<b>2278.60</b>	Sqm.
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab for 80 mm thick	1	x	36.00	23.00	0.08	66.24	<b>66.20</b>	cum
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x	36.00		23.00	828.00	<b>828.00</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.								
	Precast Concrete jolly	1	x	16	1.20	0.60		11.52	
	Precast Concrete slab	1	x	4	2.10	2.10		17.64	
							29.16	<b>29.20</b>	Sqm
19	Colour washing two coats over one coat of white washing.								
	All external surfaces	1	x	1			5539.49	<b>5539.50</b>	Sqm.
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures								
	Vertical surface	1	x	1			1531.20		
	Horizontal surface	1	x	1			747.36		
							2278.56	<b>2278.60</b>	Sqm.
	<b>Miscellaneous works</b>								
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	1			1.00		
22	Supplying and fixing lightning arrestor	1	x	1			1.00		
23	Providing and fixing level indicator	1	x	1			1.00		
24	Providing and fixing Hand rails with MS tube								
	walkway platform								
	Horizontal top pipe 50 mm dia	2	x	1	37.60		5.44	409.09	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India
		2	x	1	24.60		5.44	267.65	
	Horizontal 20 mm square rod	4	x	57	0.60		3.14	428.39	Weight 3.14 kg/m
		4	x	37	0.60		3.14	277.67	
	Vertical 20 mm square rod	4	x	58	0.85		3.14	617.57	
		4	x	38	0.85		3.14	404.05	
	Insert plate 5 mm thick	2	x	58	0.15	0.10	0.005	68.11	7850 kg/m3
		2	x	38	0.15	0.10	0.005	44.56	
	Roof slab								
	Horizontal top pipe 50 mm dia	2	x	1	36.00		5.44	391.68	
		2	x	1	23.00		5.44	250.24	
	Vertical 20 mm square rod	4	x	55	0.60		3.14	417.38	
		4	x	35	0.60		3.14	266.66	
	Horizontal 20 mm square rod	4	x	54	0.60		3.14	409.84	
		4	x	34	0.60		3.14	259.12	
	Insert plate 5 mm thick	2	x	55	0.15	0.10	0.005	65.22	
		2	x	35	0.15	0.10	0.005	41.67	
	Staircase								
	Horizontal top pipe 50 mm dia	2	x	11	9.80		5.44	1173.06	
	Vertical 20 mm square rod	44	x	15	1.00		3.14	2083.38	
	Horizontal 20 mm square rod	44	x	14	0.60		3.14	1167.13	
	Insert plate 5 mm thick	332	x	15	0.15	0.10	0.005	2945.27	
							11987.73	<b>11987.70</b>	Kg

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.								
		1	x	20	25.00		500.00	<b>500.00</b>	Mtr.
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.		1	x	1	9.00		9.00	<b>9.00</b>
									Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	2	35.40		141.60		
		2	x	2	22.40		89.60		
							231.20	<b>231.20</b>	Mtr.
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10								
	Inlet pipe 400 dia	1	x	1	30.00		30.00		
	Over flow pipe 400 dia	1	x	1	30.00		30.00		
							60.00	<b>60.00</b>	Mtr.
	Outlet pipe 600 dia	1	x	1	24.00		24.00		
							24.00	<b>24.00</b>	Mtr.
	Scour pipe 350 dia	1	x	1	24.00		24.00		
							24.00	<b>24.00</b>	Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection								
	350 mm dia	1	x	1	24.00		147.31	147.31	Weight per mtr arrived as per online data
	400 mm dia	1	x	2	30.00		179.64	359.27	
	600 mm dia	1	x	1	24.00		338.51	338.51	
							845.09	<b>845.10</b>	Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000								
	Inlet pipe 400 dia								
	Bend 90	1	x	1	128		128.00		
	Over flow pipe 400 dia							256.00	<b>256.00</b>
	Bend 90	1	x	1	128		128.00		
							256.00	<b>256.00</b>	Kg
	Outlet pipe 600 dia								
	Bend 90	1	x	1	325		325.00		
	Bend 45	1	x	2	263		526.00		
							851.00	<b>851.00</b>	Kg
	Scour pipe 350 dia								
	Bend 90	1	x	1	97.0		97.00		
							97.00	<b>97.00</b>	Kg
27	DI Sluice valve								
	350 mm	1	x	1			1.00		Each
28	DI Butterfly valve								
	400 mm	1	x	2			2.00		Each
	600 mm	1	x	1			1.00		Each
29	Concrete of thrust blocks for pipe support								
	350 mm								
	90 Bend	1	x	1			1.00		Each
	400 mm								
	90 Bend	1	x	2			2.00		Each
	600 mm								
	90 Bend	1	x	1			1.00		Each

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	45 Bend	1	x	2			2.00		Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	16			16.00		Each
	<b>Office work under OHT</b>								
	<b>Concrete work</b>								
	RCC slab	1	x	1	17.30	21.60	0.15	56.05	
	Grade slab	1	x	1	17.30	21.60	0.15	56.05	
	Lintel	1	x	3	15.80	0.23	0.30	3.27	
		1	x	2	19.80	0.23	0.30	2.73	
	Sunshade	1	x	12	1.80	0.60	0.10	1.30	
							119.40	<b>119.40</b>	Cum
	<b>Shuttering work</b>								
	RCC slab	1	x	1	17.30		21.60	373.68	
	Lintel	2	x	3	15.80		0.30	28.44	
		1	x	3	15.80		0.23	10.90	
		2	x	2	19.80		0.30	23.76	
		1	x	2	19.80		0.23	9.11	
	Sunshade	1	x	12	1.80		0.60	12.96	
							458.85	<b>458.90</b>	Sqm
	Reinforcement steel @ 90 kg/cum	1	x	1	10746.27			10746.27	
							10746.27	<b>10746.30</b>	Kg
	<b>Masonry work</b>								
	Grid A,B,E b/w 4-7	1	x	3	15.80	0.23	3.65	39.79	
	Grid 4,7 b/w A-E	1	x	2	19.80	0.23	3.65	33.24	
	Grid 5,6 b/w A-B	1	x	2	4.50	0.23	3.65	7.56	
	Deduction								
	Door-D1	-1	x	2	1.50	0.23	2.10	<b>1.45</b>	
	Door-D2	-1	x	3	1.00	0.23	2.10	<b>1.45</b>	
	Door-D3	-1	x	0	0.80	0.23	2.10	0.00	
	Window-W1	-1	x	11	1.50	0.23	1.20	<b>4.55</b>	
	Ventilator-V	-1	x	0	1.50	0.23	0.90	0.00	
	Ventilator-V1	-1	x	6	1.00	0.23	0.80	<b>1.10</b>	
	<b>Total</b>						72.04	<b>72.00</b>	Cum
	Office room Toilet partition wall	1	x	1	4.50	0.115	3.65	1.89	
	Male toilet wall	1	x	1	2.95	0.115	3.65	1.24	
		1	x	1	3.00	0.115	3.65	1.26	
		1	x	1	5.30	0.115	3.65	2.22	
	Female toilet wall	1	x	1	2.80	0.115	3.65	1.18	
		1	x	1	3.10	0.115	3.65	1.30	
	Deduction								
	Door-D3	-1	x	5	0.80	0.12	2.10	<b>0.97</b>	
	<b>Total</b>						8.12	<b>8.10</b>	Cum
	<b>Internal Plastering</b>								
	Grid A,B,E b/w 4-7	4	x	3	15.80		3.65	692.04	
	Grid 4,7 b/w A-E	2	x	2	19.80		3.65	289.08	
	Grid 5,6 b/w A-B	4	x	2	4.50		3.65	131.40	
	Office room Toilet partition wall	2	x	1	4.50		3.65	32.85	
	Male toilet wall	2	x	1	2.95		3.65	21.54	
		2	x	1	3.00		3.65	21.90	
		2	x	1	5.30		3.65	38.69	
	Female toilet wall	2	x	1	2.80		3.65	20.44	
		2	x	1	3.10		3.65	22.63	
	Deduction								
	Door-D1	-1.5	x	2	1.50		2.10	<b>9.45</b>	
	Door-D2	-2	x	3	1.00		2.10	<b>12.60</b>	
	Door-D3	-2	x	5	0.80		2.10	<b>16.80</b>	
	Window-W1	-1	x	10	1.50		1.20	<b>18.00</b>	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Ventilator-V	-1	x	0	1.50		0.90	0.00	
	Ventilator-V1	-1	x	6	1.00		0.80	4.80	
	<b>Total</b>						1208.90	<b>1208.90</b>	Sqm
	<b>External Plastering</b>								
	Grid A,B,E b/w 4-7	2	x	3	15.80		3.65	346.02	
	Grid 4,7 b/w A-E	2	x	2	19.80		3.65	289.08	
	Deduction								
	Door-D1	-1	x	1	1.50		2.10	3.15	
	Door-D2	-1	x	0	1.00		2.10	0.00	
	Door-D3	-1	x	0	0.80		2.10	0.00	
	Window-W1	-1	x	10	1.50		1.20	18.00	
	Ventilator-V	-1	x	0	1.50		0.90	0.00	
	Ventilator-V1	-1	x	6	1.00		0.80	4.80	
	<b>Total</b>						609.20	<b>609.20</b>	Sqm.
	<b>Flooring work</b>								
	Office area	1	x	1	17.12		15.97	273.41	
	Utility room	1	x	1	5.47		4.97	27.19	
	Office room	1	x	1	5.47		4.97	27.19	
	Toilet floor	1	x	1	5.90		4.97	29.32	
	<b>Total</b>						357.10	<b>357.10</b>	Sqm.
	<b>Joinerries</b>								
	Door-D1	1	x	2	1.50		2.10	6.30	
	Door-D2	1	x	3	1.00		2.10	6.30	
	Door-D3	1	x	5	0.80		2.10	8.40	
	Window-W1	1	x	10	1.50		1.20	18.00	
	Ventilator-V	1	x	0	1.50		0.90	0.00	
	Ventilator-V1	1	x	6	1.00		0.80	4.80	
	<b>Total</b>						43.80	<b>43.80</b>	Sqm.
	<b>Storm Water Drain</b>								
	Excavation	1	x	1	142.00	1.90	1.28	344.00	<b>344.00</b>
	PCC M10	1	x	1	142.00	1.45	0.08	15.44	<b>15.40</b>
	Shuttering works BGL								
	for PCC	1	x	2	142.00		0.08	21.30	
	for base slab	1	x	2	142.00		0.20	56.80	
	for wall inner	1	x	2	142.00		1.00	284.00	
	for wall outer	1	x	2	142.00		1.00	284.00	
							646.10	<b>646.10</b>	Sqm
	Reinforcement								
	for base slab	1	x	1	36.92		90.00	3322.80	
	For Wall	1	x	1	42.60		110.00	4686.00	
	Cover slab	1	x	1	4.26		80.00	340.80	
							8349.60	<b>8349.60</b>	kg
	RCC Concrete M25								
	For base slab	1	x	1	142.00	1.30	0.20	36.92	
	For Wall	1	x	2	142.00	1.00	0.15	42.6	
	Cover slab	1	x	1	142.00	0.60	0.05	4.26	
							83.78	<b>83.80</b>	cum
	<b>Boundary Wall</b>								
1.	Earth work excavation and depositing on bank with initial leadof 10m and lift of 2m in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed stoney earth and earth mixed stoney earth and earth mixed with small sizes boulders andwith small sizes boulders andhard gravelly soil as per SS 20 B	1	x	1	142.00	1.50	1.25	266.25	<b>266.30</b>
2	Supplying and filling with sand for foundation and basement ramming etc complete.								
	For walls	1	x	1	56.80	0.90	0.20	10.22	
	For Pillars	1	x	95	0.90	0.90	0.20	15.34	



Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.									
	Earthwork quantity	1	x	1				266.25		
	Deduct below GL Elements	1	x	1				-108.39		
								157.86	157.90	cu.m
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.								considered 87.5 kg/m	
		1	x	4			87.50	350.00	350.00	kg
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	1	x	1	45.00			45.00	45.00	kg
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour.  New Iron work two coats.					coeff				
	Main gate	1	x	3	2.00	2.25	2.50	33.75		
	Wicket gate	1	x	3	0.75	2.25	2.00	10.13		
								43.88	43.90	sq.m
<b>Road/Paving Work</b>										
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)									
		1.00	x	1.00	40.00	5.80	0.20	46.40		
		1.00	x	1.00	40.00	3.00	0.20	24.00		
		1.00	x	1.00	31.00	2.40	0.20	14.88		
		1.00	x	1.00	31.00	2.40	0.20	14.88		
								100.16	100.20	Cum
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100 mm using 0.57m <sup>3</sup> of sand and 0.65m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller									
		1.00	x	1.00	40.00	5.80		232.00		
		1.00	x	1.00	40.00	3.00		120.00		
		1.00	x	1.00	31.00	2.40		74.40		
		1.00	x	1.00	31.00	2.40		74.40		
								500.80	500.80	Sqm
	Rubber moulded hydraulic pressed paver block	1.00	x	1.00				500.80	500.80	Sqm
<b>GREEN COVER</b>										
1.	Earth work excavation in manually for planting pits of size 2'6"x2'6"x3'0" along the boundary wall as per GCC circular (Length of boundary wall 142 m, distance b/w the plant is 5 m & 10 extra considered)	1.00	x	39.00				39.00	39.00	Each
2	Vermicompost of 5 kg pack for each pit	1.00	x	39.00				39.00	39.00	Each
3	Backfilling of excavated earth	1.00	x	39.00	0.75	0.75	1.00	21.94	21.90	Cum

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
I	<b>EARTHWORK</b>					
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
	a) 0-2 m	Cum	846.00	233.86	197,845.56	
	b) 2 - 3 m	Cum	0.00	245.08	-	
	c) 3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
	a) 0-2 m	Cum	0.00	483.56	-	
	b) 2 - 3 m	Cum	0.00	492.47	-	
	c) 3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	710.00	40.70	28,897.00	
4	Disposal of Surplus earth	Cum	322.30	140.75	45,363.73	
	<b>TOTAL OF EARTHWORKS :</b>				<b>272,106.29</b>	
II	<b>CONCRETE AND ALLIED WORKS</b>					
	<b>Plain Cement Concrete</b>					
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
	0 m to 1.5 m below G.L.	Cum	19.10	6089.00	116,299.90	
	<b>Reinforced Cement Concrete</b>					
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	0 to -1.5m ( below ground)					
6.1	Pile cap and beam	Cum	106.60	6981.87	744,267.34	
	Above ground					
6.2	0 to 4.5 m	Cum	160.00	6983.63	1,117,380.80	
6.3	4.5 to 9.0 m	Cum	160.00	7207.48	1,153,196.80	
6.4	9.0 to 13.5 m	Cum	160.00	7431.33	1,189,012.80	
6.5	13.5 to 18.0 m	Cum	667.80	7655.18	5,112,129.20	
6.6	18.0 to 22.5m	Cum	213.40	7879.03	1,681,385.00	
6.7	22.5 to 23.2 m	Cum	219.20	8102.88	1,776,151.30	
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	For pile cap & beams etc.,	sq m	511.60	1146.00	586,293.60	
	Above ground level					
7.2	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	355.60	1247.00	443,433.20	
7.3	3.0 m to 4.0 m	sq m	105.60	1281.00	135,273.60	
7.4	4.0 m to 5.0 m	sq m	566.80	1315.00	745,342.00	
7.5	5.0 m to 6.0 m	sq m	105.60	1349.00	142,454.40	
7.6	6.0 m to 7.0 m	sq m	118.60	1383.00	164,023.80	
7.7	7.0 m to 8.0 m	sq m	118.00	1417.00	167,206.00	
7.8	8.0 m to 9.0 m	sq m	554.30	1451.00	804,289.30	

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
7.9	9.0 m to 10.0 m	sq m	118.00	1485.00	175,230.00	
7.10	10.0 m to 11.0 m	sq m	118.60	1519.00	180,153.40	
7.11	11.0 m to 12.0 m	sq m	118.00	1553.00	183,254.00	
7.12	12.0 m to 13.0 m	sq m	554.30	1587.00	879,674.10	
7.13	13.0 m to 14.0 m	sq m	118.00	1621.00	191,278.00	
7.14	14.0 m to 15.0 m	sq m	120.30	1655.00	199,096.50	
7.15	15.0 m to 16.0 m	sq m	118.00	1689.00	199,302.00	
7.16	16.0 m to 17.0 m	sq m	1938.40	1723.00	3,339,863.20	
7.17	17.0 m to 18.0 m	sq m	314.70	1757.00	552,927.90	
7.18	18.0 m to 19.0 m	sq m	289.20	1791.00	517,957.20	
7.19	19.0 m to 20.0 m	sq m	289.80	1825.00	528,885.00	
7.20	20.0 m to 21.0 m	sq m	289.20	1859.00	537,622.80	
7.21	21.0 m to 22.0 m	sq m	299.20	1893.00	566,385.60	
7.22	22.0 m to 23.0 m	sq m	1347.50	1927.00	2,596,632.50	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	244.00	83000.00	20,252,000.00	
	<b>TOTAL OF CONCRETE WORKS :</b>					<b>46,978,401.24</b>
<b>III</b>	<b>PILING WORKS</b>					
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	2960.00	4514.40	13,362,624.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	2	30505.00	61,010.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	114.20	83000.00	9,478,600.00	
	<b>TOTAL OF PILING WORKS :</b>					<b>22,990,671.65</b>

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
IV	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
12	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	3378.80	146.00	493,304.80	
13	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	1211.30	255.00	308,881.50	
	<b>Painting and protective coatings:</b>					
14	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after thoroughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	5776.00	203.00	1,172,528.00	
15	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	2503.00	198.40	496,595.20	
	<b>Terrace Works:</b>					
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	77.00	3778.00	290,906.00	
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	962.00	1503.00	1,445,886.00	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>4,208,101.50</b>	
V	<b>MISCELLANEOUS WORKS</b>					
18	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embeded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
19	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	29.20	1688.00	49,289.60	
20	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
21	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	1.00	3925.00	3,925.00	
22	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	12294.10	157.15	1,932,017.82	
23	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	500.00	981.00	490,500.00	

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
24	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	9.00	1869.00	16,821.00	
25	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	247.20	285.60	70,600.32	
26	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowl.	Each	16.00	2069.50	33,112.00	
27	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	4.0 ML OHT	LS	1.00	337855.40	337,855.40	
<b>TOTAL OF MISCELLANEOUS WORKS :</b>					<b>2,963,127.00</b>	
VI	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	350 mm (Scour Pipe)	mts	24.00	7473.75	179,370.00	
b)	400 mm (Inlet & Overflow pipe)	mts	60.00	9571.75	574,305.00	
c)	600 mm (Outet pipe)	mts	24.00	17541.00	420,984.00	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
0 to 2 m		Qty	16.90	226.50	3,828.30	
2 to 4 m		Qty	16.90	341.10	5,765.27	
4 to 6 m		Qty	16.90	535.00	9,042.57	
6 to 8 m		Qty	16.90	739.90	12,505.79	
8 to 10 m		Qty	16.90	944.80	15,969.01	
10 to 12 m		Qty	16.90	1147.00	19,386.59	
12 to 14 m		Qty	16.90	1357.10	22,937.70	
14 to 16 m		Qty	16.90	1545.90	26,128.80	
16 to 18 m		Qty	12.04	1750.40	21,081.18	
18 to 20 m		Qty	7.19	1955.10	14,048.28	
20 to 22 m		Qty	7.19	2154.80	15,483.22	
22 to 24 m		Qty	3.59	2356.60	8,466.62	
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends,Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers.required for the following pipes.					
a)	350 mm (Scour Pipe)	kgs	97.00	134.00	12,998.00	
b)	400 mm (Inlet & Overflow pipe)	kgs	256.00	134.00	34,304.00	
c)	600 mm (Outet pipe)	kgs	851.00	134.00	114,034.00	
31	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
a)	350 mm bend (Scour Pipe)	Each	1.00	1278.00	1,278.00	
b)	400 mm bend (Inlet & Overflow pipe)	Each	2.00	1443.00	2,886.00	

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
c)	600 mm bend (Outlet pipe)	Each	3.00	3086.00	9,258.00	
32	Supply and delivery of DI D / F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves / Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100 % leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	350 mm (on Scour Pipe)	Nos	1.00	206448.00	206,448.00	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	400 mm (Inlet & Overflow pipe)	Nos	2.00	178093	356,186.00	
b)	600 mm (Outlet pipe)	Nos	1.00	258694	258,694.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					
a)	350 mm (on Scour Pipe)	Each	1.00	4472.00	4,472.00	
b)	400 mm (Inlet & Overflow pipe)	Each	2.00	5591.00	11,182.00	
c)	600 mm (Outlet pipe)	Each	1.00	25428.00	25,428.00	
35	Construction of RCC chamber for 300mm to 400mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	3.00	63000.00	189,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	1.00	136000.00	136,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete					
	350 mm 90 bend	Each	1.00	5772	5,772.00	
	400 mm 90 bend	Each	2.00	11990	23,980.00	
	450 mm 45 bend	Each	2.00	6657	13,314.00	
	600 mm 90 bend	Each	1.00	18291	18,291.00	
<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>						<b>2,772,827.35</b>
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>				<b>80,185,235.03</b>	
	<b>TOTAL COST FOR PROPOSED 4.0 ML OHT (1 nos)</b>				<b>80,185,236.00</b>	
VII	Storm Water Drain					
1	Excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m	Cum	373.10	233.86	87,253.17	

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
2	Cement concrete 1:2:4 using Crushed stone sand (M sand) and 20 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15cm thick including ramming curing, etc., complete	Cum	16.70	6089.00	101,686.30	
3	Supplying and fabricating <b>CRS/Thermo Mechanically Treated High Corrosion Resistance bars</b> manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786-2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10-32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	9055.20	83.00	751,581.60	
4	Providing formwork with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	Sqm	700.70	1146.00	803,002.20	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M 25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.	Cum	90.90	6658.00	605,212.20	
<b>TOTAL OF STORM WATER DRAIN :</b>					<b>2,348,735.47</b>	
VIII	<b>BOUNDARY WALL</b>					
1	Earth work excavation in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders as per SS 20 B with initial lead of 10 m and lift of 2 m	Cum	288.80	233.86	67,538.77	
2	Supplying and filling sand for foundations and basement including watering, consolidating, ramming etc complete.	Cum	28.00	447.00	12,516.00	
3	Cement concrete 1:3:6 using 40 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc. complete.	Cum	21.00	5129.00	107,709.00	CMWSSB SoR, Pg no. 90, Item. No.4.5
4	Random Rubble masonry in C.M. 1:3 including curing etc complete	Cum	68.40	9634.00	658965.60	CMWSSB SoR, Pg no. 97, Item. No.6.1
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete	Cum	83.20	9148.00	761113.60	CMWSSB SoR, Pg no. 97, Item. No.6.2
6	Pointing to the RR masonry in cement mortar 1:3.	Sqm	776.70	270.00	209709.00	CMWSSB SoR, Pg no. 101, Item.No. 12.3
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc. complete for coping	Cum	16.40	6089.00	99859.60	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.	Sqm	71.40	325.00	23205.00	CMWSSB SoR, Pg no. 113, Item.No. 18.4

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling holes in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.	m	154.00	485.00	74690.00	CMWSSB SoR, Pg no. 115, Item.No. 18.14
10	Band course work flat 10mm to 12mm thick and 50mm deep with C.M.1:3 including curing etc. complete as directed.	m	308.00	209.00	64372.00	CMWSSB SoR, Pg no. 113, Item.No. 18.5
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.	Cum	171.30	40.70	6971.91	
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.	kg	350.00	62.60	21910.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	kg	45.00	62.60	2817.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour two coats	Sqm	43.90	139.00	6102.10	CMWSSB SoR, Pg no. 104, Item.No. 15.13
TOTAL OF BOUNDARY WALL :					2,117,479.58	
IX	ROAD/PAVING WORKS					
	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	Cum	123.90	226.38	28,048.48	CMWSSB SoR 2021-22, item no.1, pg no.131
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57 m3 of sand and 0.65 m3 of gravel including mixing, spreading, watering & consolidation by power roller	Sqm	619.40	175.40	108,642.76	CMWSSB SoR 2021-22, item no.5, pg no.131
	Rubber moulded hydraulic pressed paver block					
	83 mm thick	Sqm	619.40	547.00	338,811.80	
TOTAL OF PAVING WORK :					475,503.04	
X	GREEN COVER WORKS					
1.1	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)					
	Holes 90 cm dia, and 90 cm deep	Each	41.00	143.10	5,867.10	DSR-20, Pg no.85, Item no.2.14.2

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
ABSTRACT ESTIMATE						
(CAPACITY: 4.0 ML & STAGING: 17 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
1.2	Supplying of Vermicompost of 5 kg pack for each pit	Each	41.00	37.50	1,537.50	TN Horticulture Dept. rate (Extra rate 25% considered for transporting & CPOH)
1.3	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	23.10	36.55	844.31	DSR-20, Pg no.83, Item no.2.9
1.4	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded)	Cum	23.10	18.25	421.58	DSR-20, Pg no.87, Item no.2.20
2.1	Providing and stacking of Putranjiva roxburghii (Putranjeevi) of height 90-105 cm. in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.169, Item no.7.79
2.2	Providing and stacking of Bauhinia tomentosa (yellow) (Iravatchi) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.175, Item no.8.2
2.3	Providing and stacking of Bauhinia purpurea (Mantharai) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	15.00	50.00	750.00	DSR-20, Pg no.161, Item no.7.8
2.4	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	50.00	750.00	DSR-20, Pg no.169, Item no.7.73
2.5	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	65.00	975.00	DSR-20, Pg no.161, Item no.7.5
TOTAL OF GREEN COVER :					12,495.48	
XI	RAIN WATER HARVESTING					
1	Construction of Rain water Harvesting Structure at the WDS premises	LS	1.00	21,000.00	21,000.00	
TOTAL OF RAIN WATER HARVESTING :					21,000.00	
	GRAND TOTAL (VII+VIII+IX+X+XI) Rs.				4,975,213.57	
	TOTAL COST FOR PROPOSED 4.0 ML OHT (1 nos)				85,160,449.00	
<b>Note:</b>						
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022					

CONSTRUCTION OF OHT AT WEST MAMBALAM IN ZONE - X (4.0 ML)						
Basic Data						
Clear size of tank	35.60	x	24.60	m		
Staging Height	17.00	m				
Depth of water	5.00	m				
Thickness of wall @ bottom	0.60	m				
Thickness of wall @ top	0.30	m				
Total depth of wall	5.75	m				
Thickness of roof slab	0.20	m				
Size of roof beams	0.00	x	0.00	m		
Thickness of floor slab	0.40	m				
Size of floor beams	0.45	x	0.85	m		
Size of floor beams (below wall)	0.75	x	1.00	m		
Platform width	1.50	m				
Thickness of platform slab	0.15					
Column size - C1	0.80	x	0.50	m		
No. of columns	20	Nos				
Column size - C2	0.80	x	0.80	m		
Column cap @ roof slab	1.50	x	1.50	x	0.25	m
No. of columns	15	Nos	7	x	5	
Column size - C3	0.40	x	0.40	m		
No. of columns	15	Nos	5	x	3	
Size of bracing beam	0.45	x	0.60	m		
Bracing beam c/c distance	4.25	m				
Size of plinth beam	0.45	x	0.60	m		
Column size (for stair case) - C4	0.35	x	0.35	m		
No. of columns	4	Nos				
Staircase tie beams	0.30	x	0.45	m		
Size of STAIR CASE well	4.25	x	3.55	m		
Waist slab thickness	0.175	m				
Steps raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0	m				
Founding level	-1.70	m				
Staging level	17.00	m				
Top of tank level	22.95	m				
Pile cap	PC					
PC-1 size	2.40	x	2.40	x	0.80	m
Nos	35	Nos				
PC-2 size	0.90	x	2.40	x	0.80	m
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m	dia			
Depth of pile	20.00	m				
No. of pile	148	Nos				
Pile cap connecting beam	0.45	x	0.60			
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

Sl. No.	Description of Work	Measurement			Qty	Total		
		Length	Breadth	Height		Qty		
	<b>Excavation works</b>							
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.							
a)	0 to -2 m Lvl							
	Pile cap PC-1	1	x	35	2.90	2.90	2.00	588.70
	Pile cap PC-2	1	x	4	1.40	2.90	2.00	32.48
	Plinth beam (1-7)	1	x	5	29.10	1.10	0.70	112.04
	Plinth beam (A-E)	1	x	7	20.40	1.10	0.70	109.96
	Staircase plinth beam	1	x	2	1.85	1.10	0.70	2.85
	Staircase plinth beam	1	x	2	1.15	1.10	0.70	1.77
								846.02
								<b>846.00</b>
								cum
b)	-2 to -3 m Lvl							
	Pile cap PC-1	1	x	35	2.90	2.90	0.60	176.61
	Pile cap PC-2	1	x	4	1.40	2.90	0.60	9.74
								186.35
								<b>186.40</b>
								cum
2	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement							
	Excavation qty - Concrete qty.	1	x	1				710.03

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
							710.03	<b>710.00</b>	cum
3	Disposal of surplus earth								
	Excavation qty - Refilling qty.	1	x	1			322.34	<b>322.30</b>	cum
	<b>Concrete works</b>								
4	Plain Cement concrete 1:2:4 using Crushed stone sand (M sand) and 12 to 20mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.								
	<u>0 m to 1.5 m below G.L.</u>								
	Plinth beam (1-7)	1	x	5	29.10	0.65	0.10	9.46	
	Plinth beam (A-E)	1	x	7	20.40	0.65	0.10	9.28	
	Staircase plinth beam	1	x	2	1.85	0.65	0.10	0.24	
	Staircase plinth beam	1	x	2	1.15	0.65	0.10	0.15	
							19.13	<b>19.10</b>	cum
	<u>0 m to 1.5 m below G.L.</u>								
	Pile cap PC-1	1	x	35	2.60	2.60	0.10	23.66	
	Pile cap PC-2	1	x	4	1.10	2.60	0.10	1.14	
							24.80	<b>24.80</b>	cum
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C-1	1	x	20	0.80	0.50	1.50	12.00	
	Column C-2	1	x	15	0.80	0.80	1.50	14.40	
	Column C-4	1	x	4	0.35	0.35	1.50	0.74	
	Plinth beam (1-7)	1	x	5	29.10	0.45	0.60	39.29	
	Plinth beam (A-E)	1	x	7	20.40	0.45	0.60	38.56	
	Staircase plinth beam	1	x	2	1.85	0.45	0.60	1.00	
	Staircase plinth beam	1	x	2	1.15	0.45	0.60	0.62	
							106.60	<b>106.60</b>	cum
b)	<u>1.5 m to 2.5 m below G.L.</u>								
	Pile cap PC-1	1	x	35	2.40	2.40	0.80	161.28	
	Pile cap PC-2	1	x	4	0.90	2.40	0.80	6.91	
	Column C-1	1	x	20	0.80	0.50	0.20	1.60	
	Column C-2	1	x	15	0.80	0.80	0.20	1.92	
	Column C-4	1	x	4	0.35	0.35	0.20	0.10	
							171.81	<b>171.80</b>	cum
	<u>Above G.L.</u>								
c)	<u>0 m to 4.5 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	15	0.80	0.80	4.50	43.20	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 4.25 m lvl</u>								
	Grid 1-9	1	x	7	30.80	0.45	0.60	58.21	
	Grid A-D	1	x	2	21.40	0.45	0.60	11.56	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 2.125 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							159.97	<b>160.00</b>	cum
d)	<u>4.5 m to 9.0 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	15	0.80	0.80	4.50	43.20	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 8.50 m lvl</u>								
	Grid 1-9	1	x	7	30.80	0.45	0.60	58.21	
	Grid A-D	1	x	2	21.40	0.45	0.60	11.56	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Staircase landing beam @ 6.375 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							159.97	<b>160.00</b>	cum
e)	<u>9.0 m to 13.5 m</u>								
	Column C-1	1	x	20	0.80	0.50	4.50	36.00	
	Column C-2	1	x	15	0.80	0.80	4.50	43.20	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 12.75 m lvl</u>								
	Grid 1-9	1	x	7	30.80	0.45	0.60	58.21	
	Grid A-D	1	x	2	21.40	0.45	0.60	11.56	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 10.625 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							159.97	<b>160.00</b>	cum
f)	<u>13.5 m to 18.0 m</u>								
	Column C-1	1	x	20	0.80	0.50	2.65	21.20	
	Column C-2	1	x	15	0.80	0.80	2.65	25.44	
	Staircase column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Bottom slab	1	x	1	35.60	24.60	0.40	350.30	
	walkway platform	1	x	2	37.10	1.50	0.15	16.70	
		1	x	2	26.10	1.50	0.15	11.75	
	Kerb wall around platform	1	x	2	37.10	0.10	0.15	1.11	
		1	x	2	26.10	0.10	0.15	0.78	
	Column C-3	1	x	15	0.40	0.40	1.00	2.40	
	Tank wall	1	x	2	36.40	0.55	1.00	40.04	
		1	x	2	25.40	0.55	1.00	27.94	
	<u>Bottom slab beam @ 17.00 m lvl</u>								
	Grid 1-9	1	x	2	30.80	0.45	0.85	23.56	
	Grid A-D	1	x	7	21.40	0.45	0.85	57.30	
	Beam under wall b/w grid 1-9	1	x	2	30.80	0.75	1.00	46.20	
	Beam under wall b/w grid A-D	1	x	2	21.40	0.75	1.00	32.10	
	Staircase bracing beam	1	x	2	3.90	0.30	0.45	1.05	
	Staircase bracing beam	1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 14.875 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							667.82	<b>667.80</b>	cum
g)	<u>18.0 m to 22.5 m</u>								
	Column C-3	1	x	15	0.40	0.40	4.50	10.80	
	Tank wall upto 20.0 m lvl	1	x	2	36.40	0.40	2.00	58.24	
		1	x	2	25.40	0.40	2.00	40.64	
	Tank wall from 20.0 to 22.5 m lvl	1	x	2	36.40	0.30	2.50	54.60	
		1	x	2	25.40	0.30	2.50	38.10	
	Stair case column C-4	1	x	4	0.35	0.35	4.50	2.21	
	Staircase bracing beam @ 21.25 m	1	x	2	3.90	0.30	0.45	1.05	
		1	x	2	3.20	0.30	0.45	0.86	
	Staircase landing beam @ 19.125 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.75	1.78	0.18	2.95	
	Steps	1	x	15	1.78	0.30	0.15	1.20	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							213.38	<b>213.40</b>	cum
h)	<u>22.5 m to 22.95 m</u>								
	Column C-3	1	x	15	0.40	0.40	0.25	0.60	
	Tank wall from 22.5 to 23.0 m lvl	1	x	2	36.40	0.30	0.25	5.46	
		1	x	2	25.40	0.30	0.25	3.81	
	Roof slab	1	x	1	37.00	26.00	0.20	192.40	
	Column cap	1	x	15	1.50	1.50	0.25	8.44	
	Stair case column C-4	1	x	4	0.35	0.35	0.70	0.34	
	Staircase landing beam @ 23.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	1	4.75	1.78	0.18	1.48	
	Steps	0.5	x	15	1.78	0.30	0.15	0.60	
	landing slab	1	x	1	5.55	1.50	0.18	1.46	
	Kerb wall for manhole opening	1	x	2	5.60	0.20	0.60	1.34	
	Stub column for ventilator opening	4	x	4	0.15	0.15	0.75	0.27	
	Kerb wall for ventilator opening	1	x	2	4.80	0.15	0.15	0.22	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Kerb wall around roof slab	1	x	2	37.00	0.10	0.15	1.11	
		1	x	2	26.00	0.10	0.15	0.78	
								219.17	<b>219.20</b>
	<b>Total RCC (M-30) Qty.</b>								<b>1858.80</b>
	<b>Shuttering works</b>								
6	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C-1	2	x	20	0.80		1.50	48.00	
		2	x	20	0.50		1.50	30.00	
	Column C-2	2	x	15	0.80		1.50	36.00	
		2	x	15	0.80		1.50	36.00	
	Column C-4	2	x	4	0.35		1.50	4.20	
		2	x	4	0.35		1.50	4.20	
	Plinth beam (1-7)	2	x	5	29.10		0.60	174.60	
	Plinth beam (A-E)	2	x	7	20.40		0.60	171.36	
	Staircase plinth beam	2	x	2	1.85		0.60	4.44	
	Staircase plinth beam	2	x	2	1.15		0.60	2.76	
								511.56	<b>511.60</b>
b)	<u>1.5 m to 2.5 m below G.L.</u>								Sqm
	Pile cap PC-1	4	x	35	2.40		0.80	268.80	
	Pile cap PC-2	4	x	4	0.90		0.80	11.52	
	Column C-1	2	x	20	0.80		0.20	6.40	
		2	x	20	0.50		0.20	4.00	
	Column C-2	2	x	15	0.80		0.20	4.80	
		2	x	15	0.80		0.20	4.80	
	Column C-4	2	x	4	0.35		0.20	0.56	
		2	x	4	0.35		0.20	0.56	
								301.44	<b>301.40</b>
	<u>Above G.L.</u>								Sqm
b)	<u>0 m to 3.0 m</u>								
	Column C-1	2	x	20	0.80		3.00	96.00	
		2	x	20	0.50		3.00	60.00	
	Column C-2	2	x	15	0.80		3.00	72.00	
		2	x	15	0.80		3.00	72.00	
	Staircase column C-4	4	x	4	0.35		3.00	16.80	
	Staircase landing beam @ 2.125 m	2	x	2	3.20		0.45	5.76	
		1	x	2	4.75		0.30	2.85	
	waist slab	1	x	2	4.75		1.78	16.87	
	Steps	2	x	15	1.78		0.15	7.99	
	landing slab	1	x	1	3.55		1.50	5.33	
								355.59	<b>355.60</b>
c)	<u>3.0 m to 4.0 m</u>								Sqm
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
								105.60	<b>105.60</b>
d)	<u>4.0 m to 5.0 m</u>								Sqm
	Column C-1	2	x	20	0.80		1.00	32.00	
		2	x	20	0.50		1.00	20.00	
	Column C-2	2	x	15	0.80		1.00	24.00	
		2	x	15	0.80		1.00	24.00	
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	<u>Bracing beam @ 4.25 m lvl</u>								
	Grid 1-9	2	x	7	30.80		0.60	258.72	
		1	x	7	30.80		0.45	97.02	
	Grid A-D	2	x	2	21.40		0.60	51.36	
		1	x	2	21.40		0.45	19.26	
	Staircase bracing beam	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
	Staircase bracing beam	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
	landing slab	1	x	1	3.55		1.50	5.33	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Sqm
e)	<u>5.0 m to 6.0 m</u>						566.75	<b>566.80</b>	
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
							105.60	<b>105.60</b>	Sqm
e)	<u>6.0 m to 7.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	Staircase landing beam @ 6.375 m	2	x	2	3.20	0.45	5.76		
		1	x	2	3.20	0.30	1.92		
	landing slab	1	x	1	3.55	1.50	5.33		
							118.61	<b>118.60</b>	Sqm
f)	<u>7.0 m to 8.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	waist slab	1	x	1	4.75	1.78	8.43		
	Steps	1	x	15	1.78	0.15	3.99		
							118.03	<b>118.00</b>	Sqm
g)	<u>8.0 m to 9.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	Bracing beam @ 8.5 m lvl								
	Grid 1-7	2	x	7	30.80	0.60	258.72		
		1	x	7	30.80	0.45	97.02		
	Grid A-E	2	x	2	21.40	0.60	51.36		
		1	x	2	21.40	0.45	19.26		
	Staircase bracing beam	2	x	2	3.90	0.45	7.02		
		1	x	2	3.90	0.30	2.34		
	Staircase bracing beam	2	x	2	3.20	0.45	5.76		
		1	x	2	3.20	0.30	1.92		
	landing slab	1	x	1	3.55	1.50	5.33		
							554.33	<b>554.30</b>	Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	waist slab	1	x	1	4.75	1.78	8.43		
	Steps	1	x	15	1.78	0.15	3.99		
							118.03	<b>118.00</b>	Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	Staircase landing beam @ 10.625 m	2	x	2	3.20	0.45	5.76		
		1	x	2	3.20	0.30	1.92		
	landing slab	1	x	1	3.55	1.50	5.33		
							118.61	<b>118.60</b>	Sqm
j)	<u>11.0 m to 12.0 m</u>								
	Column C-1	2	x	20	0.80	1.00	32.00		
		2	x	20	0.50	1.00	20.00		
	Column C-2	2	x	15	0.80	1.00	24.00		
		2	x	15	0.80	1.00	24.00		
	Staircase column C-4	4	x	4	0.35	1.00	5.60		
	waist slab	1	x	1	4.75	1.78	8.43		

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
	Steps	1	x	15	1.78		0.15	3.99		
								118.03	<b>118.00</b>	Sqm
k)	<u>12.0 m to 13.0 m</u>									
	Column C-1	2	x	20	0.80		1.00	32.00		
		2	x	20	0.50		1.00	20.00		
	Column C-2	2	x	15	0.80		1.00	24.00		
		2	x	15	0.80		1.00	24.00		
	Staircase column C-4	4	x	4	0.35		1.00	5.60		
	Bracing beam @ 12.75 m lvl									
	Grid 1-7	2	x	7	30.80		0.60	258.72		
		1	x	7	30.80		0.45	97.02		
	Grid A-E	2	x	2	21.40		0.60	51.36		
		1	x	2	21.40		0.45	19.26		
	Staircase bracing beam	2	x	2	3.90		0.45	7.02		
		1	x	2	3.90		0.30	2.34		
	Staircase bracing beam	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		
								554.33	<b>554.30</b>	Sqm
l)	<u>13.0 m to 14.0 m</u>									
	Column C-1	2	x	20	0.80		1.00	32.00		
		2	x	20	0.50		1.00	20.00		
	Column C-2	2	x	15	0.80		1.00	24.00		
		2	x	15	0.80		1.00	24.00		
	Staircase column C-4	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.75		1.78	8.43		
	Steps	1	x	15	1.78		0.15	3.99		
								118.03	<b>118.00</b>	Sqm
m)	<u>14.0 m to 15.0 m</u>									
	Column C-1	2	x	20	0.80		1.00	32.00		
		2	x	20	0.50		1.00	20.00		
	Column C-2	2	x	15	0.80		1.00	24.00		
		2	x	15	0.80		1.00	24.00		
	Staircase column C-4	4	x	4	0.35		1.00	5.60		
	Staircase landing beam @ 14.875 m	2	x	2	3.90		0.45	7.02		
		1	x	2	3.90		0.30	2.34		
	landing slab	1	x	1	3.55		1.50	5.33		
								120.29	<b>120.30</b>	Sqm
n)	<u>15.0 m to 16.0 m</u>									
	Column C-1	2	x	20	0.80		1.00	32.00		
		2	x	20	0.50		1.00	20.00		
	Column C-2	2	x	15	0.80		1.00	24.00		
		2	x	15	0.80		1.00	24.00		
	Staircase column C-4	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.75		1.78	8.43		
	Steps	1	x	15	1.78		0.15	3.99		
								118.03	<b>118.00</b>	Sqm
o)	<u>16.0 m to 17.0 m</u>									
	Column C-1	2	x	20	0.80		1.00	32.00		
		2	x	20	0.50		1.00	20.00		
	Column C-2	2	x	15	0.80		1.00	24.00		
		2	x	15	0.80		1.00	24.00		
	Staircase column C-4	4	x	4	0.35		1.00	5.60		
	Bottom slab	1	x	1	35.60		24.60	875.76		
	walkway platform	1	x	2	37.10		1.50	111.30		
		1	x	2	26.10		1.50	78.30		
	Floor beam @ 17.0 m lvl									
	Grid 1-7	2	x	2	30.80		0.85	104.72		
		1	x	2	30.80		0.45	27.72		
	Grid A-E	2	x	7	21.40		0.85	254.66		
		1	x	7	21.40		0.45	67.41		
	Beam under wall b/w grid 1-7	2	x	2	30.80		1.00	123.20		
		1	x	2	30.80		0.75	46.20		
	Beam under wall b/w grid A-E	2	x	2	21.40		1.00	85.60		
		1	x	2	21.40		0.75	32.10		
	Staircase bracing beam	2	x	2	3.90		0.60	9.36		
		1	x	2	3.90		0.45	3.51		
	Staircase bracing beam	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Sqm
o)	<u>17.0 m to 18.0 m</u>						1938.45	<b>1938.40</b>	Sqm
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	Kerb wall around platform	2	x	2	37.10		0.15	22.26	
		2	x	2	26.10		0.15	15.66	
							314.72	<b>314.70</b>	Sqm
p)	<u>18.0 m to 19.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							289.23	<b>289.20</b>	Sqm
q)	<u>19.0 m to 20.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	Staircase landing beam @ 19.125 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							289.81	<b>289.80</b>	Sqm
r)	<u>20.0 m to 21.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
							289.23	<b>289.20</b>	Sqm
s)	<u>21.0 m to 22.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	Staircase bracing beam @ 21.25 m	2	x	2	3.90		0.45	7.02	
		1	x	2	3.90		0.30	2.34	
		2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							299.17	<b>299.20</b>	Sqm
t)	<u>22.0 m to 23.0 m</u>								
	Staircase column C-4	4	x	4	0.35		1.00	5.60	
	Column C-3	4	x	15	0.40		1.00	24.00	
	Tank wall	2	x	2	36.40		1.00	145.60	
		2	x	2	25.40		1.00	101.60	
	waist slab	1	x	1	4.75		1.78	8.43	
	Steps	1	x	15	1.78		0.15	3.99	
	Staircase landing beam @ 23.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	5.55		1.50	8.33	
	Roof slab	1	x	1	37.00		26.00	962.00	
	Column cap	1	x	15	6.00		0.25	22.50	
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44	
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60	
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88	
	Kerb wall around roof slab	2	x	2	37.00		0.15	22.20	
		2	x	2	26.00		0.15	15.60	
							1347.45	<b>1347.50</b>	Sqm
	<b>Total Shuttering qty.</b>							<b>7957.70</b>	Sqm

Sl. No.	Description of Work	No.		Measurement			Qty	Total		
				Length	Breadth	Height		Qty		
	<b>Reinforcement Steel</b>									
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings									
	125 kg per cum	1	x	1			232.35			
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			11.62			
							243.97	<b>244.00</b>	MT	
	For pile foundation									
	130 kg per cum	1	x	1			108.80			
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			5.44			
							114.24	<b>114.20</b>	MT	
	<b>Piling works</b>									
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.									
	600 mm dia piles	1	x	148	20.00		2960.00			
							2960.00	<b>2960.00</b>	meters	
9	Vertical load Test									
	Single pile upto 50 tonne Safe capacity	2	x				2.00		No.	
10	Horizontal load Test	1	x				1.00		No.	
11	Pull out Test	1	x				1.00		No.	
	<b>Finishing works</b>									
12	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.									
	Bottom slab	1	x				875.76			
	Walkway platform	1	x				189.60			
	Staircase waist slab	1	x				84.34			
	Landing slab	1	x				61.58			
							1211.28	<b>1211.30</b>	Sqm.	
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete									
	External plastering	1	x				5775.99	<b>5776.00</b>	Sqm.	
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x				875.76	<b>875.80</b>	Sqm.	
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x				2502.96	<b>2503.00</b>	Sqm.	
16	Concrete with broken brick jelly 20mm gauge in pure slack lime over R.C.C. roof slab for 80 mm thick	1	x		37.00	26.00	0.08	76.96	<b>77.00</b>	cum

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x		37.00		26.00	962.00	<b>962.00</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.									
	Precast Concrete jolly	1	x	16	1.20	0.60		11.52		
	Precast Concrete slab	1	x	4	2.10	2.10		17.64		
								29.16	<b>29.20</b>	Sqm
19	Colour washing two coats over one coat of white washing.									
	All external surfaces	1	x	1				5775.99	<b>5776.00</b>	Sqm.
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures									
	Vertical surface	1	x	1				1627.20		
	Horizontal surface	1	x	1				875.76		
								2502.96	<b>2503.00</b>	Sqm.
	<b>Miscellaneous works</b>									
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	1				1.00		
22	Supplying and fixing lightening arrestor	1	x	1				1.00		
23	Providing and fixing level indicator	1	x	1				1.00		
24	Providing and fixing Hand rails with MS tube									
	walkway platform									
	Horizontal top pipe 50 mm dia	2	x	1	38.60		5.44	419.97	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India website	
		2	x	1	27.60		5.44	300.29		
	Horizontal 20 mm square rod	4	x	58	0.60		3.14	439.99	Weight 3.14 kg/m	
		4	x	41	0.60		3.14	312.45		
	Vertical 20 mm square rod	4	x	59	0.85		3.14	633.99		
		4	x	42	0.85		3.14	453.32		
	Insert plate 5 mm thick	2	x	59	0.15	0.10	0.005	69.93	7850 kg/m3	
		2	x	42	0.15	0.10	0.005	50.00		
	Roof slab									
	Horizontal top pipe 50 mm dia	2	x	1	37.00		5.44	402.56		
		2	x	1	26.00		5.44	282.88		
	Vertical 20 mm square rod	4	x	57	0.60		3.14	428.97		
		4	x	40	0.60		3.14	301.44		
	Horizontal 20 mm square rod	4	x	56	0.60		3.14	421.44		
		4	x	39	0.60		3.14	293.90		
	Insert plate 5 mm thick	2	x	57	0.15	0.10	0.005	67.03		
		2	x	40	0.15	0.10	0.005	47.10		
	Staircase									
	Horizontal top pipe 50 mm dia	2	x	11	9.80		5.44	1173.06		
	Vertical 20 mm square rod	44	x	15	1.00		3.14	2083.38		
	Horizontal 20 mm square rod	44	x	14	0.60		3.14	1167.13		
	Insert plate 5 mm thick	332	x	15	0.15	0.10	0.005	2945.27		
								12294.09	<b>12294.10</b>	Kg
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.									
		1	x	20	25.00			500.00	<b>500.00</b>	Mtr.
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.							9.00	<b>9.00</b>	Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	2	36.40			145.60		
		2	x	2	25.40			101.60		
								247.20	<b>247.20</b>	Mtr.

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10									
	Inlet pipe 400 dia	1	x	1	30.00			30.00		
	Over flow pipe 400 dia	1	x	1	30.00			30.00		
								60.00	<b>60.00</b>	Mtr.
	Outlet pipe 600 dia	1	x	1	24.00			24.00		
								24.00	<b>24.00</b>	Mtr.
	Scour pipe 350 dia	1	x	1	24.00			24.00		
								24.00	<b>24.00</b>	Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection									
	350 mm dia	1	x	1	24.00			147.31	147.31	Weight per mtr arrived as per online data
	400 mm dia	1	x	2	30.00			179.64	359.27	
	600 mm dia	1	x	1	24.00			338.51	338.51	
								845.09	<b>845.10</b>	Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000									
	Inlet pipe 400 dia									
	Bend 90	1	x	1	128			128.00		
	Over flow pipe 400 dia									
	Bend 90	1	x	1	128			128.00		
								256.00	<b>256.00</b>	Kg
	Outlet pipe 600 dia									
	Bend 90	1	x	1	325			325.00		
	Bend 45	1	x	2	263			526.00		
								851.00	<b>851.00</b>	Kg
	Scour pipe 350 dia									
	Bend 90	1	x	1	97.0			97.00		
								97.00	<b>97.00</b>	Kg
27	DI Sluice valve									
	350 mm	1	x	1				1.00		Each
28	DI Butterfly valve									
	400 mm	1	x	2				2.00		Each
	600 mm	1	x	1				1.00		Each
29	Concrete of thrust blocks for pipe support									
	350 mm									
	90 Bend	1	x	1				1.00		Each
	400 mm									
	90 Bend	1	x	2				2.00		Each
	600 mm									
	90 Bend	1	x	1				1.00		Each
	45 Bend	1	x	2				2.00		Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	16				16.00		Each
	<b>Storm Water Drain</b>									
	Excavation	1	x	1	154.00	1.90	1.28	373.07	<b>373.10</b>	cum
	PCC M10	1	x	1	154.00	1.45	0.08	16.75	<b>16.70</b>	cum
	Shuttering works BGL									
	for PCC	1	x	2	154.00		0.08	23.10		
	for base slab	1	x	2	154.00		0.20	61.60		
	for wall inner	1	x	2	154.00		1.00	308.00		
	for wall outer	1	x	2	154.00		1.00	308.00		
								700.70	<b>700.70</b>	Sqm
	Reinforcement									
	for base slab	1	x	1	40.04		90.00	3603.60		
	For Wall	1	x	1	46.20		110.00	5082.00		
	Cover slab	1	x	1	4.62		80.00	369.60		
								9055.20	<b>9055.20</b>	kg
	RCC Concrete M25									
	For base slab	1	x	1	154.00	1.30	0.20	40.04		
	For Wall	1	x	2	154.00	1.00	0.15	46.20		

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Cover slab	1	x	1	154.00	0.60	0.05	4.62	
								90.86	<b>90.90</b>
<b>Boundary Wall</b>									
1.	Earth work excavation and depositing on bank with initial leadof 10m and lift of 2m in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed stoney earth and earth mixed stoney earth and earth mixed with small sizes boulders andwith small sizes boulders andhard gravelly soil as per SS 20 B	1	x	1	154.00	1.50	1.25	288.75	<b>288.80</b>
2	Supplying and filling with sand for foundation and basement ramming etc complete.								
	For walls	1	x	1	61.60	0.90	0.20	11.09	
	For Pillars	1	x	103	0.90	0.90	0.20	16.63	
	For gate pillars	1	x	2	0.90	0.90	0.20	0.32	
								28.04	<b>28.00</b>
3	Cement concrete 1:3:6 using 40mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc complete.								
	For walls	1	x	1	61.60	0.90	0.15	8.32	
	For Pillars	1	x	103	0.90	0.90	0.15	12.47	
	For gate pillars	1	x	2	0.90	0.90	0.15	0.24	
								21.03	<b>21.00</b>
4	Random Rubble masonry in C.M. 1:3 including curing etc complete								
	For walls								
	I footing	1	x	1	96.51	0.56	0.45	24.32	
	II footing	1	x	1	96.51	0.45	0.45	19.54	
	For pillars								
	I footing	1	x	103	0.56	0.56	0.45	14.49	
	II footing	1	x	103	0.45	0.45	0.45	9.36	
	For gate pillars								
	I footing	1	x	2	0.65	0.65	0.45	0.38	
	II footing	1	x	2	0.56	0.56	0.45	0.28	
								68.37	<b>68.40</b>
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete								
	Above G.L								
	For walls	1	x	1	107.80	0.30	2.50	80.85	
	For pillars	1	x	1	0.45	0.45	2.50	0.51	
	For gate pillars	1	x	2	0.56	0.56	3.00	1.88	
								83.24	<b>83.20</b>
6	Pointing to the RR masonry in cement mortar 1:3., 20mmthick								
	For main wall	1	x	2	107.80		2.50	539.00	
	Intermediate pillars	2	x	103	0.45		2.50	231.00	
	For gate pillars	2	x	2	0.56		3.00	6.72	
								776.72	<b>776.70</b>
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc.complete.for coping								
	For main wall	1	x	1	107.80	(1/2)*0.3	0.15	16.17	
	Intermediate pillars	1	x	1	0.45	1/2*0.45	0.15	0.07	
	For gate pillars	1	x	2	0.56	(1/2)*0.56	0.15	0.17	
								16.41	<b>16.40</b>
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc ., complete as directed.								
	For main wall	1	x	2	107.80	0.21		45.71	
	Intermediate pillars	2	x	103	0.45	0.27		24.95	
	For gate pillars	2	x	2	0.56	0.32		0.72	
								71.37	<b>71.40</b>
									sqm

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling hole in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.									
		1	x	1	154.00			154.00	154.00	m
10	Band course work flat 10mm to 12mm thick and 65mm deep with C.M.1:3 including curing etc. complete as directed.									
	For main wall	1	x	2	154.00			308.00	308.00	m
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.									
	Earthwork quantity	1	x	1				288.75		
	Deduct below GL Elements	1	x	1				-117.45		
								171.30	171.30	cu.m
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.									
		1	x	4				87.50	350.00	350.00
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.									
	New Iron work two coats.					coeff				
	Main gate	1	x	3	2.00	2.25	2.50	33.75		
	Wicket gate	1	x	3	0.75	2.25	2.00	10.13		
								43.88	43.90	sq.m
<b>Road/Paving Work</b>										
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)									
		1.00	x	1.00	42.00	6.44	0.20	54.10		
		1.00	x	1.00	42.00	3.50	0.20	29.40		
		1.00	x	1.00	38.00	2.83	0.20	21.51		
		1.00	x	1.00	32.00	2.95	0.20	18.88		
								123.88	123.90	Cum
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100 mm using 0.57m <sup>3</sup> of sand and 0.65m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller									
		1.00	x	1.00	42.00	6.44		270.48		
		1.00	x	1.00	42.00	3.50		147.00		
		1.00	x	1.00	38.00	2.83		107.54		
		1.00	x	1.00	32.00	2.95		94.40		

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	Sqm
	Rubber moulded hydraulic pressed paver block	1.00	x	1.00				619.42	<b>619.40</b>	Sqm
	<b>GREEN COVER</b>							619.42	<b>619.40</b>	Sqm
1.	Earth work excavation in manually for planting pits of size 2'6"x2'6"x3'0" along the boundary wall as per GCC circular (Length of boundary wall 155 m, distance b/w the plant is 5 m & 10 extra considered)	1.00	x	41.00				41.00	<b>41.00</b>	Each
2	Vermicompost of 5 kg pack for each pit	1.00	x	41.00				41.00	<b>41.00</b>	Each
3	Backfilling of excavated earth	1.00	x	41.00	0.75	0.75	1.00	23.06	<b>23.10</b>	Cum

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
<b>I</b>	<b>EARTHWORK</b>					
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
	(a) 0-2 m	Cum	991.40	233.86	231,848.80	
	(b) 2 - 3 m	Cum	231.80	245.08	56,809.54	
	(c) 3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
	(a) 0-2 m	Cum	0.00	483.56	-	
	(b) 2 - 3 m	Cum	0.00	492.47	-	
	(c) 3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	1063.60	40.70	43,288.52	
4	Disposal of Surplus earth	Cum	159.60	140.75	22,463.70	
	<b>TOTAL OF EARTHWORKS :</b>					<b>354,410.57</b>
<b>II</b>	<b>CONCRETE AND ALLIED WORKS</b>					
	<b>Plain Cement Concrete</b>					
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
	0 m to 1.5 m below G.L.	Cum	20.80	6089.00	126,651.20	
	1.5 m to 4.5 m below G.L.	Cum	30.90	6200.87	191,606.88	
	<b>Reinforced Cement Concrete</b>					
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	Pile cap and column					
6.1	0 to -1.5m (below ground)	Cum	107.90	6870.00	741,273.00	
6.2	-1.5 to -4.5m (below ground)	Cum	212.90	6981.87	1,486,440.12	
	Above ground					
	Columns, Brace and staircase					
6.3	0 to 4.5 m	Cum	162.60	6983.63	1,135,538.24	
6.4	4.5 to 9.0 m	Cum	162.60	7207.48	1,171,936.25	
6.5	9.0 to 13.5 m	Cum	162.60	7431.33	1,208,334.26	
6.6	13.5 to 18.0 m	Cum	165.90	7655.18	1,269,994.36	
6.7	18.0 to 22.5 m	Cum	776.50	7879.03	6,118,066.80	
6.8	22.5 to 27.0 m	Cum	353.80	8102.88	2,866,798.94	
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	Column & Beam	sq m	516.90	1247.00	644,574.30	
	1.5 to 2.5 m below GL					
7.2	Pile Cap & Column	sq m	381.30	1247.00	475,481.10	
	Above ground level					
7.3	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	369.80	1247.00	461,140.60	
7.4	3.0 m to 4.0 m	sq m	111.20	1281.00	142,447.20	
7.5	4.0 m to 5.0 m	sq m	698.00	1315.00	917,870.00	
7.6	5.0 m to 6.0 m	sq m	111.20	1349.00	150,008.80	
7.7	6.0 m to 7.0 m	sq m	124.20	1383.00	171,768.60	
7.8	7.0 m to 8.0 m	sq m	128.10	1417.00	181,517.70	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
7.9	8.0 m to 9.0 m	sq m	668.70	1451.00	970,283.70	
7.10	9.0 m to 10.0 m	sq m	128.10	1485.00	190,228.50	
7.11	10.0 m to 11.0 m	sq m	124.20	1519.00	188,659.80	
7.12	11.0 m to 12.0 m	sq m	122.80	1553.00	190,708.40	
7.13	12.0 m to 13.0 m	sq m	674.00	1587.00	1,069,638.00	
7.14	13.0 m to 14.0 m	sq m	122.80	1621.00	199,058.80	
7.15	14.0 m to 15.0 m	sq m	124.20	1655.00	205,551.00	
7.16	15.0 m to 16.0 m	sq m	122.80	1689.00	207,409.20	
7.17	16.0 m to 17.0 m	sq m	674.00	1723.00	1,161,302.00	
7.18	17.0 m to 18.0 m	sq m	122.80	1757.00	215,759.60	
7.19	18.0 m to 19.0 m	sq m	124.20	1791.00	222,442.20	
7.20	19.0 m to 20.0 m	sq m	1955.90	1825.00	3,569,517.50	
7.21	20.0 m to 21.0 m	sq m	307.30	1859.00	571,270.70	
7.22	21.0 m to 22.0 m	sq m	263.60	1893.00	498,994.80	
7.23	22.0 m to 23.0 m	sq m	288.20	1927.00	555,361.40	
7.24	23.0 m to 24.0 m	sq m	263.60	1961.00	516,919.60	
7.25	24.0 m to 25.0 m	sq m	288.20	1995.00	574,959.00	
7.26	25.0 m to 26.0 m	sq m	1092.90	2029.00	2,217,494.10	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	276.30	83000.00	22,932,900.00	
	<b>TOTAL OF CONCRETE WORKS :</b>					<b>55,719,906.65</b>
	<b>III PILING WORKS</b>					
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	3680.00	4514.40	16,612,992.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	2	30505.00	61,010.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	142.00	83000.00	11,786,000.00	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	<b>TOTAL OF PILING WORKS :</b>				<b>28,548,439.65</b>	
<b>IV</b>	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
12	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	776.80	146.00	113,412.80	
13	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	1130.30	255.00	288,226.50	
	<b>Painting and protective coatings:</b>					
14	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after thoroughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	7863.80	203.00	1,596,351.40	
15	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	2517.10	198.40	499,392.64	
	<b>Terrace Works:</b>					
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	62.10	3778.00	234,613.80	
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	776.80	1503.00	1,167,530.40	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>3,899,527.54</b>	
<b>V</b>	<b>MISCELLANEOUS WORKS</b>					
18	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embedded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
19	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	29.20	1688.00	49,289.60	
20	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
21	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	2.00	3925.00	7,850.00	
22	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	15108.80	157.15	2,374,347.92	
23	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	465.00	981.00	456,165.00	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
24	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	18.00	1869.00	33,642.00	
25	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	200.40	285.60	57,234.24	
26	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowl.	Each	28.00	2069.50	57,946.00	
27	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	3.5 ML OHT	LS	1.00	294456.80	294,456.80	
<b>TOTAL OF MISCELLANEOUS WORKS:</b>					<b>3,359,937.43</b>	
<b>VI</b>	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	350 mm (Scour Pipe)	mts	27.00	7473.75	201,791.25	
b)	600 mm (Inlet & Overflow pipe)	mts	66.00	17541.00	1,157,706.00	
c)	800 mm (Outlet pipe)	mts	27.00	30043.25	811,167.75	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
	0 to 2 m	Qtl	26.32	226.50	5,961.03	
	2 to 4 m	Qtl	26.32	341.10	8,977.07	
	4 to 6 m	Qtl	26.32	535.00	14,080.13	
	6 to 8 m	Qtl	26.32	739.90	19,472.69	
	8 to 10 m	Qtl	26.32	944.80	24,865.25	
	10 to 12 m	Qtl	26.32	1147.00	30,186.75	
	12 to 14 m	Qtl	26.32	1357.10	35,716.16	
	14 to 16 m	Qtl	26.32	1545.90	40,685.00	
	16 to 18 m	Qtl	26.32	1750.40	46,067.03	
	18 to 20 m	Qtl	26.32	1955.10	51,454.32	
	20 to 22 m	Qtl	13.54	2154.80	29,176.78	
	22 to 24 m	Qtl	13.54	2356.60	31,909.22	
	24 to 26 m	Qtl	6.77	2550.00	17,263.96	
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends,Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers.required for the following pipes.					
a)	350 mm (Scour Pipe)	kgs	97.00	134.00	12,998.00	
b)	600 mm (Inlet & Overflow pipe)	kgs	650.00	134.00	87,100.00	
c)	800 mm (Outlet pipe)	kgs	1463.00	197.00	288,211.00	
31	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
a)	350 mm (Scour Pipe)	Each	1.00	1278.00	1,278.00	
b)	600 mm (Inlet & Overflow pipe)	Each	2.00	3086.00	6,172.00	
c)	800 mm (Outlet pipe)	Each	3.00	6171.00	18,513.00	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
32	Supply and delivery of DI D/F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves/Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100 % leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	350 mm (on Scour Pipe)	Nos	1.00	206448.00	206,448.00	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	400 mm	Nos	0.00	178093.00	-	
b)	600 mm (Inlet & Overflow pipe)	Nos	2.00	258694.00	517,388.00	
c)	800 mm (Outlet pipe)	Nos	1.00	553655.00	553,655.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					
a)	350 mm (Scour Pipe)	Each	1.00	4472.00	4,472.00	
b)	600 mm (Inlet & Overflow pipe)	Each	2.00	25428.00	50,856.00	
c)	800 mm (Outlet pipe)	Each	1.00	37723.00	37,723.00	
35	Construction of RCC chamber for 300mm to 400mm dia.slue valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	1.00	63000.00	63,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.slue valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	3.00	136000.00	408,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mn B.G.jelly for Plain Cement Concrete					
	350 mm 90 bend	Each	1.00	11134	11,134.00	
	600 mm 90 bend	Each	2.00	18291	36,582.00	
	800 mm 45 bend	Each	2.00	19117	38,234.00	
	800 mm 90 bend	Each	1.00	34776	34,776.00	
<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>					<b>4,903,020.37</b>	
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>				<b>96,785,242.21</b>	
	<b>TOTAL COST FOR PROPOSED 3.5 ML OHT (1 no)</b>				<b>96,785,243.00</b>	
<b>VII</b>	<b>Storm Water Drain</b>					
1	Excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m	Cum	411.80	233.86	96,303.55	
2	Cement concrete 1:2:4 using Crushed stone sand (M sand) and 20 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15cm thick including ramming curing, etc., complete	Cum	18.50	6089.00	112,646.50	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
3	Supplying and fabricating <b>CRS/Thermo Mechanically Treated High Corrosion Resistance bars</b> manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786-2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10-32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	9996.00	83.00	829,668.00	
4	Providing formwork with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	Sqm	773.50	1146.00	886,431.00	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M 25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.	Cum	100.30	6658.00	667,797.40	
<b>TOTAL OF STORM WATER DRAIN :</b>					<b>2,592,846.45</b>	
<b>VIII BOUNDARY WALL</b>						
1	Earth work excavation in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders as per SS 20 B with initial lead of 10 m and lift of 2 m	Cum	93.80	233.86	21,936.07	
2	Supplying and filling sand for foundations and basement including watering, consolidating, ramming etc complete.	Cum	9.30	447.00	4,157.10	
3	Cement concrete 1:3:6 using 40 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc. complete.	Cum	7.00	5129.00	35,903.00	CMWSSB SoR, Pg no. 90, Item. No.4.5
4	Random Rubble masonry in C.M. 1:3 including curing etc complete	Cum	22.60	9634.00	217728.40	CMWSSB SoR, Pg no. 97, Item. No.6.1
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete	Cum	28.60	9148.00	261632.80	CMWSSB SoR, Pg no. 97, Item. No. 6.2
6	Pointing to the RR masonry in cement mortar 1:3.	Sqm	256.70	270.00	69309.00	CMWSSB SoR, Pg no. 101, Item.No. 12.3
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc. complete for coping	Cum	5.50	6089.00	33489.50	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.	Sqm	23.70	325.00	7702.50	CMWSSB SoR, Pg no. 113, Item.No. 18.4
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling holes in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.	m	50.00	485.00	24250.00	CMWSSB SoR, Pg no. 115, Item.No. 18.14
10	Band course work flat 10mm to 12mm thick and 50mm deep with C.M.1:3 including curing etc. complete as directed.	m	100.00	209.00	20900.00	CMWSSB SoR, Pg no. 113, Item.No. 18.5
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.	Cum	54.80	40.70	2230.36	

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.	kg	350.00	62.60	21910.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	kg	45.00	62.60	2817.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour two coats	Sqm	43.90	139.00	6102.10	CMWSSB SoR, Pg no. 104, Item.No. 15.13
<b>TOTAL OF BOUNDARY WALL :</b>					<b>730,067.83</b>	
<b>IX ROAD WORKS</b>						
	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	Cum	102.00	226.38	23,090.76	CMWSSB SoR 2021-22, item no.1, pg no.131
	Soling, with gravel to a Consolidated thickness of 100mm thick using 1.333 Cu.mof gravel for an area of 10 sq.m including spreading watering and consolidation by power road roller etc. complete.	Cum	34.00	664.18	22,582.12	CMWSSB SoR 2021-22, item no.2, pg no.131
	Forming water bound macadam to a thickness of 100mm using 1 Cu.m. of 40mm IRC size HBG metal with 0.33cum.of gravel (which will passes through 10mm sieve size) fine for blindage for an area of 10 m <sup>2</sup> including spreading metal and gravel fine and packing to camber,consolidation by power roller and including watering and keeping the surface moist for 15 days etc., complete.	Sqm	340.00	188.70	64,158.00	CMWSSB SoR 2021-22, item no.3, pg no.131
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57 m <sup>3</sup> of sand and 0.65 m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller	Sqm	340.00	175.40	59,636.00	CMWSSB SoR 2021-22, item no.5, pg no.131
	Providing tack coat with appropriate grade of bitumen using 10 kg. per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	Sqm	340.00	91.20	31,008.00	CMWSSB SoR 2021-22, item no.7, pg no.131
	Mixing, processing in portable hotmix plant and laying coated bituminous macadamtio a consolidated thickness of 50mm using graded aggregate of 40mIRC size BGmetal 0.24m <sup>3</sup> 20mm IRC size BGmetal 0.309 cu.m.10mm IRC BGmetal 0.137m <sup>3</sup> and bitumen of appropriate grade 36.60Kg/10sqm over prepared surface including consolidation by power roller etc., complete.	Sqm	340.00	548.20	186,388.00	CMWSSB SoR 2021-22, item no.8, pg no.132
	Providing tack coat with appropriate grade of bitumen using 5 kg per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	Sqm	340.00	42.10	14,314.00	CMWSSB SoR 2021-22, item no.6, pg no.131
	Mixing, processing in portable hotmix and laying dense grade asphaltic concrete to a consolidated thickness of 40 mm using combined aggregate of 20 mm IRC BG metal 0.155 cu.m. 12 mm IRC BG metal 0.121 cu.m. size, 6 mm IRC BG metal 0.203 cu.m.size sand 0.119 m <sup>3</sup> lime stone powder 26.0 Kg for an area of 10sq.m. using 80/100 or 60/70 grade bitumen 49.8 Kg/10sq.m. over prepared surface including consolidation by power road roller, etc., complete.	Sqm	340.00	562.80	191,352.00	CMWSSB SoR 2021-22, item no.9, pg no.132
	Fixing cement concrete kerb of size 600 mm x 300 mm x 100 mm thick to proper level and alignment including pointing with cement mortar 1:3 to full depth, curing, etc., complete.	Sqm	170.00	409.80	69,666.00	CMWSSB SoR 2021-22, item no.11, pg no.132

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 3.5 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	<b>TOTAL OF ROAD WORK :</b>				<b>662,194.88</b>	
X	<b>GREEN COVER WORKS</b>					
1.1	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately)					
	Holes 90 cm dia, and 90 cm deep	Each	40.00	143.10	5,724.00	DSR-20, Pg no.85, Item no.2.14.2
1.2	Supplying of Vermicompost of 5 kg pack for each pit	Each	40.00	37.50	1,500.00	TN Horticulture Dept. rate (Extra rate 25% considered for transporting & CPOH)
1.3	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	22.50	36.55	822.38	DSR-20, Pg no.83, Item no.2.9
1.4	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded)	Cum	22.50	18.25	410.63	DSR-20, Pg no.87, Item no.2.20
2.1	Providing and stacking of Putranjiva roxburghii (Putranjeevi) of height 90-105 cm. in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.169, Item no.7.79
2.2	Providing and stacking of Bauhinia tomentosa (yellow) (Iruvatchi) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.175, Item no.8.2
2.3	Providing and stacking of Bauhinia purpurea (Mantharai) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	15.00	50.00	750.00	DSR-20, Pg no.161, Item no.7.8
2.4	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	50.00	750.00	DSR-20, Pg no.169, Item no.7.73
2.5	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	65.00	975.00	DSR-20, Pg no.161, Item no.7.5
	<b>TOTAL OF GREEN COVER :</b>				<b>12,282.00</b>	
XI	<b>RAIN WATER HARVESTING</b>					
	Construction of Rain water Harvesting Structure at the WDS premises	LS	2.00	21,000.00	42,000.00	
	<b>TOTAL OF RAIN WATER HARVESTING :</b>				<b>42,000.00</b>	
	<b>GRAND TOTAL (VII+VIII+IX+X+XI) Rs.</b>				<b>4,039,391.16</b>	
	<b>TOTAL COST FOR PROPOSED 3.5 ML OHT (1 no)</b>				<b>100,824,634.00</b>	
<b>Note:</b>						
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022					

**CONSTRUCTION OF OHT AT K.K. Nagar WDS IN ZONE - X (3.5 ML)**

**Basic Datas**

Clear diameter of tank	31	m				
Staging Height	20	m				
Depth of water	5	m				
Thickness of Wall	0.45	m				
Total depth of wall	5.75	m				
thickness of roof slab	0.20	m				
Size of Roof beams	0.00	x	0.00	m		
thickness of floor slab	0.50	m				
Size of floor slab beams	0.50	x	1.00	m		
Ring beam (below wall)	0.60	x	1.00	m		
Platform width	1.50	m				
Thickness of platform slab	0.15	m				
Column size - C1 & C2	0.60	x	0.60	m		
Column cap @ roof slab	1.50	x	1.50	x	0.25	m
No. of columns	44	Nos				
Size of bracing beam	0.40	x	0.60	m		
Bracing beam c/c distance	4.00	m				
Size of plinth beam	0.40	x	0.60	m		
Column size (for stair case) - C3	0.35	x	0.35	m		
No. of columns	4	Nos				
Staircase tie beams	0.30	x	0.45	m		
Size of STAIR CASE well	3.95	x	3.55	m		
Waist slab thickness	0.175	m				
Step raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0	m				
Founding level	-1.70	m				
Staging level	20.00	m				
Top of tank level	25.95	m				
Pile cap	PC					
PC1-Size	2.40	x	2.40	x	0.80	m
Nos	44	Nos				
PC2-Size	0.90	x	2.40	x	0.80	m
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m	dia			
Depth of pile	20.00	m				
No. of pile	184	Nos				
Pile cap connecting beam	0.40	x	0.60			
Grid length						
A-I	30.92	m	2.00	nos.		
B-H	27.19	m	2.00	nos.		
C-G	20.18	m	2.00	nos.		
1-10	31.40	m	1.00	no.		
2-9	29.50	m	2.00	nos.		
3-8	24.05	m	2.00	nos.		
5-6	5.45	m	2.00	nos.		
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

**Measurement Sheet for Preparation of BoQ for 3.5 ML OHT (20 m staging).**

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
		Length	Breadth	Height	Length	Breadth	Height		Qty	
<b>Excavation works</b>										
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.									
a)	0 to -2 m Lvl									
	Pile cap PC1	1	x	44	2.90	2.90	2.00	740.08		
	Pile cap PC2	1	x	4	1.40	2.90	2.00	32.48		
	Plinth beam									
	A-I	1	x	2	24.32	0.90	0.70	30.64		
	B-H	1	x	2	22.59	0.90	0.70	28.46		
	C-G	1	x	2	15.58	0.90	0.70	19.63		
	1-10	1	x	1	26.80	0.90	0.70	16.88		
	2-9	1	x	2	27.10	0.90	0.70	34.15		
	3-8	1	x	2	21.65	0.90	0.70	27.28		
	5-6	1	x	2	3.05	0.90	0.70	3.84		
	Ring beam	1	x	1	86.59	0.90	0.70	54.55		
	Staircase beam	1	x	2	1.55	0.90	0.70	1.95		
	Staircase beam	1	x	2	1.15	0.90	0.70	1.45		

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Cum
b)	-2 to -3 m Lvl						991.40	<b>991.40</b>	cum
	Pile cap PC1	1	x	44	2.90	2.90	0.60	222.02	
	Pile cap PC2	1	x	4	1.40	2.90	0.60	9.74	
							231.77	<b>231.80</b>	cum
2	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement								
	Excavation qty - Concrete qty.	1	x	1			1063.58		
							1063.58	<b>1063.60</b>	cum
3	Disposal of surplus earth								
	Excavation qty - Refilling qty.	1	x	1			159.59	<b>159.60</b>	cum
	<b>Concrete works</b>								
4	Plain Cement concrete 1:2:4 using Crushed stone sand (M sand) and 12 to 20 mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.								
	<u>0 m to 1.5 m below G.L.</u>								
	Plinth beam								
	A-I	1	x	2	24.32	0.60	0.10	2.92	
	B-H	1	x	2	22.59	0.60	0.10	2.71	
	C-G	1	x	2	15.58	0.60	0.10	1.87	
	1-10	1	x	1	26.80	0.60	0.10	1.61	
	2-9	1	x	2	27.10	0.60	0.10	3.25	
	3-8	1	x	2	21.65	0.60	0.10	2.60	
	5-6	1	x	2	3.05	0.60	0.10	0.37	
	Ring beam	1	x	1	86.59	0.60	0.10	5.20	
	Staircase pile cap beam	1	x	2	1.55	0.60	0.10	0.19	
	Staircase pile cap beam	1	x	2	1.15	0.60	0.10	0.14	
							20.84	<b>20.80</b>	cum
	<u>1.5 m to 4.5 m below G.L.</u>								
	Pile cap PC1	1	x	44	2.60	2.60	0.10	29.74	
	Pile cap PC2	1	x	4	1.10	2.60	0.10	1.14	
							30.89	<b>30.90</b>	cum
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C1	1	x	44	0.60	0.60	1.50	23.76	
	Column C2	1	x	4	0.35	0.35	1.50	0.74	
	Plinth beam								
	A-I	1	x	2	24.32	0.40	0.60	11.67	
	B-H	1	x	2	22.59	0.40	0.60	10.84	
	C-G	1	x	2	15.58	0.40	0.60	7.48	
	1-10	1	x	1	26.80	0.40	0.60	6.43	
	2-9	1	x	2	27.10	0.40	0.60	13.01	
	3-8	1	x	2	21.65	0.40	0.60	10.39	
	5-6	1	x	2	3.05	0.40	0.60	1.46	
	Ring beam	1	x	1	86.59	0.40	0.60	20.78	
	Staircase pile cap beam	1	x	2	1.55	0.40	0.60	0.74	
	Staircase pile cap beam	1	x	2	1.15	0.40	0.60	0.55	
							107.86	<b>107.90</b>	cum
b)	<u>1.5 m to 3.0 m below G.L.</u>								
	Pile cap PC1	1	x	44	2.40	2.40	0.80	202.75	
	Pile cap PC2	1	x	4	0.90	2.40	0.80	6.91	
	Column C1	1	x	44	0.60	0.60	0.20	3.17	
	Column C2	1	x	4	0.35	0.35	0.20	0.10	
							212.93	<b>212.90</b>	cum

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Above G.L.								
c)	<u>0 m to 4.5 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 4.0 m lvl								
	A-I	1	x	2	24.32	0.40	0.60	11.67	
	B-H	1	x	2	22.59	0.40	0.60	10.84	
	C-G	1	x	2	15.58	0.40	0.60	7.48	
	1-10	1	x	1	26.80	0.40	0.60	6.43	
	2-9	1	x	2	27.10	0.40	0.60	13.01	
	3-8	1	x	2	21.65	0.40	0.60	10.39	
	5-6	1	x	2	3.05	0.40	0.60	1.46	
	Ring beam	1	x	1	86.59	0.40	0.60	20.78	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 2.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								162.58	<b>162.60</b>
d)	<u>4.5 m to 9.0 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 8.0 m lvl								
	A-I	1	x	2	24.32	0.40	0.60	11.67	
	B-H	1	x	2	22.59	0.40	0.60	10.84	
	C-G	1	x	2	15.58	0.40	0.60	7.48	
	1-10	1	x	1	26.80	0.40	0.60	6.43	
	2-9	1	x	2	27.10	0.40	0.60	13.01	
	3-8	1	x	2	21.65	0.40	0.60	10.39	
	5-6	1	x	2	3.05	0.40	0.60	1.46	
	Ring beam	1	x	1	86.59	0.40	0.60	20.78	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 6.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								162.58	<b>162.60</b>
e)	<u>9.0 m to 13.5 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 12.0 m lvl								
	A-I	1	x	2	24.32	0.40	0.60	11.67	
	B-H	1	x	2	22.59	0.40	0.60	10.84	
	C-G	1	x	2	15.58	0.40	0.60	7.48	
	1-10	1	x	1	26.80	0.40	0.60	6.43	
	2-9	1	x	2	27.10	0.40	0.60	13.01	
	3-8	1	x	2	21.65	0.40	0.60	10.39	
	5-6	1	x	2	3.05	0.40	0.60	1.46	
	Ring beam	1	x	1	86.59	0.40	0.60	20.78	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 10.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
								162.58	<b>162.60</b>
f)	<u>13.5 m to 18.0 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 16.0 m lvl								
	A-I	1	x	2	24.32	0.40	0.60	11.67	
	B-H	1	x	2	22.59	0.40	0.60	10.84	
	C-G	1	x	2	15.58	0.40	0.60	7.48	
	1-10	1	x	1	26.80	0.40	0.60	6.43	
	2-9	1	x	2	27.10	0.40	0.60	13.01	
	3-8	1	x	2	21.65	0.40	0.60	10.39	
	5-6	1	x	2	3.05	0.40	0.60	1.46	
	Ring beam	1	x	1	86.59	0.40	0.60	20.78	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 14.0 & 18.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	3	4.43	1.78	0.18	4.13	
	Steps	1.5	x	14	1.98	0.30	0.15	1.87	

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
	landing slab	1	x	3	3.55	1.50	0.18	2.80		
								165.94	<b>165.90</b>	cum
g)	<u>18.0 m to 22.5 m</u>									
	Column	1	x	44	0.60	0.60	2.00	31.68		
	Staircase column	1	x	4	0.35	0.35	4.50	2.21		
	<u>Bracing beam @ 20.0 m lvl</u>									
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42		
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31		
	Staircase landing beam @ 20.0 & 22.0 m	1	x	2	3.20	0.30	0.45	0.86		
	waist slab	1	x	2	4.43	1.78	0.18	2.75		
	Steps	1	x	14	1.98	0.30	0.15	1.24		
	landing slab	1	x	2	3.55	1.50	0.18	1.86		
	Floor slab & beam									
	Bottom slab	1	x	1	<u>776.84</u>			0.50	388.42	
	Walkway slab	1	x	1	<u>153.15</u>			0.15	22.97	
	Kerb wall around platform	1	x	1	106.81	0.10	0.15	1.60		
	<u>Bottom slab beam @ 20.00 m lvl</u>									
	A-I	1	x	2	24.32	0.50	1.00	24.32		
	B-H	1	x	2	22.59	0.50	1.00	22.59		
	C-G	1	x	2	15.58	0.50	1.00	15.58		
	1-10	1	x	1	26.80	0.50	1.00	13.40		
	2-9	1	x	2	27.10	0.50	1.00	27.10		
	3-8	1	x	2	21.65	0.50	1.00	21.65		
	5-6	1	x	2	3.05	0.50	1.00	3.05		
	Ring beam	1	x	1	100.22	0.60	1.00	60.13		
	Tank wall	1	x	1	100.22	0.45	2.50	112.74		
	Column inside tank	1	x	24	0.60	0.60	2.50	21.60		
								776.50	<b>776.50</b>	cum
h)	<u>22.5 m to 25.95 m</u>									
	Column C2	1	x	24	0.60	0.60	3.25	28.08		
	Tank wall from 22.5 to 25.95 m lvl	1	x	1	100.22	0.45	3.25	146.57		
	Roof slab	1	x	1	<u>776.84</u>			0.20	155.37	
	Column cap	1	x	24	1.50	1.50	0.25	13.50		
	Staircase landing beam @ 24.0 & 25.95 m	1	x	2	3.20	0.30	0.45	0.86		
	waist slab	1	x	2	4.43	1.78	0.18	2.75		
	Steps	1	x	14	1.98	0.30	0.15	1.24		
	landing slab	1	x	2	3.55	1.50	0.18	1.86		
	Kerb wall for manhole opening	1	x	2	5.60	0.20	0.60	1.34		
	Stub column for ventilator opening	4	x	4	0.15	0.15	0.75	0.27		
	Kerb wall for ventilator opening	1	x	4	4.80	0.15	0.15	0.43		
	Kerb wall around roof slab	1	x	1	100.22	0.10	0.15	1.50		
								353.79	<b>353.80</b>	cum
	<b>Total RCC (M-30) Qty.</b>								<b>2104.80</b>	cum
	<b>Shuttering works</b>									
6	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high									
a)	<u>0 m to 1.5 m below G.L.</u>									
	Column C1	4	x	44	0.60		0.90	95.04		
	Column C2	4	x	4	0.35		0.90	5.04		
	Plinth beam									
	A-I	2	x	2	24.32		0.60	58.37		
	B-H	2	x	2	22.59		0.60	54.22		
	C-G	2	x	2	15.58		0.60	37.39		
	1-10	2	x	1	26.80		0.60	32.16		
	2-9	2	x	2	27.10		0.60	65.04		
	3-8	2	x	2	21.65		0.60	51.96		
	5-6	2	x	2	3.05		0.60	7.32		
	Ring beam	2	x	1	86.59		0.60	103.91		
	Staircase pile cap beam	2	x	2	1.55		0.60	3.72		
	Staircase pile cap beam	2	x	2	1.15		0.60	2.76		
								516.92	<b>516.90</b>	Sqm
	<u>-1.5 m to 2.5 m below G.L.</u>									
	Pile cap PC1	4	x	44	2.40		0.80	337.92		
	Pile cap PC2	2	x	4	0.90		0.80	5.76		
		2	x	4	2.40		0.80	15.36		
	Column C1	4	x	44	0.60		0.20	21.12		

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
		Length	Breadth	Height	Qty				Qty	
	Column C2	4	x	4	0.35		0.20	1.12		
								381.28	<b>381.30</b>	Sqm
	<u>Above G.L</u>									
b)	<u>0 m to 3.0 m</u>									
	Column	4	x	44	0.60		3.00	316.80		
	Staircase column	4	x	4	0.35		3.00	16.80		
	Staircase landing beam @ 2.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	waist slab	1	x	2	4.43		1.78	15.72		
	Steps	2	x	14	1.78		0.15	7.46		
	landing slab	1	x	1	3.55		1.50	5.33		
							369.78	<b>369.80</b>	Sqm	
c)	<u>3.0 m to 4.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
							111.20	<b>111.20</b>	Sqm	
d)	<u>4.0 m to 5.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Bracing beam @ 4.0 m lvl									
	A-I	2	x	2	24.32		0.60	58.37		
		1	x	2	24.32		0.40	19.46		
	B-H	2	x	2	22.59		0.60	54.22		
		1	x	2	22.59		0.40	18.07		
	C-G	2	x	2	15.58		0.60	37.39		
		1	x	2	15.58		0.40	12.46		
	1-10	2	x	1	26.80		0.60	32.16		
		1	x	1	26.80		0.40	10.72		
	2-9	2	x	2	27.10		0.60	65.04		
		1	x	2	27.10		0.40	21.68		
	3-8	2	x	2	21.65		0.60	51.96		
		1	x	2	21.65		0.40	17.32		
	5-6	2	x	2	3.05		0.60	7.32		
		1	x	2	3.05		0.40	2.44		
	Ring beam	2	x	1	86.59		0.60	103.91		
		1	x	1	86.59		0.40	34.64		
	Staircase bracing beam	2	x	2	1.55		0.45	2.79		
		1	x	2	1.55		0.30	0.93		
	Staircase bracing beam	2	x	2	1.15		0.45	2.07		
		1	x	2	1.15		0.30	0.69		
	Staircase bracing beam @ 4.0 m	2	x	1	3.20		0.45	2.88		
		1	x	1	3.20		0.30	0.96		
	waist slab	1	x	2	4.43		1.78	15.72		
	Steps	2	x	14	1.98		0.15	8.30		
	landing slab	1	x	1	3.55		1.50	5.33		
							698.01	<b>698.00</b>	Sqm	
e)	<u>5.0 m to 6.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
							111.20	<b>111.20</b>	Sqm	
e)	<u>6.0 m to 7.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Staircase landing beam @ 6.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		
							124.21	<b>124.20</b>	Sqm	
f)	<u>7.0 m to 8.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
	landing slab	1	x	1	3.55		1.50	5.33		
							128.11	<b>128.10</b>	Sqm	
g)	<u>8.0 m to 9.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Bracing beam @ 8.0 m lvl									
	A-I	2	x	2	24.32		0.60	58.37		

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		1	x	2	24.32		0.40	19.46	
	B-H	2	x	2	22.59		0.60	54.22	
		1	x	2	22.59		0.40	18.07	
	C-G	2	x	2	15.58		0.60	37.39	
		1	x	2	15.58		0.40	12.46	
	1-10	2	x	1	26.80		0.60	32.16	
		1	x	1	26.80		0.40	10.72	
	2-9	2	x	2	27.10		0.60	65.04	
		1	x	2	27.10		0.40	21.68	
	3-8	2	x	2	21.65		0.60	51.96	
		1	x	2	21.65		0.40	17.32	
	5-6	2	x	2	3.05		0.60	7.32	
		1	x	2	3.05		0.40	2.44	
	Ring beam	2	x	1	86.59		0.60	103.91	
		1	x	1	86.59		0.40	34.64	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 8.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
								668.67	<b>668.70</b>
									Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
								128.11	<b>128.10</b>
									Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 10.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								124.21	<b>124.20</b>
									Sqm
j)	<u>11.0 m to 12.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								122.79	<b>122.80</b>
									Sqm
k)	<u>12.0 m to 13.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 12.0 m lvl								
	A-I	2	x	2	24.32		0.60	58.37	
		1	x	2	24.32		0.40	19.46	
	B-H	2	x	2	22.59		0.60	54.22	
		1	x	2	22.59		0.40	18.07	
	C-G	2	x	2	15.58		0.60	37.39	
		1	x	2	15.58		0.40	12.46	
	1-10	2	x	1	26.80		0.60	32.16	
		1	x	1	26.80		0.40	10.72	
	2-9	2	x	2	27.10		0.60	65.04	
		1	x	2	27.10		0.40	21.68	
	3-8	2	x	2	21.65		0.60	51.96	
		1	x	2	21.65		0.40	17.32	
	5-6	2	x	2	3.05		0.60	7.32	
		1	x	2	3.05		0.40	2.44	
	Ring beam	2	x	1	86.59		0.60	103.91	
		1	x	1	86.59		0.40	34.64	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Starcase bracing beam @ 12.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
								674.00	<b>674.00</b> Sqm
i)	<u>13.0 m to 14.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								122.79	<b>122.80</b> Sqm
m)	<u>14.0 m to 15.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 14.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								124.21	<b>124.20</b> Sqm
n)	<u>15.0 m to 16.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								122.79	<b>122.80</b> Sqm
o)	<u>16.0 m to 17.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	<u>Bracing beam @ 16.0 m lvl</u>								
	A-I	2	x	2	24.32		0.60	58.37	
		1	x	2	24.32		0.40	19.46	
	B-H	2	x	2	22.59		0.60	54.22	
		1	x	2	22.59		0.40	18.07	
	C-G	2	x	2	15.58		0.60	37.39	
		1	x	2	15.58		0.40	12.46	
	1-10	2	x	1	26.80		0.60	32.16	
		1	x	1	26.80		0.40	10.72	
	2-9	2	x	2	27.10		0.60	65.04	
		1	x	2	27.10		0.40	21.68	
	3-8	2	x	2	21.65		0.60	51.96	
		1	x	2	21.65		0.40	17.32	
	5-6	2	x	2	3.05		0.60	7.32	
		1	x	2	3.05		0.40	2.44	
	Ring beam	2	x	1	86.59		0.60	103.91	
		1	x	1	86.59		0.40	34.64	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Starcase bracing beam @ 16.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
								674.00	<b>674.00</b> Sqm
o)	<u>17.0 m to 18.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								122.79	<b>122.80</b> Sqm
p)	<u>18.0 m to 19.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 18.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								124.21	<b>124.20</b> Sqm

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
q)	<u>19.0 m to 20.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Floor beam @ 20.0 m lvl								
	A-I	2	x	2	24.32		1.00	97.28	
		1	x	2	24.32		0.50	24.32	
	B-H	2	x	2	22.59		1.00	90.36	
		1	x	2	22.59		0.50	22.59	
	C-G	2	x	2	15.58		1.00	62.32	
		1	x	2	15.58		0.50	15.58	
	1-10	2	x	1	26.80		1.00	53.60	
		1	x	1	26.80		0.50	13.40	
	2-9	2	x	2	27.10		1.00	108.40	
		1	x	2	27.10		0.50	27.10	
	3-8	2	x	2	21.65		1.00	86.60	
		1	x	2	21.65		0.50	21.65	
	5-6	2	x	2	3.05		1.00	12.20	
		1	x	2	3.05		0.50	3.05	
	Ring beam	1	x	2	100.22		1.00	200.43	
		1	x	1	100.22		0.60	60.13	
	Floor slab	1	x	1	776.84			776.84	
	Walkway slab	1	x	1	153.15			153.15	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 20.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
								1955.85	<b>1955.90</b>
	Sqm								
r)	<u>20.0 m to 21.0 m</u>								
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	100.22		1.00	200.43	
	Kerb wall around platform	2	x	1	106.81		0.15	32.04	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								307.26	<b>307.30</b>
	Sqm								
s)	<u>21.0 m to 22.0 m</u>								
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	100.22		1.00	200.43	
								263.63	<b>263.60</b>
	Sqm								
t)	<u>22.0 m to 23.0 m</u>								
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	100.22		1.00	200.43	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	Staircase landing beam @ 22.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								288.22	<b>288.20</b>
	Sqm								
u)	<u>23.0 m to 24.0 m</u>								
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	100.22		1.00	200.43	
								263.63	<b>263.60</b>
	Sqm								
v)	<u>24.0 m to 25.0 m</u>								
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	100.22		1.00	200.43	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	Staircase landing beam @ 24.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
		Length	Breadth	Height	Qty				Qty	
	landing slab	1	x	1	3.55		1.50	5.33		
								288.22	<b>288.20</b>	Sqm
x)	<u>24.0 m to 25.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	100.22		1.00	200.43		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
								275.22	<b>275.20</b>	Sqm
y)	<u>25.0 m to 26.0 m</u>									
	Column	4	x	24	0.60		0.55	31.68		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	100.22		0.80	160.35		
	Roof slab	1	x	1	776.84			776.84		
	Column cap	4	x	24	1.50		0.25	36.00		
	Kerb wall around roof slab	2	x	1	100.22		0.15	30.07		
	Staircase landing beam @ 25.95 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	waist slab	1	x	2	4.43		1.78	15.72		
	Steps	1	x	14	1.78		0.15	3.73		
	landing slab	1	x	1	3.55		1.50	5.33		
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44		
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60		
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88		
								1092.90	<b>1092.90</b>	Sqm
	<b>Total Shuttering qty.</b>								<b>10184.20</b>	Sqm
	<b>Reinforcement Steel</b>									
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings									
	125 kg per cum	1	x	1				263.10		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1				13.16		
								276.26	<b>276.30</b>	MT
	For pile foundation									
	130 kg per cum	1	x	1				135.26		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1				6.76		
								142.03	<b>142.00</b>	MT
	<b>Piling works</b>									
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.									
	600 mm dia piles	1	x	184	20.00			3680.00		
								3680.00	<b>3680.00</b>	meters
9	Vertical load Test									
	Single pile upto 50 tonne Safe capacity	2	x					2.00		No.
10	Horizontal load Test	1	x					1.00		No.
11	Pull out Test	1	x					1.00		No.
	<b>Finishing works</b>									

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
12	Special ceiling Plastering with cement mortar 1:3 Crushed stone sand (M-sand) for 12mm thick including hacking and curing etc. complete.								
	Bottom slab	1	x				776.84		
	Walkway platform	1	x				153.15		
	Staircase waist slab	1	x				125.74		
	Landing slab	1	x				74.55		
							1130.28	<b>1130.30</b>	Sqm.
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete								
	External plastering	1	x				7863.80	<b>7863.80</b>	Sqm.
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x				776.84	<b>776.80</b>	Sqm.
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x				2517.07	<b>2517.10</b>	Sqm.
16	Concrete with broken brick jelly 20mm gauge in pure slacked lime over R.C.C. roof slab for 80 mm thick	1	x		776.84	0.08	62.15	<b>62.10</b>	cum
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x		776.84		776.84	<b>776.80</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.								
	Precast Concrete jolly	1	x	16	1.20	0.60		11.52	
	Precast Concrete slab	1	x	4	2.10	2.10		17.64	
							29.16	<b>29.20</b>	Sqm
19	Colour washing two coats over one coat of white washing.								
	All external surfaces	1	x	1			7863.80	<b>7863.80</b>	Sqm.
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures								
	Vertical surface	1	x	1			1740.23		
	Horizontal surface	1	x	1			776.84		
							2517.07	<b>2517.10</b>	Sqm.
<b>Miscellaneous works</b>									
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	2			2.00		
22	Supplying and fixing lightening arrestor	1	x	1			1.00		
23	Providing and fixing level indicator	1	x	1			1.00		
24	Providing and fixing Hand rails with MS tube								
	walkway platform								
	Horizontal top pipe 50 mm dia	1	x	1	106.81		5.44	581.07	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India
	Horizontal 20 mm square rod	4	x	163	0.60		3.14	1230.85	Weight 3.14 kg/m
	Vertical 20 mm square rod	4	x	164	0.85		3.14	1754.38	
	Insert plate 5 mm thick	2	x	164	0.15	0.10	0.005	193.50	7850 kg/m3
	Roof slab								
	Horizontal top pipe 50 mm dia	1	x	1	100.22		5.44	545.18	
	Vertical 20 mm square rod	4	x	154	0.60		3.14	1161.90	
	Horizontal 20 mm square rod	4	x	153	0.60		3.14	1154.36	
	Insert plate 5 mm thick	2	x	154	0.15	0.10	0.005	181.55	
	Staircase								
	Horizontal top pipe 50 mm dia	2	x	13	9.48		5.44	1340.49	
	Vertical 20 mm square rod	52	x	15	1.00		3.14	2380.74	
	Horizontal 20 mm square rod	52	x	14	0.60		3.14	1330.48	
	Insert plate 5 mm thick	379	x	15	0.15	0.10	0.005	3254.34	
							15108.83	<b>15108.80</b>	Kg

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.								
		1	x	15	31.00			465.00	<b>465.00</b>
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	1	x	2	9.00		18.00	<b>18.00</b>	Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	1	100.22		200.43		
							200.43	<b>200.40</b>	Mtr.
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10								
	Inlet pipe 600 dia	1	x	1	33.00		33.00		
	Over flow pipe 600 dia	1	x	1	33.00		33.00		
							66.00	<b>66.00</b>	Mtr.
	Outlet pipe 800 dia	1	x	1	27.00		27.00		
							27.00	<b>27.00</b>	Mtr.
	Scour pipe 350 dia	1	x	1	27.00		27.00		
							27.00	<b>27.00</b>	Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection								
	600 mm dia	1	x	2	66.00		338.51	677.02	Weight per mtr arrived as per online data
	800 mm dia	1	x	1	27.00		491.61	491.61	
	350 mm dia	1	x	1	27.00		147.31	147.31	
							1315.94	<b>1315.90</b>	Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000								
	<u>Inlet pipe 600 dia</u>								
	Bend 90	1	x	1	325		325.00		
	<u>Over flow pipe 600 dia</u>								
	Bend 90	1	x	1	325		325.00		
							650.00	<b>650.00</b>	Kg
	<u>Outlet pipe 800 dia</u>								
	Bend 90	1	x	1	575		575.00		
	Bend 45	1	x	2	444		888.00		
							1463.00	<b>1463.00</b>	Kg
	<u>Scour pipe 350 dia</u>								
	Bend 90	1	x	1	97.0		97.00		
							97.00	<b>97.00</b>	Kg
27	DI Sluice valve								
	350 mm	1	x	1			1.00		Each
28	DI Butterfly valve								
	400 mm	1	x	0			0.00		Each
	600 mm	1	x	2			2.00		Each
	800 mm	1	x	1			1.00		Each
29	Concrete of thrust blocks for pipe support								
	400 mm								
	90 Bend	1	x	1			1.00		Each
	700 mm								
	90 Bend	1	x	2			2.00		Each
	800 mm								
	90 Bend	1	x	1			1.00		Each
	45 Bend	1	x	2			2.00		Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	28			28.00		Each
	<b>Storm Water Drain</b>								
	Excavation	1	x	1	170.00	1.90	1.28	411.83	<b>411.80</b>
									cum

Sl. No.	Description of Work	No.		Measurement			Qty	Total		
				Length	Breadth	Height		Qty		
	PCC M10	1	x	1	170.00	1.45	0.08	18.49	<b>18.50</b>	cum
	Shuttering works BGL									
	for PCC	1	x	2	170.00		0.08	25.50		
	for base slab	1	x	2	170.00		0.20	68.00		
	for wall inner	1	x	2	170.00		1.00	340.00		
	for wall outer	1	x	2	170.00		1.00	340.00		
							773.50	<b>773.50</b>	Sqm	
	Reinforcement									
	for base slab	1	x	1	44.20		90.00	3978.00		
	For Wall	1	x	1	51.00		110.00	5610.00		
	Cover slab	1	x	1	5.10		80.00	408.00		
							9996.00	<b>9996.00</b>	kg	
	RCC Concrete M25									
	For base slab	1	x	1	170.00	1.30	0.20	44.20		
	For Wall	1	x	2	170.00	1.00	0.15	51.00		
	Cover slab	1	x	1	170.00	0.60	0.05	5.10		
							100.30	<b>100.30</b>	cum	
	<b>Boundary Wall</b>									
1.	Earth work excavation and depositing on bank with initial leadof 10m and lift of 2m in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed stoney earth and earth mixed stoney earth and earth mixed with small sizes boulders andwith small sizes boulders andhard gravelly soil as per SS 20.B	1	x	1	50.00	1.50	1.25	93.75	<b>93.80</b>	cu.m
2	Supplying and filling with sand for foundation and basement ramming etc complete.									
	For walls	1	x	1	20.00	0.90	0.20	3.60		cu.m
	For Pillars	1	x	33	0.90	0.90	0.20	5.40		cu.m
	For gate pillars	1	x	2	0.90	0.90	0.20	0.32		cu.m
							9.32	<b>9.30</b>	cu.m	
3	Cement concrete 1:3:6 using 40mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc complete.									
	For walls	1	x	1	20.00	0.90	0.15	2.70		cu.m
	For Pillars	1	x	33	0.90	0.90	0.15	4.05		cu.m
	For gate pillars	1	x	2	0.90	0.90	0.15	0.24		cu.m
							6.99	<b>7.00</b>	cu.m	
4	Random Rubble masonry in C.M. 1:3 including curing etc complete									
	For walls									
	I footing	1	x	1	31.33	0.56	0.45	7.90		
	II footing	1	x	1	31.33	0.45	0.45	6.35		
	For pillars									
	I footing	1	x	33	0.56	0.56	0.45	4.70		
	II footing	1	x	33	0.45	0.45	0.45	3.04		
	For gate pillars									
	I footing	1	x	2	0.65	0.65	0.45	0.38		
	II footing	1	x	2	0.56	0.56	0.45	0.28		
							22.64	<b>22.60</b>	cu.m	
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete									
	Above G.L									
	For walls	1	x	1	35.00	0.30	2.50	26.25		
	For pillars	1	x	1	0.45	0.45	2.50	0.51		
	For gate pillars	1	x	2	0.56	0.56	3.00	1.88		
							28.64	<b>28.60</b>	cu.m	
6	Pointing to the RR masonry in cement mortar 1:3., 20mmthick									
	For main wall	1	x	2	35.00		2.50	175.00		
	Intermediate pillars	2	x	33	0.45		2.50	75.00		
	For gate pillars	2	x	2	0.56		3.00	6.72		
							256.72	<b>256.70</b>	sqm	
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc.complete.for coping									
	For main wall	1	x	1	35.00	(1/2)*0.3	0.15	5.25		
	Intermediate pillars	1	x	1	0.45	1/2*0.45	0.15	0.07		
	For gate pillars	1	x	2	0.56	(1/2)*0.56	0.15	0.17		
							5.49	<b>5.50</b>	cu.m	

Sl. No.	Description of Work	No.		Measurement			Qty	Total		
				Length	Breadth	Height		Qty		
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.									
	For main wall	1	x	2	35.00	0.21		14.84		
	Intermediate pillars	2	x	33	0.45	0.27		8.10		
	For gate pillars	2	x	2	0.56	0.32		0.72		
							23.66	<b>23.70</b>	sqm	
9	Supplying and fixing barbed wire encing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecing all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling hole in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.									
		1	x	1	50.00			50.00	<b>50.00</b>	m
10	Band course work flat 10mm to 12mm thick and 65mm deep with C.M.1:3 including curing etc. complete as directed.									
	For main wall	1	x	2	50.00			100.00	<b>100.00</b>	m
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.									
	Earthwork quantity	1	x	1				93.75		
	Deduct below GL Elements	1	x	1				-38.96		
							54.79	<b>54.80</b>	cu.m	
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.									considered 87.5 kg/m
		1	x	4			87.50	350.00	<b>350.00</b>	kg
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.									
		1	x	1	45.00			45.00	<b>45.00</b>	kg
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour.									
	New Iron work two coats.					coeff				
	Main gate	1	x	3	2.00	2.25	2.50	33.75		
	Wicket gate	1	x	3	0.75	2.25	2.00	10.13		
							43.88	<b>43.90</b>	sq.m	
<b>ROAD WORKS</b>										
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	1.00	x	1.00	85.00	4.00	0.30	102.00	<b>102.00</b>	Cum
2	Soling, with gravel to a Consolidated thickness of 100mm thick using 1.333 Cu.mof gravel for an area of 10 sq.m including spreading watering and consolidation by power road roller etc. complete.	1.00	x	1.00	85.00	4.00	0.10	34.00	<b>34.00</b>	Cum

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	Sqm
3	Forming water bound macadam to a thickness of 100mm using 1 Cu.m. of 40mm IRC size HBG metal with 0.33cum.of gravel (which will passes through 10mm sieve size) fine for blindage for an area of 10 m <sup>2</sup> including spreading metal and gravel fine and packing to camber,consolidation by power roller and including watering and keeping the surface moist for 15 days etc., complete.	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
4	Providing tack coat with appropriate grade of bitumen using 10 kg. per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57m <sup>3</sup> of sand and 0.65m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
5	Mixing, processing in portable hotmix plant and laying coated bituminous macadamto a consolidated thickness of 50mm using graded aggregate of 40mIRC size BGmetal 0.24m <sup>3</sup> 20mm IRC size BGmetal 0.309 cu.m.10mm IRC BGmetal 0.137m <sup>3</sup> and bitumen of appropriate grade 36.60Kg/10sqm over prepared surface including consolidation by power roller etc., complete.	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
6	Providing tack coat with appropriate grade of bitumen using 5 kg per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
7	Mixing, processing in portable hotmix and laying dense grade asphaltic concrete to a consolidated thickness of 40 mm using combined aggregate of 20 mm IRC BG metal 0.155 cu.m. 12 mm IRC BG metal 0.121 cu.m. size, 6 mm IRC BG metal 0.203 cu.m.size sand 0.119 m <sup>3</sup> lime stone powder 26.0 Kg for an area of 10sq.m. using 80/100 or 60/70 grade bitumen 49.8 Kg/10sq.m. over prepared surface including consolidation by power road roller, etc., complete.	1.00	x	1.00	85.00	4.00		340.00	<b>340.00</b>	Sqm
8	Fixing cement concrete kerb of size 600 mm x 300 mm x 100 mm thick to proper level and alignment including pointing with cement mortar 1:3 to full depth, curing, etc., complete.	1.00	x	2.00	85.00			170.00	<b>170.00</b>	Sqm
<b>GREEN COVER</b>										
1.	Earth work excavation in manually for planting pits of size 2'6"x2'6"x3'0" along the boundary wall as per GCC circular (Length of boundary wall 150 m, distance b/w the plant is 5 m & 10 extra considered)	1.00	x	40.00				40.00	<b>40.00</b>	Each
2	Vermicompost of 5 kg pack for each pit	1.00	x	40.00				40.00	<b>40.00</b>	Each
3	Backfilling of excavated earth	1.00	x	40.00	0.75	0.75	1.00	22.50	<b>22.50</b>	Cum

**CONSTRUCTION OF OHT AT CHOOLAIMedu WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
I	<b>EARTHWORK</b>					
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
	a) 0-2 m	Cum	1008.00	233.86	235,730.88	
	b) 2 - 3 m	Cum	231.80	245.08	56,809.54	
	c) 3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
	a) 0-2 m	Cum	0.00	483.56	-	
	b) 2 - 3 m	Cum	0.00	492.47	-	
	c) 3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	1072.30	40.70	43,642.61	
4	Disposal of Surplus earth	Cum	167.50	140.75	23,575.63	
	<b>TOTAL OF EARTHWORKS :</b>				<b>359,758.66</b>	
II	<b>CONCRETE AND ALLIED WORKS</b>					
	<b>Plain Cement Concrete</b>					
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
	0 m to 1.5 m below G.L.	Cum	22.40	6089.00	136,393.60	
	1.5 m to 4.5 m below G.L.	Cum	30.90	6200.87	191,606.88	
	<b>Reinforced Cement Concrete</b>					
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	Pile cap and column					
6.1	0 to -1.5m (below ground)	Cum	114.20	6870.00	784,554.00	
6.2	-1.5 to -4.5m (below ground)	Cum	212.90	6981.87	1,486,440.12	
	Above ground					
	Columns, Brace and staircase					
6.3	0 to 4.5 m	Cum	168.90	6983.63	1,179,535.11	
6.4	4.5 to 9.0 m	Cum	168.90	7207.48	1,217,343.37	
6.5	9.0 to 13.5 m	Cum	168.90	7431.33	1,255,151.64	
6.6	13.5 to 18.0 m	Cum	172.30	7655.18	1,318,987.51	
6.7	18.0 to 22.5 m	Cum	849.80	7879.03	6,695,599.69	
6.8	22.5 to 27.0 m	Cum	383.50	8102.88	3,107,454.48	

**CONSTRUCTION OF OHT AT CHOOLAIMedu WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	Column & Beam	sq m	548.50	1247.00	683,979.50	
	1.5 to 2.5 m below GL					
7.2	Pile Cap & Column	sq m	381.30	1247.00	475,481.10	
	Above ground level					
7.3	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	369.80	1247.00	461,140.60	
7.4	3.0 m to 4.0 m	sq m	111.20	1281.00	142,447.20	
7.5	4.0 m to 5.0 m	sq m	740.20	1315.00	973,363.00	
7.6	5.0 m to 6.0 m	sq m	111.20	1349.00	150,008.80	
7.7	6.0 m to 7.0 m	sq m	124.20	1383.00	171,768.60	
7.8	7.0 m to 8.0 m	sq m	128.10	1417.00	181,517.70	
7.9	8.0 m to 9.0 m	sq m	710.80	1451.00	1,031,370.80	
7.10	9.0 m to 10.0 m	sq m	128.10	1485.00	190,228.50	
7.11	10.0 m to 11.0 m	sq m	124.20	1519.00	188,659.80	
7.12	11.0 m to 12.0 m	sq m	122.80	1553.00	190,708.40	
7.13	12.0 m to 13.0 m	sq m	716.20	1587.00	1,136,609.40	
7.14	13.0 m to 14.0 m	sq m	122.80	1621.00	199,058.80	
7.15	14.0 m to 15.0 m	sq m	124.20	1655.00	205,551.00	
7.16	15.0 m to 16.0 m	sq m	122.80	1689.00	207,409.20	
7.17	16.0 m to 17.0 m	sq m	716.20	1723.00	1,234,012.60	
7.18	17.0 m to 18.0 m	sq m	122.80	1757.00	215,759.60	
7.19	18.0 m to 19.0 m	sq m	124.20	1791.00	222,442.20	
7.20	19.0 m to 20.0 m	sq m	2133.70	1825.00	3,894,002.50	
7.21	20.0 m to 21.0 m	sq m	321.70	1859.00	598,040.30	
7.22	21.0 m to 22.0 m	sq m	276.20	1893.00	522,846.60	
7.23	22.0 m to 23.0 m	sq m	300.80	1927.00	579,641.60	
7.24	23.0 m to 24.0 m	sq m	276.20	1961.00	541,628.20	
7.25	24.0 m to 25.0 m	sq m	300.80	1995.00	600,096.00	
7.26	25.0 m to 26.0 m	sq m	1206.80	2029.00	2,448,597.20	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	293.90	83000.00	24,393,700.00	
	<b>TOTAL OF CONCRETE WORKS :</b>				<b>59,213,135.61</b>	
<b>III</b>	<b>PILING WORKS</b>					

**CONSTRUCTION OF OHT AT CHOOLAIMedu WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	3680.00	4514.40	16,612,992.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	2	30505.00	61,010.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	142.00	83000.00	11,786,000.00	
	<b>TOTAL OF PILING WORKS :</b>				<b>28,548,439.65</b>	
<b>IV</b>	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
12	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	878.80	146.00	128,304.80	
13	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	1241.70	255.00	316,633.50	
	<b>Painting and protective coatings:</b>					

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
14	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after thoroughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	8219.90	203.00	1,668,639.70	
15	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	2704.50	198.40	536,572.80	
	<b>Terrace Works:</b>					
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	70.30	3778.00	265,593.40	
17	Terrace flooring with two course of flat tiles of 15cm x 15cm x 12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	878.80	1503.00	1,320,836.40	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>4,236,580.60</b>	
V	<b>MISCELLANEOUS WORKS</b>					
18	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embeded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
19	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	29.20	1688.00	49,289.60	
20	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
21	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	2.00	3925.00	7,850.00	
22	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	15521.70	157.15	2,439,235.16	
23	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	465.00	981.00	456,165.00	

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
24	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	18.00	1869.00	33,642.00	
25	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	213.00	285.60	60,832.80	
26	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowl.	Each	28.00	2069.50	57,946.00	
27	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	4.0 ML OHT	LS	1.00	337855.40	337,855.40	
<b>TOTAL OF MISCELLANEOUS :</b>					<b>3,471,821.82</b>	
<b>VI</b>	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	400 mm (Scour Pipe)	mts	27.00	9571.75	258,437.25	
b)	600 mm (Inlet & Overflow pipe)	mts	66.00	17541.00	1,157,706.00	
c)	700 mm (Outlet pipe)	mts	27.00	23331.50	629,950.50	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
	0 to 2 m	Qtl	21.72	226.50	4,920.49	
	2 to 4 m	Qtl	21.72	341.10	7,410.06	
	4 to 6 m	Qtl	21.72	535.00	11,622.34	
	6 to 8 m	Qtl	21.72	739.90	16,073.59	
	8 to 10 m	Qtl	21.72	944.80	20,524.84	
	10 to 12 m	Qtl	21.72	1147.00	24,917.43	
	12 to 14 m	Qtl	21.72	1357.10	29,481.64	
	14 to 16 m	Qtl	21.72	1545.90	33,583.13	
	16 to 18 m	Qtl	21.72	1750.40	38,025.69	
	18 to 20 m	Qtl	21.72	1955.10	42,472.59	
	20 to 22 m	Qtl	6.77	2154.80	14,588.39	
	22 to 24 m	Qtl	6.77	2356.60	15,954.61	
	24 to 26 m	Qtl	3.39	2550.00	8,631.98	

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends, Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers required for the following pipes.					
a)	400 mm (Scour Pipe)	kgs	128.00	134.00	17,152.00	
b)	600 mm (Inlet & Overflow pipe)	kgs	650.00	134.00	87,100.00	
c)	700 mm (Outet pipe)	kgs	1074.00	197.00	211,578.00	
31	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
a)	400 mm (Scour Pipe)	Each	1.00	1443.00	1,443.00	
b)	600 mm (Inlet & Overflow pipe)	Each	2.00	3086.00	6,172.00	
c)	700 mm (Outet pipe)	Each	3.00	4203.00	12,609.00	
32	Supply and delivery of DI D/F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves/Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100% leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	350 mm (on Scour Pipe)	Nos	0.00	206448.00	-	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS 3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	400 mm (Scour Pipe)	Nos	1.00	178093	178,093.00	
b)	600 mm (Inlet & Overflow pipe)	Nos	2.00	258694	517,388.00	
c)	700 mm (Outet pipe)	Nos	1.00	495835	495,835.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					
a)	400 mm (Scour Pipe)	Each	1.00	5591.00	5,591.00	
b)	600 mm (Inlet & Overflow pipe)	Each	2.00	25428.00	50,856.00	
c)	700 mm (Outet pipe)	Each	1.00	29526.00	29,526.00	

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
35	Construction of RCC chamber for 300mm to 400mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	1.00	63000.00	63,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.sludge valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	3.00	136000.00	408,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete					
	400 mm 90 bend	Each	1.00	11990	11,990.00	
	600 mm 90 bend	Each	2.00	18291	36,582.00	
	700 mm 45 bend	Each	2.00	15804	31,608.00	
	700 mm 90 bend	Each	1.00	29954	29,954.00	
<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>					<b>4,508,777.52</b>	
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>				<b>100,338,513.86</b>	
	<b>TOTAL COST FOR PROPOSED 4.0 ML OHT (1 no)</b>				<b>100,338,514.00</b>	
<b>VII</b>	<b>Storm Water Drain</b>					
1	Excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10m and lift of 2.0 m	Cum	1095.00	233.86	256,076.70	
2	Cement concrete 1:2:4 using Crushed stone sand (M sand) and 20 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15cm thick including ramming curing, etc., complete	Cum	49.20	6089.00	299,578.80	
3	Supplying and fabricating <b>CRS/Thermo Mechanically Treated High Corrosion Resistance bars</b> manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10-32 mm dia rod (Fe-500 D Grade with CRS material)	Kg	26577.60	83.00	2,205,940.80	
4	Providing formwork with centering for soffits of reinforced cement concrete slabs or plain surfaces including strutting upto 3m high	Sqm	2056.60	1146.00	2,356,863.60	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M 25 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mand down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.	Cum	266.70	6658.00	1,775,688.60	
<b>TOTAL OF STORM WATER DRAIN :</b>					<b>6,894,148.50</b>	
<b>VIII</b>	<b>BOUNDARY WALL</b>					

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
1	Earth work excavation in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders as per SS 20 B with initial lead of 10 m and lift of 2 m	Cum	93.80	233.86	21,936.07	
2	Supplying and filling sand for foundations and basement including watering, consolidating, ramming etc complete.	Cum	9.30	447.00	4,157.10	
3	Cement concrete 1:3:6 using 40 mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc. complete.	Cum	7.00	5129.00	35,903.00	CMWSSB SoR, Pg no. 90, Item. No.4.5
4	Random Rubble masonry in C.M. 1:3 including curing etc complete	Cum	22.60	9634.00	217,728.40	CMWSSB SoR, Pg no. 97, Item. No.6.1
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete	Cum	28.60	9148.00	261,632.80	CMWSSB SoR, Pg no. 97, Item. No.6.2
6	Pointing to the RR masonry in cement mortar 1:3.	Sqm	256.70	270.00	69,309.00	CMWSSB SoR, Pg no. 101, Item.No. 12.3
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc. complete for coping	Cum	5.50	6089.00	33,489.50	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.	Sqm	23.70	325.00	7,702.50	CMWSSB SoR, Pg no. 113, Item.No. 18.4
9	Supplying and fixing barbed wire fencing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling holes in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.	m	50.00	485.00	24,250.00	CMWSSB SoR, Pg no. 115, Item.No. 18.14
10	Band course work flat 10mm to 12mm thick and 50mm deep with C.M.1:3 including curing etc. complete as directed.	m	100.00	209.00	20,900.00	CMWSSB SoR, Pg no. 113, Item.No. 18.5
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.	Cum	54.80	40.70	2,230.36	
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.	kg	350.00	62.60	21,910.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.	kg	45.00	62.60	2,817.00	CMWSSB SoR, Pg no. 115, Item.No. 18.13

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour two coats	Sqm	43.90	139.00	6,102.10	CMWSSB SoR, Pg no. 104, Item.No. 15.13
<b>TOTAL OF BOUNDARY WALL :</b>				<b>730,067.83</b>		
<b>IX</b>	<b>ROAD WORKS</b>					
	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	Cum	312.00	226.38	70,630.56	CMWSSB SoR 2021-22, item no.1, pg no.131
	Soling, with gravel to a Consolidated thickness of 100mm thick using 1.333 Cu.mof gravel for an area of 10 sq.m including spreading watering and consolidation by power road roller etc. complete.	Cum	104.00	664.18	69,074.72	CMWSSB SoR 2021-22, item no.2, pg no.131
	Forming water bound macadam to a thickness of 100mm using 1 Cu.m. of 40mm IRC size HBG metal with 0.33 cum.of gravel (which will passes through 10mm sieve size) fine for blindage for an area of 10 m <sup>2</sup> including spreading metal and gravel fine and packing to camber,consolidation by power roller and including watering and keeping the surface moist for 15 days etc., complete.	Sqm	1040.00	188.70	196,248.00	CMWSSB SoR 2021-22, item no.3, pg no.131
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57 m <sup>3</sup> of sand and 0.65 m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller	Sqm	1040.00	175.40	182,416.00	CMWSSB SoR 2021-22, item no.5, pg no.131
	Providing tack coat with appropriate grade of bitumen using 10 kg. per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	Sqm	1040.00	91.20	94,848.00	CMWSSB SoR 2021-22, item no.7, pg no.131
	Mixing, processing in portable hotmix plant and laying coated bituminous macadamto a consolidated thickness of 50mm using graded aggregate of 40mIRC size BGmetal 0.24m <sup>3</sup> 20mm IRC size BGmetal 0.309 cu.m.10mm IRC BGmetal 0.137m <sup>3</sup> and bitumen of appropriate grade 36.60Kg/10sqm over prepared surface including consolidation by power roller etc., complete.	Sqm	1040.00	548.20	570,128.00	CMWSSB SoR 2021-22, item no.8, pg no.132
	Providing tack coat with appropriate grade of bitumen using 5 kg per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	Sqm	1040.00	42.10	43,784.00	CMWSSB SoR 2021-22, item no.6, pg no.131
	Mixing, processing in portable hotmix and laying dense grade asphaltic concrete to a consolidated thickness of 40 mm using combined aggregate of 20 mm IRC BG metal 0.155 cu.m. 12 mm IRC BG metal 0.121 cu.m. size, 6 mm IRC BG metal 0.203 cu.m.size sand 0.119 m <sup>3</sup> lime stone powder 26.0 Kg for an area of 10sq.m. using 80/100 or 60/70 grade bitumen 49.8 Kg/10sq.m. over prepared surface including consolidation by power road roller, etc., complete.	Sqm	1040.00	562.80	585,312.00	CMWSSB SoR 2021-22, item no.9, pg no.132

**CONSTRUCTION OF OHT AT CHOOЛАIMEDU WDS IN ZONE - X (4.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 4.0 ML & STAGING: 20 m)						
S.N.	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	Fixing cement concrete kerb of size 600 mm x 300 mm x 100 mm thick to proper level and alignment including pointing with cement mortar 1:3 to full depth, curing, etc., complete.	Sqm	520.00	409.80	213,096.00	CMWSSB SoR 2021-22, item no.11, pg no.132
<b>TOTAL OF ROAD WORK :</b>				<b>2,025,537.28</b>		
<b>X</b>	<b>GREEN COVER WORKS</b>					
1.1	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure sludge or extra good earth if					
	Holes 90 cm dia, and 90 cm deep	Each	40.00	143.10	5,724.00	DSR-20, Pg no.85, Item no.2.14.2
1.2	Supplying of Vermicompost of 5 kg pack for each pit	Each	40.00	37.50	1,500.00	TN Horticulture Dept. rate (Extra rate 25% considered for transporting & CPOH)
1.3	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cum	22.50	36.55	822.38	DSR-20, Pg no.83, Item no.2.9
1.4	Filling mixture of earth and sludge or manure in the desired proportion in trenches, flooding with water and leveling (cost of supplying earth and sludge or manure and mixing excluded)	Cum	22.50	18.25	410.63	DSR-20, Pg no.87, Item no.2.20
2.1	Providing and stacking of Putranjiva roxburghii (Putranjeevi) of height 90-105 cm. in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.169, Item no.7.79
2.2	Providing and stacking of Bauhinia tomentosa (yellow) (Iruvatchi) of height 60-75 cm. in earthen pots of size 20 cm as per direction of the officer-in-charge.	Each	15.00	45.00	675.00	DSR-20, Pg no.175, Item no.8.2
2.3	Providing and stacking of Bauhinia purpurea (Mantharai) of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	15.00	50.00	750.00	DSR-20, Pg no.161, Item no.7.8
2.4	Providing and stacking of Pongamia glabra (Papri) of height 120-135 cm. in big poly bag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	50.00	750.00	DSR-20, Pg no.169, Item no.7.73
2.5	Providing and stacking of Azadirachta indica (Neem) of height 120-130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	15.00	65.00	975.00	DSR-20, Pg no.161, Item no.7.5
<b>TOTAL OF GREEN COVER :</b>				<b>12,282.00</b>		
<b>XI</b>	<b>RAIN WATER HARVESTING</b>					
	Construction of Rain water Harvesting Structure at the WDS premises	LS	2.00	21,000.00	42,000.00	
<b>TOTAL OF RAIN WATER HARVESTING :</b>				<b>42,000.00</b>		
	<b>GRAND TOTAL (VII+VIII+IX+X+XI) Rs.</b>				<b>9,704,035.61</b>	
	<b>TOTAL COST FOR PROPOSED 4.0 ML OHT (1 no)</b>				<b>110,042,550.00</b>	
<b>Note:</b>						
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022					

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (4.0 ML)**

**Basic Datas**

Clear diameter of tank	33	m				
Staging Height	20	m				
Depth of water	5	m				
Thickness of Wall	0.45	m				
Total depth of wall	5.75	m				
thickness of roof slab	0.20	m				
Size of Roof beams	0.00	x	0.00	m		
thickness of floor slab	0.50	m				
Size of floor slab beams	0.50	x	1.00	m		
Ring beam (below wall)	0.60	x	1.00	m		
Platform width	1.50	m				
Thickness of platform slab	0.15	m				
Column size - C1 & C2	0.60	x	0.60	m		
Column cap @ roof slab	1.50	x	1.50	x	0.25	m
No. of columns	44	Nos				
Size of bracing beam	0.40	x	0.60	m		
Bracing beam c/c distance	4.00	m				
Size of plinth beam	0.40	x	0.60	m		
Column size (for stair case) - C3	0.35	x	0.35	m		
No. of columns	4	Nos				
Staircase tie beams	0.30	x	0.45	m		
Size of STAIR CASE well	3.95	x	3.55	m		
Waist slab thickness	0.175	m				
Step raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0	m				
Founding level	-1.70	m				
Staging level	20.00	m				
Top of tank level	25.95	m				
Pile cap	PC					
PC1-Size	2.40	x	2.40	x	0.80	m
Nos	44	Nos				
PC2-Size	0.90	x	2.40	x	0.80	m
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m dia				
Depth of pile	20.00	m				
No. of pile	184	Nos				
Pile cap connecting beam	0.40	x	0.60			
Grid length						
A-I	32.94	m	2.00	nos.		
B-H	28.96	m	2.00	nos.		
C-G	21.50	m	2.00	nos.		
1-10	33.45	m	1.00	no.		
2-9	31.45	m	2.00	nos.		
3-8	25.65	m	2.00	nos.		
5-6	5.80	m	2.00	nos.		
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

**Measurement Sheet for Preparation of BoQ of 4.0 ML OHT (20 m staging).**

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
		Length	Breadth	Height	Qty	Qty			Qty	
	<b>Excavation works</b>									
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.									
a)	0 to -2 m Lvl									
	Pile cap PC1	1	x	44	2.90	2.90	2.00	740.08		
	Pile cap PC2	1	x	4	1.40	2.90	2.00	32.48		
	Plinth beam									
	A-I	1	x	2	26.34	0.90	0.70	33.19		
	B-H	1	x	2	24.36	0.90	0.70	30.69		
	C-G	1	x	2	16.90	0.90	0.70	21.29		
	1-10	1	x	1	28.85	0.90	0.70	18.18		
	2-9	1	x	2	29.05	0.90	0.70	36.60		
	3-8	1	x	2	23.25	0.90	0.70	29.30		
	5-6	1	x	2	3.40	0.90	0.70	4.28		
	Ring beam	1	x	1	92.87	0.90	0.70	58.51		
	Staircase beam	1	x	2	1.55	0.90	0.70	1.95		
	Staircase beam	1	x	2	1.15	0.90	0.70	1.45		
								1008.01	<b>1008.00</b>	cum

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Qty
b)	-2 to -3 m Lvl								
	Pile cap PC1	1	x	44	2.90	2.90	0.60	222.02	
	Pile cap PC2	1	x	4	1.40	2.90	0.60	9.74	
							231.77	<b>231.80</b>	cum
2	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement								
	Excavation qty - Concrete qty.	1	x	1			1072.27		
							1072.27	<b>1072.30</b>	cum
3	Disposal of surplus earth								
	Excavation qty - Refilling qty.	1	x	1			167.50	<b>167.50</b>	cum
	<b>Concrete works</b>								
4	Plain Cement concrete 1:2:4 using Crushed stone sand (M sand) and 12 to 20 mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.								
	<u>0 m to 1.5 m below G.L.</u>								
	Plinth beam								
	A-I	1	x	2	26.34	0.60	0.10	3.16	
	B-H	1	x	2	24.36	0.60	0.10	2.92	
	C-G	1	x	2	16.90	0.60	0.10	2.03	
	1-10	1	x	1	28.85	0.60	0.10	1.73	
	2-9	1	x	2	29.05	0.60	0.10	3.49	
	3-8	1	x	2	23.25	0.60	0.10	2.79	
	5-6	1	x	2	3.40	0.60	0.10	0.41	
	Ring beam	1	x	1	92.87	0.60	0.10	5.57	
	Staircase pile cap beam	1	x	2	1.55	0.60	0.10	0.19	
	Staircase pile cap beam	1	x	2	1.15	0.60	0.10	0.14	
							22.42	<b>22.40</b>	cum
	<u>1.5 m to 4.5 m below G.L.</u>								
	Pile cap PC1	1	x	44	2.60	2.60	0.10	29.74	
	Pile cap PC2	1	x	4	1.10	2.60	0.10	1.14	
							30.89	<b>30.90</b>	cum
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shutting and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C1	1	x	44	0.60	0.60	1.50	23.76	
	Column C2	1	x	4	0.35	0.35	1.50	0.74	
	Plinth beam								
	A-I	1	x	2	26.34	0.40	0.60	12.64	
	B-H	1	x	2	24.36	0.40	0.60	11.69	
	C-G	1	x	2	16.90	0.40	0.60	8.11	
	1-10	1	x	1	28.85	0.40	0.60	6.92	
	2-9	1	x	2	29.05	0.40	0.60	13.94	
	3-8	1	x	2	23.25	0.40	0.60	11.16	
	5-6	1	x	2	3.40	0.40	0.60	1.63	
	Ring beam	1	x	1	92.87	0.40	0.60	22.29	
	Staircase pile cap beam	1	x	2	1.55	0.40	0.60	0.74	
	Staircase pile cap beam	1	x	2	1.15	0.40	0.60	0.55	
							114.19	<b>114.20</b>	cum
b)	<u>1.5 m to 3.0 m below G.L.</u>								
	Pile cap PC1	1	x	44	2.40	2.40	0.80	202.75	
	Pile cap PC2	1	x	4	0.90	2.40	0.80	6.91	
	Column C1	1	x	44	0.60	0.60	0.20	3.17	
	Column C2	1	x	4	0.35	0.35	0.20	0.10	
							212.93	<b>212.90</b>	cum
	<u>Above G.L.</u>								

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
c)	<u>0 m to 4.5 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 4.0 m lvl								
	A-I	1	x	2	26.34	0.40	0.60	12.64	
	B-H	1	x	2	24.36	0.40	0.60	11.69	
	C-G	1	x	2	16.90	0.40	0.60	8.11	
	1-10	1	x	1	28.85	0.40	0.60	6.92	
	2-9	1	x	2	29.05	0.40	0.60	13.94	
	3-8	1	x	2	23.25	0.40	0.60	11.16	
	5-6	1	x	2	3.40	0.40	0.60	1.63	
	Ring beam	1	x	1	92.87	0.40	0.60	22.29	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 2.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							168.90	<b>168.90</b>	cum
d)	<u>4.5 m to 9.0 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 8.0 m lvl								
	A-I	1	x	2	26.34	0.40	0.60	12.64	
	B-H	1	x	2	24.36	0.40	0.60	11.69	
	C-G	1	x	2	16.90	0.40	0.60	8.11	
	1-10	1	x	1	28.85	0.40	0.60	6.92	
	2-9	1	x	2	29.05	0.40	0.60	13.94	
	3-8	1	x	2	23.25	0.40	0.60	11.16	
	5-6	1	x	2	3.40	0.40	0.60	1.63	
	Ring beam	1	x	1	92.87	0.40	0.60	22.29	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 6.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							168.90	<b>168.90</b>	cum
e)	<u>9.0 m to 13.5 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 12.0 m lvl								
	A-I	1	x	2	26.34	0.40	0.60	12.64	
	B-H	1	x	2	24.36	0.40	0.60	11.69	
	C-G	1	x	2	16.90	0.40	0.60	8.11	
	1-10	1	x	1	28.85	0.40	0.60	6.92	
	2-9	1	x	2	29.05	0.40	0.60	13.94	
	3-8	1	x	2	23.25	0.40	0.60	11.16	
	5-6	1	x	2	3.40	0.40	0.60	1.63	
	Ring beam	1	x	1	92.87	0.40	0.60	22.29	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 10.0 m	1	x	1	3.20	0.30	0.45	0.43	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
							168.90	<b>168.90</b>	cum
f)	<u>13.5 m to 18.0 m</u>								
	Column	1	x	44	0.60	0.60	4.50	71.28	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 16.0 m lvl								
	A-I	1	x	2	26.34	0.40	0.60	12.64	
	B-H	1	x	2	24.36	0.40	0.60	11.69	
	C-G	1	x	2	16.90	0.40	0.60	8.11	
	1-10	1	x	1	28.85	0.40	0.60	6.92	
	2-9	1	x	2	29.05	0.40	0.60	13.94	
	3-8	1	x	2	23.25	0.40	0.60	11.16	
	5-6	1	x	2	3.40	0.40	0.60	1.63	
	Ring beam	1	x	1	92.87	0.40	0.60	22.29	
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 14.0 & 18.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	3	4.43	1.78	0.18	4.13	
	Steps	1.5	x	14	1.98	0.30	0.15	1.87	
	landing slab	1	x	3	3.55	1.50	0.18	2.80	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Cum
							172.26	172.30	
g)	18.0 m to 22.5 m								
	Column	1	x	44	0.60	0.60	2.00	31.68	
	Staircase column	1	x	4	0.35	0.35	4.50	2.21	
	Bracing beam @ 20.0 m lvl								
	Staircase bracing beam	1	x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 20.0 & 22.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
	Floor slab & beam								
	Bottom slab	1	x	1	878.78		0.50	439.39	
	Walkway slab	1	x	1	162.58		0.15	24.39	
	Kerb wall around platform	1	x	1	113.10	0.10	0.15	1.70	
	Bottom slab beam @ 20.00 m lvl								
	A-I	1	x	2	26.34	0.50	1.00	26.34	
	B-H	1	x	2	24.36	0.50	1.00	24.36	
	C-G	1	x	2	16.90	0.50	1.00	16.90	
	1-10	1	x	1	28.85	0.50	1.00	14.43	
	2-9	1	x	2	29.05	0.50	1.00	29.05	
	3-8	1	x	2	23.25	0.50	1.00	23.25	
	5-6	1	x	2	3.40	0.50	1.00	3.40	
	Ring beam	1	x	1	106.50	0.60	1.00	63.90	
	Tank wall	1	x	1	106.50	0.45	2.50	119.81	
	Column inside tank	1	x	24	0.60	0.60	2.50	21.60	
							849.85	849.80	cum
h)	22.5 m to 25.95 m								
	Column C2	1	x	24	0.60	0.60	3.25	28.08	
	Tank wall from 22.5 to 25.95 m lvl	1	x	1	106.50	0.45	3.25	155.76	
	Roof slab	1	x	1	878.78		0.20	175.76	
	Column cap	1	x	24	1.50	1.50	0.25	13.50	
	Staircase landing beam @ 24.0 & 25.95 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
	Kerb wall for manhole opening	1	x	2	5.60	0.20	0.60	1.34	
	Stub column for ventilator opening	4	x	4	0.15	0.15	0.75	0.27	
	Kerb wall for ventilator opening	1	x	4	4.80	0.15	0.15	0.43	
	Kerb wall around roof slab	1	x	1	106.50	0.10	0.15	1.60	
							383.46	383.50	cum
	<b>Total RCC (M-30) Qty.</b>							<b>2239.40</b>	cum
	<b>Shuttering works</b>								
6	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high								
a)	0 m to 1.5 m below G.L.								
	Column C1	4	x	44	0.60		0.90	95.04	
	Column C2	4	x	4	0.35		0.90	5.04	
	Plinth beam								
	A-I	2	x	2	26.34		0.60	63.22	
	B-H	2	x	2	24.36		0.60	58.46	
	C-G	2	x	2	16.90		0.60	40.56	
	1-10	2	x	1	28.85		0.60	34.62	
	2-9	2	x	2	29.05		0.60	69.72	
	3-8	2	x	2	23.25		0.60	55.80	
	5-6	2	x	2	3.40		0.60	8.16	
	Ring beam	2	x	1	92.87		0.60	111.45	
	Staircase pile cap beam	2	x	2	1.55		0.60	3.72	
	Staircase pile cap beam	2	x	2	1.15		0.60	2.76	
							548.55	548.50	Sqm
	'-1.5 m to 2.5 m below G.L.								
	Pile cap PC1	4	x	44	2.40		0.80	337.92	
	Pile cap PC2	2	x	4	0.90		0.80	5.76	
		2	x	4	2.40		0.80	15.36	
	Column C1	4	x	44	0.60		0.20	21.12	
	Column C2	4	x	4	0.35		0.20	1.12	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Sqm
							381.28	<b>381.30</b>	Sqm
	Above G.L								
b)	<u>0 m to 3.0 m</u>								
	Column	4	x	44	0.60		3.00	316.80	
	Staircase column	4	x	4	0.35		3.00	16.80	
	Staircase landing beam @ 2.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	waist slab	1	x	2	4.43		1.78	15.72	
	Steps	2	x	14	1.78		0.15	7.46	
	landing slab	1	x	1	3.55		1.50	5.33	
							369.78	<b>369.80</b>	Sqm
c)	<u>3.0 m to 4.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
							111.20	<b>111.20</b>	Sqm
d)	<u>4.0 m to 5.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 4.0 m lvl								
	A-I	2	x	2	26.34		0.60	63.22	
		1	x	2	26.34		0.40	21.07	
	B-H	2	x	2	24.36		0.60	58.46	
		1	x	2	24.36		0.40	19.49	
	C-G	2	x	2	16.90		0.60	40.56	
		1	x	2	16.90		0.40	13.52	
	1-10	2	x	1	28.85		0.60	34.62	
		1	x	1	28.85		0.40	11.54	
	2-9	2	x	2	29.05		0.60	69.72	
		1	x	2	29.05		0.40	23.24	
	3-8	2	x	2	23.25		0.60	55.80	
		1	x	2	23.25		0.40	18.60	
	5-6	2	x	2	3.40		0.60	8.16	
		1	x	2	3.40		0.40	2.72	
	Ring beam	2	x	1	92.87		0.60	111.45	
		1	x	1	92.87		0.40	37.15	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Starcase bracing beam @ 4.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	waist slab	1	x	2	4.43		1.78	15.72	
	Steps	2	x	14	1.98		0.15	8.30	
	landing slab	1	x	1	3.55		1.50	5.33	
							740.17	<b>740.20</b>	Sqm
e)	<u>5.0 m to 6.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
							111.20	<b>111.20</b>	Sqm
e)	<u>6.0 m to 7.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 6.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							124.21	<b>124.20</b>	Sqm
f)	<u>7.0 m to 8.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
							128.11	<b>128.10</b>	Sqm
g)	<u>8.0 m to 9.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 8.0 m lvl								
	A-I	2	x	2	26.34		0.60	63.22	
		1	x	2	26.34		0.40	21.07	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	B-H	2	x	2	24.36		0.60	58.46	
		1	x	2	24.36		0.40	19.49	
	C-G	2	x	2	16.90		0.60	40.56	
		1	x	2	16.90		0.40	13.52	
	1-10	2	x	1	28.85		0.60	34.62	
		1	x	1	28.85		0.40	11.54	
	2-9	2	x	2	29.05		0.60	69.72	
		1	x	2	29.05		0.40	23.24	
	3-8	2	x	2	23.25		0.60	55.80	
		1	x	2	23.25		0.40	18.60	
	5-6	2	x	2	3.40		0.60	8.16	
		1	x	2	3.40		0.40	2.72	
	Ring beam	2	x	1	92.87		0.60	111.45	
		1	x	1	92.87		0.40	37.15	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 8.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
							710.84	<b>710.80</b>	Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
							128.11	<b>128.10</b>	Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 10.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							124.21	<b>124.20</b>	Sqm
j)	<u>11.0 m to 12.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							122.79	<b>122.80</b>	Sqm
k)	<u>12.0 m to 13.0 m</u>								
	Column	4	x	44	0.60		1.00	105.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 12.0 m lv								
	A-I	2	x	2	26.34		0.60	63.22	
		1	x	2	26.34		0.40	21.07	
	B-H	2	x	2	24.36		0.60	58.46	
		1	x	2	24.36		0.40	19.49	
	C-G	2	x	2	16.90		0.60	40.56	
		1	x	2	16.90		0.40	13.52	
	1-10	2	x	1	28.85		0.60	34.62	
		1	x	1	28.85		0.40	11.54	
	2-9	2	x	2	29.05		0.60	69.72	
		1	x	2	29.05		0.40	23.24	
	3-8	2	x	2	23.25		0.60	55.80	
		1	x	2	23.25		0.40	18.60	
	5-6	2	x	2	3.40		0.60	8.16	
		1	x	2	3.40		0.40	2.72	
	Ring beam	2	x	1	92.87		0.60	111.45	
		1	x	1	92.87		0.40	37.15	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 12.0 m	2	x	1	3.20		0.45	2.88	

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
		1	x	1	3.20		0.30	0.96		
	landing slab	1	x	1	3.55		1.50	5.33		
								716.16	<b>716.20</b>	Sqm
l)	<u>13.0 m to 14.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
								122.79	<b>122.80</b>	Sqm
m)	<u>14.0 m to 15.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Staircase landing beam @ 14.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		
								124.21	<b>124.20</b>	Sqm
n)	<u>15.0 m to 16.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
								122.79	<b>122.80</b>	Sqm
o)	<u>16.0 m to 17.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	<u>Bracing beam @ 16.0 m lvl</u>									
	A-I	2	x	2	26.34		0.60	63.22		
		1	x	2	26.34		0.40	21.07		
	B-H	2	x	2	24.36		0.60	58.46		
		1	x	2	24.36		0.40	19.49		
	C-G	2	x	2	16.90		0.60	40.56		
		1	x	2	16.90		0.40	13.52		
	1-10	2	x	1	28.85		0.60	34.62		
		1	x	1	28.85		0.40	11.54		
	2-9	2	x	2	29.05		0.60	69.72		
		1	x	2	29.05		0.40	23.24		
	3-8	2	x	2	23.25		0.60	55.80		
		1	x	2	23.25		0.40	18.60		
	5-6	2	x	2	3.40		0.60	8.16		
		1	x	2	3.40		0.40	2.72		
	Ring beam	2	x	1	92.87		0.60	111.45		
		1	x	1	92.87		0.40	37.15		
	Staircase bracing beam	2	x	2	1.55		0.45	2.79		
		1	x	2	1.55		0.30	0.93		
	Staircase bracing beam	2	x	2	1.15		0.45	2.07		
		1	x	2	1.15		0.30	0.69		
	Staircase bracing beam @ 16.0 m	2	x	1	3.20		0.45	2.88		
		1	x	1	3.20		0.30	0.96		
	landing slab	1	x	1	3.55		1.50	5.33		
								716.16	<b>716.20</b>	Sqm
o)	<u>17.0 m to 18.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
								122.79	<b>122.80</b>	Sqm
p)	<u>18.0 m to 19.0 m</u>									
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Staircase landing beam @ 18.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		
								124.21	<b>124.20</b>	Sqm
q)	<u>19.0 m to 20.0 m</u>									

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
	Column	4	x	44	0.60		1.00	105.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Floor beam @ 20.0 m lvl									
	A-I	2	x	2	26.34		1.00	105.36		
		1	x	2	26.34		0.50	26.34		
	B-H	2	x	2	24.36		1.00	97.44		
		1	x	2	24.36		0.50	24.36		
	C-G	2	x	2	16.90		1.00	67.60		
		1	x	2	16.90		0.50	16.90		
	1-10	2	x	1	28.85		1.00	57.70		
		1	x	1	28.85		0.50	14.43		
	2-9	2	x	2	29.05		1.00	116.20		
		1	x	2	29.05		0.50	29.05		
	3-8	2	x	2	23.25		1.00	93.00		
		1	x	2	23.25		0.50	23.25		
	5-6	2	x	2	3.40		1.00	13.60		
		1	x	2	3.40		0.50	3.40		
	Ring beam	1	x	2	106.50		1.00	213.00		
		1	x	1	106.50		0.60	63.90		
	Floor slab	1	x	1	878.78			878.78		
	Walkway slab	1	x	1	162.58			162.58		
	Staircase bracing beam	2	x	2	1.55		0.45	2.79		
		1	x	2	1.55		0.30	0.93		
	Staircase bracing beam	2	x	2	1.15		0.45	2.07		
		1	x	2	1.15		0.30	0.69		
	Staircase bracing beam @ 20.0 m	2	x	1	3.20		0.45	2.88		
		1	x	1	3.20		0.30	0.96		
	landing slab	1	x	1	3.55		1.50	5.33		
								2133.73	<b>2133.70</b>	Sqm
r)	<u>20.0 m to 21.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	106.50		1.00	213.00		
	Kerb wall around platform	2	x	1	113.10		0.15	33.93		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
								321.72	<b>321.70</b>	Sqm
s)	<u>21.0 m to 22.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	106.50		1.00	213.00		
								276.20	<b>276.20</b>	Sqm
t)	<u>22.0 m to 23.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	106.50		1.00	213.00		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
	Staircase landing beam @ 22.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		
								300.79	<b>300.80</b>	Sqm
u)	<u>23.0 m to 24.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	106.50		1.00	213.00		
								276.20	<b>276.20</b>	Sqm
v)	<u>24.0 m to 25.0 m</u>									
	Column	4	x	24	0.60		1.00	57.60		
	Staircase column	4	x	4	0.35		1.00	5.60		
	Tank wall	2	x	1	106.50		1.00	213.00		
	waist slab	1	x	1	4.43		1.78	7.86		
	Steps	1	x	14	1.78		0.15	3.73		
	Staircase landing beam @ 24.0 m	2	x	2	3.20		0.45	5.76		
		1	x	2	3.20		0.30	1.92		
	landing slab	1	x	1	3.55		1.50	5.33		

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	Sqm
x)	<b>24.0 m to 25.0 m</b>						300.79	<b>300.80</b>	
	Column	4	x	24	0.60		1.00	57.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	106.50		1.00	213.00	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							287.79	<b>287.80</b>	Sqm
y)	<b>25.0 m to 26.0 m</b>								
	Column	4	x	24	0.60		0.55	31.68	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	106.50		0.80	170.40	
	Roof slab	1	x	1	878.78			878.78	
	Column cap	4	x	24	1.50		0.25	36.00	
	Kerb wall around roof slab	2	x	1	106.50		0.15	31.95	
	Staircase landing beam @ 25.95 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	waist slab	1	x	2	4.43		1.78	15.72	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44	
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60	
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88	
							1206.78	<b>1206.80</b>	Sqm
	<b>Total Shuttering qty.</b>							<b>10753.60</b>	Sqm
	<b>Reinforcement Steel</b>								
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings								
	125 kg per cum	1	x	1			279.93		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			14.00		
							293.92	<b>293.90</b>	MT
	For pile foundation								
	130 kg per cum	1	x	1			135.26		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			6.76		
							142.03	<b>142.00</b>	MT
	<b>Piling works</b>								
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.								
	600 mm dia piles	1	x	184	20.00		3680.00		
							3680.00	<b>3680.00</b>	meters
9	Vertical load Test								
	Single pile upto 50 tonne Safe capacity	2	x				2.00		No.
10	Horizontal load Test	1	x				1.00		No.
11	Pull out Test	1	x				1.00		No.
	<b>Finishing works</b>								

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
12	Special ceiling Plastering with cement mortar 1:3 Crushed stone sand (M-sand) for 12mm thick including hacking and curing etc. complete.								
	Bottom slab	1	x					878.78	
	Walkway platform	1	x					162.58	
	Staircase waist slab	1	x					125.74	
	Landing slab	1	x					74.55	
								1241.65	<b>1241.70</b>
									Sqm.
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete								
	External plastering	1	x					8219.88	<b>8219.90</b>
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x					878.78	<b>878.80</b>
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x					2704.46	<b>2704.50</b>
16	Concrete with broken brick jelly 20mm gauge in pure slacked lime over R.C.C. roof slab for 80 mm thick	1	x		878.78	0.08	70.30	<b>70.30</b>	cum
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x		878.78		878.78	<b>878.80</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.								
	Precast Concrete jolly	1	x	16	1.20	0.60		11.52	
	Precast Concrete slab	1	x	4	2.10	2.10		17.64	
								29.16	<b>29.20</b>
									Sqm
19	Colour washing two coats over one coat of white washing.								
	All external surfaces	1	x	1				8219.88	<b>8219.90</b>
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures								
	Vertical surface	1	x	1				1825.68	
	Horizontal surface	1	x	1				878.78	
								2704.46	<b>2704.50</b>
									Sqm.
	<b>Miscellaneous works</b>								
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	2				2.00	
22	Supplying and fixing lightening arrestor	1	x	1				1.00	
23	Providing and fixing level indicator	1	x	1				1.00	
24	Providing and fixing Hand rails with MS tube								
	walkway platform								
	Horizontal top pipe 50 mm dia	1	x	1	113.10		5.44	615.25	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India
	Horizontal 20 mm square rod	4	x	173	0.60		3.14	1303.70	Weight 3.14 kg/m
	Vertical 20 mm square rod	4	x	174	0.85		3.14	1857.58	
	Insert plate 5 mm thick	2	x	174	0.15	0.10	0.005	204.88	7850 kg/m3
	Roof slab								
	Horizontal top pipe 50 mm dia	1	x	1	106.50		5.44	579.36	
	Vertical 20 mm square rod	4	x	164	0.60		3.14	1234.74	
	Horizontal 20 mm square rod	4	x	163	0.60		3.14	1227.21	
	Insert plate 5 mm thick	2	x	164	0.15	0.10	0.005	192.93	
	Staircase								
	Horizontal top pipe 50 mm dia	2	x	13	9.48		5.44	1340.49	
	Vertical 20 mm square rod	52	x	15	1.00		3.14	2380.74	
	Horizontal 20 mm square rod	52	x	14	0.60		3.14	1330.48	
	Insert plate 5 mm thick	379	x	15	0.15	0.10	0.005	3254.34	
								15521.70	<b>15521.70</b>
									Kg

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.								
		1	x	15	31.00			465.00	<b>465.00</b> Mtr.
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	1	x	2	9.00		18.00	<b>18.00</b>	Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	1	106.50			213.00	
								213.00	<b>213.00</b> Mtr.
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10								
	Inlet pipe 600 dia	1	x	1	33.00			33.00	
	Over flow pipe 600 dia	1	x	1	33.00			33.00	
								66.00	<b>66.00</b> Mtr.
	Outlet pipe 700 dia	1	x	1	27.00			27.00	
								27.00	<b>27.00</b> Mtr.
	Scour pipe 400 dia	1	x	1	27.00			27.00	
								27.00	<b>27.00</b> Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection								
	400 mm dia	1	x	2	66.00		179.64	359.27	Weight per mtr arrived as per online data Kg.
	600 mm dia	1	x	1	27.00		338.51	338.51	
	700 mm dia	1	x	1	27.00		388.39	388.39	
								1086.17	<b>1086.20</b> Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000								
	Inlet pipe 600 dia								
	Bend 90	1	x	1	325			325.00	
	Over flow pipe 600 dia								
	Bend 90	1	x	1	325			325.00	
								650.00	<b>650.00</b> Kg
	Outlet pipe 700 dia								
	Bend 90	1	x	1	420			420.00	
	Bend 45	1	x	2	327			654.00	
								1074.00	<b>1074.00</b> Kg
	Scour pipe 400 dia								
	Bend 90	1	x	1	128.0			128.00	
								128.00	<b>128.00</b> Kg
27	DI Sluice valve								
	350 mm								
28	DI Butterfly valve								
	400 mm	1	x	1				1.00	Each
	600 mm	1	x	2				2.00	Each
	700 mm	1	x	1				1.00	
29	Concrete of thrust blocks for pipe support								
	400 mm								
	90 Bend	1	x	1				1.00	Each
	600 mm								
	90 Bend	1	x	2				2.00	Each
	700 mm								
	90 Bend	1	x	1				1.00	Each
	45 Bend	1	x	2				2.00	Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	28				28.00	Each
	Storm Water Drain								

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Excavation	1	x	1	452.00	1.90	1.28	1094.97	<b>1095.00</b> cum
	PCC M10	1	x	1	452.00	1.45	0.08	49.16	<b>49.20</b> cum
	Shuttering works BGL								
	for PCC	1	x	2	452.00		0.08	67.80	
	for base slab	1	x	2	452.00		0.20	180.80	
	for wall inner	1	x	2	452.00		1.00	904.00	
	for wall outer	1	x	2	452.00		1.00	904.00	
								2056.60	<b>2056.60</b> Sqm
	Reinforcement								
	for base slab	1	x	1	117.52		90.00	10576.80	
	For Wall	1	x	1	135.60		110.00	14916.00	
	Cover slab	1	x	1	13.56		80.00	1084.80	
								26577.60	<b>26577.60</b> kg
	RCC Concrete M25								
	For base slab	1	x	1	452.00	1.30	0.20	117.52	
	For Wall	1	x	2	452.00	1.00	0.15	135.60	
	Cover slab	1	x	1	452.00	0.60	0.05	13.56	
								266.68	<b>266.70</b> cum
	<b>Boundary Wall</b>								
1.	Earth work excavation and depositing on bank with initial leadof 10m and lift of 2m in hardstiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small sizes boulders andwith small sizes boulders andhard gravelly soil as per SS 20 B	1	x	1	50.00	1.50	1.25	93.75	<b>93.80</b> cu.m
2	Supplying and filling with sand for foundation and basement ramming etc complete.								
	For walls	1	x	1	20.00	0.90	0.20	3.60	
	For Pillars	1	x	33	0.90	0.90	0.20	5.40	
	For gate pillars	1	x	2	0.90	0.90	0.20	0.32	
								9.32	<b>9.30</b> cu.m
3	Cement concrete 1:3:6 using 40mm gauge hard broken stone jelly for plain cement concrete works including laying in layers of not more than 15 cm thick including ramming, curing etc complete.								
	For walls	1	x	1	20.00	0.90	0.15	2.70	
	For Pillars	1	x	33	0.90	0.90	0.15	4.05	
	For gate pillars	1	x	2	0.90	0.90	0.15	0.24	
								6.99	<b>7.00</b> cu.m
4	Random Rubble masonry in C.M. 1:3 including curing etc complete								
	For walls								
	I footing	1	x	1	31.33	0.56	0.45	7.90	
	II footing	1	x	1	31.33	0.45	0.45	6.35	
	For pillars								
	I footing	1	x	33	0.56	0.56	0.45	4.70	
	II footing	1	x	33	0.45	0.45	0.45	3.04	
	For gate pillars								
	I footing	1	x	2	0.65	0.65	0.45	0.38	
	II footing	1	x	2	0.56	0.56	0.45	0.28	
								22.64	<b>22.60</b> cu.m
5	Random Rubble masonry in C.M. 1:6 including curing etc.complete								
	Above G.L								
	For walls	1	x	1	35.00	0.30	2.50	26.25	
	For pillars	1	x	1	0.45	0.45	2.50	0.51	
	For gate pillars	1	x	2	0.56	0.56	3.00	1.88	
								28.64	<b>28.60</b> cu.m
6	Pointing to the RR masonry in cement mortar 1:3., 20mmthick								
	For main wall	1	x	2	35.00		2.50	175.00	
	Intermediate pillars	2	x	33	0.45		2.50	75.00	
	For gate pillars	2	x	2	0.56		3.00	6.72	
								256.72	<b>256.70</b> sqm
7	Cement concrete 1:2:4 using 20mm gauge hard broken stone jelly for plain cement concrete works including laying, ramming curing etc.complete.for coping								
	For main wall	1	x	1	35.00	(1/2)*0.3	0.15	5.25	
	Intermediate pillars	1	x	1	0.45	1/2*0.45	0.15	0.07	
	For gate pillars	1	x	2	0.56	(1/2)*0.56	0.15	0.17	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
8	Supplying and fixing 0.43 cu.m of broken glass pieces on the coping of the compound wall with C.M 1:3, 20mm thick including curing etc., complete as directed.						5.49	<b>5.50</b>	cu.m
	For main wall	1	x	2	35.00	0.21	14.84		
	Intermediate pillars	2	x	33	0.45	0.27	8.10		
	For gate pillars	2	x	2	0.56	0.32	0.72		
							23.66	<b>23.70</b>	sqm
9	Supplying and fixing barbed wire encing over the proposed compound wall with 'L' angle iron 50x50x6mm & 1.45mm posts bent to shape at 2.5m centres with 6 rows of barbed wire and also in a zig zag manner at 25 cm c.c. connecting all the rows with barbed wire will be of 2 ply and 12 gauge or other approved size including drilling hole in 'L' iron posts and fixing the posts in cement concrete 1:2:4 of size 15x15x45cm etc. as directed.								
		1	x	1	50.00		50.00	<b>50.00</b>	m
10	Band course work flat 10mm to 12mm thick and 65mm deep with C.M.1:3 including curing etc. complete as directed.								
	For main wall	1	x	2	50.00		100.00	<b>100.00</b>	m
11	Refilling with excavated soil complying with standard specification for filling in foundations and basement.								
	Earthwork quantity	1	x	1			93.75		
	Deduct below GL Elements	1	x	1			-38.96		
							54.79	<b>54.80</b>	cu.m
12	Supplying and fabricating and erection of iron gate with grill works of required size as per direction at site with G.I pipes of 50 mm and specials at all sides and 40x40x6mm angles as bracing on which 2 No.of m.s sheet of 16 gauge of size 2x2.50m each is welded as two halves fixing letter "METROWATER" including one coat of primer with red lead etc.complete as directed.								considered 87.5 kg/m
		1	x	4			87.50	350.00	<b>350.00</b>
13	Supplying and fabricating and fixing wicket gate of size 0.75x2.m with M.S.grill work in 'L' angle of size 40x40x6mm and MS flats including fixing in position with hold fasts etc. with locking arrangements and one coat of priming with red oxide etc.complete as directed.								
		1	x	1	45.00		45.00	<b>45.00</b>	kg
14	Painting with superior quality ready mixed paint of chocolate, light green grey or any other approved colour.								
	New Iron work two coats.					coeff			
	Main gate	1	x	3	2.00	2.25	2.50	33.75	
	Wicket gate	1	x	3	0.75	2.25	2.00	10.13	
							43.88	<b>43.90</b>	sq.m
	<b>ROAD WORKS</b>								
1	Earth work excavation and depositing on bank with initial lead of 10 mtrs. and initial lift of 2 mtrs. in hard stiff clay, stiff black cotton hard earth, shales murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil (S.S. 20A)	1.00	x	1.00	260.00	4.00	0.30	312.00	<b>312.00</b>
2	Soling, with gravel to a Consolidated thickness of 100mm thick using 1.333 Cu.mof gravel for an area of 10 sq.m including spreading watering and consolidation by power road roller etc. complete.	1.00	x	1.00	260.00	4.00	0.10	104.00	<b>104.00</b>
									Cum

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
3	Forming water bound macadam to a thickness of 100mm using 1 Cu.m. of 40mm IRC size HBG metal with 0.33cum.of gravel (which will passes through 10mm sieve size) fine for blindage for an area of 10 m <sup>2</sup> including spreading metal and gravel fine and packing to camber,consolidation by power roller and including watering and keeping the surface moist for 15 days etc., complete.	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
4	Providing tack coat with appropriate grade of bitumen using 10 kg. per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
	Providing and laying sand gravel mix 1:1 to a consolidation thickness of 100mm using 0.57m <sup>3</sup> of sand and 0.65m <sup>3</sup> of gravel including mixing, spreading, watering & consolidation by power roller	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
5	Mixing, processing in portable hotmix plant and laying coated bituminous macadamto a consolidated thickness of 50mm using graded aggregate of 40mIRC size BGmetal 0.24m <sup>3</sup> 20mm IRC size BGmetal 0.309 cu.m.10mm IRC BGmetal 0.137m <sup>3</sup> and bitumen of appropriate grade 36.60Kg/10sqm over prepared surface including consolidation by power roller etc., complete.	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
6	Providing tack coat with appropriate grade of bitumen using 5 kg per 10 sq.m. including melting applying over the WBM metalled surface etc. complete.	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
7	Mixing, processing in portable hotmix and laying dense grade asphaltic concrete to a consolidated thickness of 40 mm using combined aggregate of 20 mm IRC BG metal 0.155 cu.m. 12 mm IRC BG metal 0.121 cu.m. size, 6 mm IRC BG metal 0.203 cu.m.size sand 0.119 m <sup>3</sup> lime stone powder 26.0 Kg for an area of 10sq.m. using 80/100 or 60/70 grade bitumen 49.8 Kg/10sq.m. over prepared surface including consolidation by power road roller, etc., complete.	1.00	x	1.00	260.00	4.00		1040.00	<b>1040.00</b>	Sqm
8	Fixing cement concrete kerb of size 600 mm x 300 mm x 100 mm thick to proper level and alignment including pointing with cement mortar 1:3 to full depth, curing, etc., complete.	1.00	x	2.00	260.00			520.00	<b>520.00</b>	Sqm
<b>GREEN COVER</b>										
1.	Earth work excavation in manually for planting pits of size 2'6"x2'6"x3'0" along the boundary wall as per GCC circular (Length of boundary wall 150 m, distance b/w the plant is 5 m & 10 extra considered)	1.00	x	40.00				40.00	<b>40.00</b>	Each
2	Vermicompost of 5 kg pack for each pit	1.00	x	40.00				40.00	<b>40.00</b>	Each
3	Backfilling of excavated earth	1.00	x	40.00	0.75	0.75	1.00	22.50	<b>22.50</b>	Cum

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
<b>I EARTHWORK</b>						
1	Earth work excavation for foundation in hard stiff clay, stiff black cotton, hard red earth, shales, muram, gravel stoney earth and earth mixed with small size boulders as per SS 20B with initial lead of 10 m and lift of 2.0 m					
	a) 0-2 m	Cum	1548.70	233.86	362,178.98	
	b) 2 - 3 m	Cum	417.80	245.08	102,394.42	
	c) 3 - 4 m	Cum	0.00	256.30	-	
2	Earth work excavating and depositing on bank with initial lead of 10 m & initial lift of 2m in medium rock and dense medium rock not requiring blasting					
	a) 0-2 m	Cum	0.00	483.56	-	
	b) 2 - 3 m	Cum	0.00	492.47	-	
	c) 3 - 4 m	Cum	0.00	501.38	-	
3	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement	Cum	1711.40	40.70	69,653.98	
4	Disposal of Surplus earth	Cum	255.20	140.75	35,919.40	
<b>TOTAL OF EARTHWORKS :</b>					<b>570,146.79</b>	
<b>II CONCRETE AND ALLIED WORKS</b>						
<b>Plain Cement Concrete</b>						
5	Laying PCC M15 grade, using 40 mm HBG stone aggregate including cost and conveyance of all materials, mixing, laying in layers not more than 15cm thick, including ramming, curing, finishing conveyance to site and handling charges, levelling, compacting etc. complete as per standard specifications and as directed by the Departmental Engineers.					
	0 m to 1.5 m below G.L.	Cum	33.90	6089.00	206,417.10	
	1.5 m to 4.5 m below G.L.	Cum	47.80	6200.87	296,401.59	
<b>Reinforced Cement Concrete</b>						
6	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.					
	Pile cap and column					
6.1	0 to -1.5m (below ground)	Cum	173.50	6870.00	1,191,945.00	
6.2	-1.5 to -4.5m (below ground)	Cum	329.90	6981.87	2,303,318.91	
	Above ground					
	Columns, Brace and staircase					
6.3	0 to 4.5 m	Cum	255.20	6983.63	1,782,222.38	
6.4	4.5 to 9.0 m	Cum	255.20	7207.48	1,839,348.90	
6.5	9.0 to 13.5 m	Cum	255.20	7431.33	1,896,475.42	
6.6	13.5 to 18.0 m	Cum	258.60	7655.18	1,979,629.55	
6.7	18.0 to 22.5 m	Cum	1215.00	7879.03	9,573,021.45	

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
6.8	22.5 to 27.0 m	Cum	540.50	8102.88	4,379,606.64	
7	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high					
	0 to 1.5 m below GL					
7.1	Column & Beam	sq m	831.60	1247.00	1,037,005.20	
	1.5 to 2.5 m below GL					
7.2	Pile Cap & Column	sq m	585.30	1247.00	729,869.10	
	Above ground level					
7.3	Centering for plain surfaces upto 3.0 m for beams, slabs, columns, stairs & walls	sq m	549.80	1247.00	685,600.60	
7.4	3.0 m to 4.0 m	sq m	171.20	1281.00	219,307.20	
7.5	4.0 m to 5.0 m	sq m	1105.50	1315.00	1,453,732.50	
7.6	5.0 m to 6.0 m	sq m	171.20	1349.00	230,948.80	
7.7	6.0 m to 7.0 m	sq m	184.20	1383.00	254,748.60	
7.8	7.0 m to 8.0 m	sq m	188.10	1417.00	266,537.70	
7.9	8.0 m to 9.0 m	sq m	1076.20	1451.00	1,561,566.20	
7.10	9.0 m to 10.0 m	sq m	188.10	1485.00	279,328.50	
7.11	10.0 m to 11.0 m	sq m	184.20	1519.00	279,799.80	
7.12	11.0 m to 12.0 m	sq m	182.80	1553.00	283,888.40	
7.13	12.0 m to 13.0 m	sq m	1081.50	1587.00	1,716,340.50	
7.14	13.0 m to 14.0 m	sq m	182.80	1621.00	296,318.80	
7.15	14.0 m to 15.0 m	sq m	184.20	1655.00	304,851.00	
7.16	15.0 m to 16.0 m	sq m	182.80	1689.00	308,749.20	
7.17	16.0 m to 17.0 m	sq m	1081.50	1723.00	1,863,424.50	
7.18	17.0 m to 18.0 m	sq m	182.80	1757.00	321,179.60	
7.19	18.0 m to 19.0 m	sq m	184.20	1791.00	329,902.20	
7.20	19.0 m to 20.0 m	sq m	3081.80	1825.00	5,624,285.00	
7.21	20.0 m to 21.0 m	sq m	432.30	1859.00	803,645.70	
7.22	21.0 m to 22.0 m	sq m	380.20	1893.00	719,718.60	
7.23	22.0 m to 23.0 m	sq m	404.80	1927.00	780,049.60	
7.24	23.0 m to 24.0 m	sq m	380.20	1961.00	745,572.20	
7.25	24.0 m to 25.0 m	sq m	404.80	1995.00	807,576.00	
7.26	25.0 m to 26.0 m	sq m	1725.40	2029.00	3,500,836.60	
8	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	430.90	83000.00	35,764,700.00	
	<b>TOTAL OF CONCRETE WORKS :</b>				<b>86,617,869.03</b>	
<b>III</b>	<b>PILING WORKS</b>					

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
9	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.					
	600 mm dia piles	metre	5680.00	4514.40	25,641,792.00	
10	Vertical load testing of piles in accordance with IS 2911 (Part IV) including installation of loading platform by Kentledge/Anchor piles method and preparation of pile head or construction of test cap and dismantling of test cap after test etc. complete as per specification & the direction of Engineer in-charge.					
	Single pile above 50 tonne and upto 100 tonne Safe capacity					
a)	Initial test (Test Load 2.5 times the Safe capacity)	Per test	1	57531.30	57,531.30	
b)	Routine test (Test Load 1.5 times the Safe capacity)	Per test	2	30505.00	61,010.00	
11	Lateral load testing of single pile in accordance with IS: 2911 (Part-IV) for determining safe allowable lateral load on pile					
	Above 50 tonne and upto 100 tonne capacity	Per test	1	30906.35	30,906.35	
12	Supplying and fabricating CRS/Thermo Mechanically Treated High Corrosion Resistance bars manufactured by Primary steel producers/Integrated Steel Plants as per IS:1786- 2008,including fixing with binding wires, assembling and laying in position for all RCC works as follows					
	10mm -32 mm dia rod (Fe-500 D Grade with CRS material)	MT	219.20	83000.00	18,193,600.00	
	<b>TOTAL OF PILING WORKS :</b>				<b>43,984,839.65</b>	
<b>IV</b>	<b>FINISHING WORKS:</b>					
	<b>Plastering Works:</b>					
12	Flooring rendered smooth with 10Kg./10sqm of cement including curing, etc., complete.	sq m	1285.10	146.00	187,624.60	
13	Special ceiling Plastering with cement mortar 1:3 (Crushed stone sand (M-sand)) for 12mm thick including hacking and curing etc. complete.	sq m	1680.90	255.00	428,629.50	
	<b>Painting and protective coatings:</b>					

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No .	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
14	Providing and applying two coats dry distemper of approved brand, and shade on wall surface including priming coat and whitening after thoroughly brooming the surface to remove all dirt, dust, mortar drops etc complete as per standard specification and directed by engineers incharge					
	All external surfaces	sq m	11889.50	203.00	2,413,568.50	
15	Finishing with food grade epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.					
	On Concrete work	sq m	3802.80	198.40	754,475.52	
	<b>Terrace Works:</b>					
16	Concrete with broken brick jelly 20mm gauge in pureslacked lime over R.C.C. roof slab in the proportion of 32:12 ½ (No sand to be used) well beaten with wooden beaters to the required depth of 80mm thick and giving required slope and thickness to roof as required, etc., complete.	Cum	102.80	3778.00	388,378.40	
17	Terrace flooring with two course of flat tiles of 15cm x 15cm x 12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	Sqm	1285.10	1503.00	1,931,505.30	
	<b>TOTAL OF FINISHING WORKS:</b>				<b>6,104,181.82</b>	
V	<b>MISCELLANEOUS WORKS</b>					
18	Supplying and fixing lightening arrestor of aluminium strip 25*3mm size including final and grounding, aluminium strip is to be embeded in one of the columns in and independent GI conduct of 40 mm dia pipe suitably jointed by collars with all specials with all lead and lifts etc., complete.	No	1.00	22142.87	22,142.87	
19	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.	Sqm	29.20	1688.00	49,289.60	
20	Providing and fixing guage with iron sheet of 3 mm to 4 mm thickness, 0.23m width with copper floats indicators and flexible nylon wires, painting figures with all lead and lifts etc, complete as directed by Departmental Engineers	No	1.00	6863.00	6,863.00	
21	Providing and fixing FRC cover and frame of size 60 x 60cm including necessary masonry work and plastering, etc., complete	No	2.00	3925.00	7,850.00	
22	Providing and fixing hand rail of approved size by welding etc. to steel ladder railing, balcony railing, staircase railing and similar works, including applying priming coat of approved steel primer.					
	M.S tube	Kg	16966.70	157.15	2,666,316.91	

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
23	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.	mtr.	465.00	981.00	456,165.00	
24	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG,304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	mtr.	18.00	1869.00	33,642.00	
25	Providing and Placing in position suitable PVC water stops conforming to IS:12200 for construction/ expansion joints between two RCC members and fixed to the reinforcement with binding wire before pouring concrete etc. complete :					
	Serrated with central bulb (225 mm wide, 8-11 mm thick)	mts	257.00	285.60	73,399.20	
26	Supplying and fixing of 100mm dia CI ventilating pipe of 2m length each with cowl.	Each	28.00	2069.50	57,946.00	
27	Testing of the OHT by retaining water for 48 hours inside the OHT including cost of water, pumping water into the OHT and bailing out of water (after testing) with necessary pumping equipments including attending the crack if any occurred during the test and other incidental and operational charges etc. complete.					
	6.0 ML OHT	LS	1.00	503739.60	503,739.60	
<b>TOTAL OF MISCELLANEOUS :</b>					<b>3,877,354.17</b>	
<b>VI</b>	<b>PIPING, VALVE AND CHAMBER WORKS</b>					
28	Supply of DUCTILE IRON CLASS PN10 FLANGED PIPES of nominal dia as listed below with inside cement mortar lining and outside metallic zinc coating with bitumen finish, rubber ring / gasket joints including cost of all jointing material as per IS 8329 / 2000. (2 m length of pipes)					
a)	400 mm (Scour Pipe)	mts	27.00	7473.75	201,791.25	
b)	700 mm (Inlet & Overflow pipe)	mts	66.00	9571.75	631,735.50	
c)	800 mm (Outlet pipe)	mts	27.00	17541.00	473,607.00	
29	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection					
	0 to 2 m	Qtl	24.79	226.50	5,614.03	
	2 to 4 m	Qtl	24.79	341.10	8,454.50	
	4 to 6 m	Qtl	24.79	535.00	13,260.51	
	6 to 8 m	Qtl	24.79	739.90	18,339.16	
	8 to 10 m	Qtl	24.79	944.80	23,417.81	
	10 to 12 m	Qtl	24.79	1147.00	28,429.54	
	12 to 14 m	Qtl	24.79	1357.10	33,637.08	
	14 to 16 m	Qtl	24.79	1545.90	38,316.68	
	16 to 18 m	Qtl	24.79	1750.40	43,385.41	

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
	18 to 20 m	Qtl	24.79	1955.10	48,459.11	
	20 to 22 m	Qtl	7.77	2154.80	16,738.07	
	22 to 24 m	Qtl	7.77	2356.60	18,305.61	
	24 to 26 m	Qtl	3.88	2550.00	9,903.95	
30	Supply and delivery of DI specials (ALL FLANGE) to the site of work (such as bends,Tees & tapers etc.,) conforming to IS 9523/2000 and as amended from time to time including loading, freight, unloading, stocking at site, transit insurance charges, all taxes, etc. complete and as directed by the TWAD Board officers.required for the following pipes.					
a)	400 mm (Scour Pipe)	kgs	128.00	134.00	17,152.00	
b)	700 mm (Inlet & Overflow pipe)	kgs	840.00	197.00	165,480.00	
c)	800 mm (Outlet pipe)	kgs	1463.00	197.00	288,211.00	
31	Conveying and fixing specials like "C.I Tee" branches, bends and tapers including earth work excavation at any depth					
a)	400 mm (Scour Pipe)	Each	1.00	1443.00	1,443.00	
b)	700 mm (Inlet & Overflow pipe)	Each	2.00	4203.00	8,406.00	
c)	800 mm (Outlet pipe)	Each	3.00	6171.00	18,513.00	
32	Supply and delivery of DI D/F (Soft Seated) resilient seated soft sealing Gate Valves (Sluice Valves / Scour Valves) as per following sizes with body bonnet of ductile cast iron of grade GGG 40, wedge fully rubber lined with EDPM, replaceable spindle nut, without gland packing and with 3 O-ring protection on the shaft and seals of NBR and with replaceable stem nut and the valves should be of vacuum tight and 100 % leak proof with face to face dimensions as per BS 5163 - 89 / IS 14846 - 2000 / DIN 3202 F4. All the valves should be with Electrostatic powder coating both inside and outside pocket less straight thro body passage. All the valves are to be compatible for buried application with pressure rating PN 16.					
a)	350 mm (on Scour Pipe)	Nos	0.00	206448.00	-	
33	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS-3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095					
a)	400 mm (Scour Pipe)	Nos	1.00	178093	178,093.00	

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**ABSTRACT ESTIMATE**

(CAPACITY: 6.0 ML & STAGING: 20 m)						
S.No	Item	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks
b)	700 mm (Inlet & Overflow pipe)	Nos	2.00	495835	991,670.00	
c)	800 mm (Outet pipe)	Nos	1.00	553655	553,655.00	
34	Conveying and fixing sluice valves with tail pieces including fixing the surface boxes / valves, covers.					
a)	400 mm (Scour Pipe)	Each	1.00	5591.00	5,591.00	
b)	700 mm (Inlet & Overflow pipe)	Each	2.00	29526.00	59,052.00	
c)	800 mm (Outet pipe)	Each	1.00	37723.00	37,723.00	
35	Construction of RCC chamber for 300mm to 400mm dia.slucose valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	Each	1.00	63000.00	63,000.00	
36	Construction of RCC chamber for 450mm to 600mm dia.slucose valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	Each	3.00	136000.00	408,000.00	
37	Construction of thrust blocks using Cement Concrete 1:3:6, 40mm B.G.jelly for Plain Cement Concrete					
	400 mm 90 bend	Each	1.00	11990	11,990.00	
	700 mm 90 bend	Each	2.00	29954	59,908.00	
	750 mm 45 bend	Each	2.00	15804	31,608.00	
	800 mm 90 bend	Each	1.00	34776	34,776.00	
<b>TOTAL OF PIPING, VALVE AND CHAMBER WORKS :</b>					<b>4,547,666.22</b>	
	<b>GRAND TOTAL (I+II+III+IV+V+VI) Rs.</b>				<b>145,702,057.67</b>	
	<b>TOTAL COST REQUIRED FOR PROPOSED 6.0 ML OHT (1 no)</b>					<b>145,702,058.00</b>
	<b>TOTAL COST REQUIRED FOR PROPOSED 6.0 ML OHT (3 nos)</b>					<b>437,106,174.00</b>
<b>Note:</b>						
1	Considered CMWSSB Schedule of rates 2021-2022, (with effect from 1.6.2021). Basic Rates, including Basic Rate of Steel and Cement (excluding all taxes and GST) for the year 2021-2022					

**CONSTRUCTION OF OHT AT CHOOLAIMEDU WDS IN ZONE - X (6.0 ML)**

**Basic Data**

Clear diameter of tank	40	m				
Staging Height	20	m				
Depth of water	5	m				
Thickness of Wall	0.45	m				
Total depth of wall	5.75	m				
thickness of roof slab	0.20	m				
Size of Roof beams	0.00	x 0.00	m			
thickness of floor slab	0.50	m				
Size of floor slab beams	0.50	x 1.00	m			
Ring beam (below wall)	0.60	x 1.00	m			
Platform width	1.50	m				
Thickness of platform slab	0.15	m				
Column size - C1 & C2	0.60	x 0.60	m			
Column cap @ roof slab	1.50	x 1.50		x 0.25	m	
No. of columns	69	Nos				
Size of bracing beam	0.40	x 0.60	m			
Bracing beam c/c distance	4.00	m				
Size of plinth beam	0.40	x 0.60	m			
Column size (for stair case) - C3	0.35	x 0.35	m			
No. of columns	4	Nos				
Staircase tie beams	0.30	x 0.45	m			
Size of STAIR CASE well	3.95	x 3.55	m			
Waist slab thickness	0.175	m				
Step raiser	0.15	m				
Step tread	0.30	m				
Thickness of PCC	0.10	m	Grade	M-15		
FGL	0	m				
Founding level	-1.70	m				
Staging level	20.00	m				
Top of tank level	25.95	m				
Pile cap	PC					
PC1-Size	2.40	x 2.40		x 0.80	m	
Nos	69	Nos				
PC2-Size	0.90	x 2.40		x 0.80	m	
Nos	4	Nos				
BCIS pile - Grade M-25						
Cut off level	-2.50	m				
Size	0.60	m dia				
Depth of pile	20.00	m				
No. of pile	284	Nos				
Pile cap connecting beam	0.40	x 0.60				
Grid length						
A-M & 1-13	40.45	m 2.00 nos.				
B-L & 2-12	39.07	m 4.00 nos.				
C-K & 3-11	35.03	m 4.00 nos.				
D-J & 4-10	28.60	m 4.00 nos.				
RCC Grade	M-30					
Steel Grade	CRS Fe-500D					

**Measurement Sheet for Preparation of BoQ of 6.0 ML OHT (20 m staging).**

Sl. No.	Description of Work	No.			Measurement			Qty	Total	
		Length	Breadth	Height					Qty	
<b>Excavation works</b>										
1	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.									
a)	0 to -2 m Lvl									
	Pile cap PC1	1	x	69	2.90	2.90	2.00	1160.58		
	Pile cap PC2	1	x	4	1.40	2.90	2.00	32.48		
	Plinth beam									
	A-M & 1-13	1	x	2	33.85	0.90	0.70	42.65		
	B-L & 2-12	1	x	4	34.47	0.90	0.70	86.86		
	C-K & 3-11	1	x	4	30.43	0.90	0.70	76.68		
	D-J & 4-10	1	x	4	26.20	0.90	0.70	66.02		
	Ring beam	1	x	1	127.08	0.90	0.70	80.06		

Sl. No.	Description of Work	No.		Measurement			Qty	Total		
				Length	Breadth	Height		Qty		
	Staircase beam	1	x	2	1.55	0.90	0.70	1.95		
	Staircase beam	1	x	2	1.15	0.90	0.70	1.45		
							1548.74	<b>1548.70</b>	cum	
b)	-2 to -3 m Lvl									
	Pile cap PC1	1	x	69	2.90	2.90	0.60	348.17		
	Pile cap PC2	1	x	29	1.40	2.90	0.60	69.67		
							417.84	<b>417.80</b>	cum	
2	Refilling the foundation with excavated soils (other than sand) complying with standard specifications for filling in foundations and basement									
	Excavation qty - Concrete qty.	1	x	1				1711.43		
							1711.43	<b>1711.40</b>	cum	
3	Disposal of surplus earth									
	Excavation qty - Refilling qty.	1	x	1				255.16	<b>255.20</b>	cum
	<b>Concrete works</b>									
4	Plain Cement concrete 1:2:4 using Crushed stone sand (M sand) and 12 to 20 mm gauge hard broken stone jelly for plain concrete work including laying compacting curing, etc., complete.									
	<u>0 m to 1.5 m below G.L.</u>									
	Plinth beam									
	A-M & 1-13	1	x	2	33.85	0.60	0.10	4.06		
	B-L & 2-12	1	x	4	34.47	0.60	0.10	8.27		
	C-K & 3-11	1	x	4	30.43	0.60	0.10	7.30		
	D-J & 4-10	1	x	4	26.20	0.60	0.10	6.29		
	Ring beam	1	x	1	127.08	0.60	0.10	7.62		
	Staircase pile cap beam	1	x	2	1.55	0.60	0.10	0.19		
	Staircase pile cap beam	1	x	2	1.15	0.60	0.10	0.14		
							33.87	<b>33.90</b>	cum	
	<u>1.5 m to 4.5 m below G.L.</u>									
	Pile cap PC1	1	x	69	2.60	2.60	0.10	46.64		
	Pile cap PC2	1	x	4	1.10	2.60	0.10	1.14		
							47.79	<b>47.80</b>	cum	
5	Providing and laying in position machine batched, machine mixed and machine vibrated design mix cement concrete of M30 grade for reinforced cement concrete structural elements under controlled water cement ratio with plasticiser using 20mm and down graded machine broken granite stone jelly excluding the cost of centering and shuttering and reinforcement but including curing, fixing, fan clamps etc., as per standard specification and as directed by the Board officers complete.									
a)	<u>0 m to 1.5 m below G.L.</u>									
	Column C1	1	x	69	0.60	0.60	1.50	37.26		
	Column C2	1	x	4	0.35	0.35	1.50	0.74		
	Plinth beam									
	A-M & 1-13	1	x	2	33.85	0.40	0.60	16.25		
	B-L & 2-12	1	x	4	34.47	0.40	0.60	33.09		
	C-K & 3-11	1	x	4	30.43	0.40	0.60	29.21		
	D-J & 4-10	1	x	4	26.20	0.40	0.60	25.15		
	Ring beam	1	x	1	127.08	0.40	0.60	30.50		
	Staircase pile cap beam	1	x	2	1.55	0.40	0.60	0.74		
	Staircase pile cap beam	1	x	2	1.15	0.40	0.60	0.55		
							173.49	<b>173.50</b>	cum	
b)	<u>1.5 m to 3.0 m below G.L.</u>									
	Pile cap PC1	1	x	69	2.40	2.40	0.80	317.95		
	Pile cap PC2	1	x	4	0.90	2.40	0.80	6.91		
	Column C1	1	x	69	0.60	0.60	0.20	4.97		
	Column C2	1	x	4	0.35	0.35	0.20	0.10		
							329.93	<b>329.90</b>	cum	

Sl. No.	Description of Work	No.	Measurement			Qty	Total	
			Length	Breadth	Height		Qty	
	<u>Above G.L.</u>							
c)	<u>0 m to 4.5 m</u>							
	Column	1 x	69	0.60	0.60	4.50	111.78	
	Staircase column	1 x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 4.0 m lvl</u>							
	A-M & 1-13	1 x	2	33.85	0.40	0.60	16.25	
	B-L & 2-12	1 x	4	34.47	0.40	0.60	33.09	
	C-K & 3-11	1 x	4	30.43	0.40	0.60	29.21	
	D-J & 4-10	1 x	4	26.20	0.40	0.60	25.15	
	Ring beam	1 x	1	127.08	0.40	0.60	30.50	
	Staircase bracing beam	1 x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1 x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 2.0 m	1 x	1	3.20	0.30	0.45	0.43	
	waist slab	1 x	2	4.43	1.78	0.18	2.75	
	Steps	1 x	14	1.98	0.30	0.15	1.24	
	landing slab	1 x	2	3.55	1.50	0.18	1.86	
							255.21	<b>255.20</b> cum
d)	<u>4.5 m to 9.0 m</u>							
	Column	1 x	69	0.60	0.60	4.50	111.78	
	Staircase column	1 x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 8.0 m lvl</u>							
	A-M & 1-13	1 x	2	33.85	0.40	0.60	16.25	
	B-L & 2-12	1 x	4	34.47	0.40	0.60	33.09	
	C-K & 3-11	1 x	4	30.43	0.40	0.60	29.21	
	D-J & 4-10	1 x	4	26.20	0.40	0.60	25.15	
	Ring beam	1 x	1	127.08	0.40	0.60	30.50	
	Staircase bracing beam	1 x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1 x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 6.0 m	1 x	1	3.20	0.30	0.45	0.43	
	waist slab	1 x	2	4.43	1.78	0.18	2.75	
	Steps	1 x	14	1.98	0.30	0.15	1.24	
	landing slab	1 x	2	3.55	1.50	0.18	1.86	
							255.21	<b>255.20</b> cum
e)	<u>9.0 m to 13.5 m</u>							
	Column	1 x	69	0.60	0.60	4.50	111.78	
	Staircase column	1 x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 12.0 m lvl</u>							
	A-M & 1-13	1 x	2	33.85	0.40	0.60	16.25	
	B-L & 2-12	1 x	4	34.47	0.40	0.60	33.09	
	C-K & 3-11	1 x	4	30.43	0.40	0.60	29.21	
	D-J & 4-10	1 x	4	26.20	0.40	0.60	25.15	
	Ring beam	1 x	1	127.08	0.40	0.60	30.50	
	Staircase bracing beam	1 x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1 x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 10.0 m	1 x	1	3.20	0.30	0.45	0.43	
	waist slab	1 x	2	4.43	1.78	0.18	2.75	
	Steps	1 x	14	1.98	0.30	0.15	1.24	
	landing slab	1 x	2	3.55	1.50	0.18	1.86	
							255.21	<b>255.20</b> cum
f)	<u>13.5 m to 18.0 m</u>							
	Column	1 x	69	0.60	0.60	4.50	111.78	
	Staircase column	1 x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 16.0 m lvl</u>							
	A-M & 1-13	1 x	2	33.85	0.40	0.60	16.25	
	B-L & 2-12	1 x	4	34.47	0.40	0.60	33.09	
	C-K & 3-11	1 x	4	30.43	0.40	0.60	29.21	
	D-J & 4-10	1 x	4	26.20	0.40	0.60	25.15	
	Ring beam	1 x	1	127.08	0.40	0.60	30.50	
	Staircase bracing beam	1 x	2	1.55	0.30	0.45	0.42	
	Staircase bracing beam	1 x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 14.0 & 18.0 m	1 x	2	3.20	0.30	0.45	0.86	
	waist slab	1 x	3	4.43	1.78	0.18	4.13	
	Steps	1.5 x	14	1.98	0.30	0.15	1.87	
	landing slab	1 x	3	3.55	1.50	0.18	2.80	
							258.57	<b>258.60</b> cum
g)	<u>18.0 m to 22.5 m</u>							
	Column	1 x	69	0.60	0.60	2.00	49.68	
	Staircase column	1 x	4	0.35	0.35	4.50	2.21	
	<u>Bracing beam @ 20.0 m lvl</u>							
	Staircase bracing beam	1 x	2	1.55	0.30	0.45	0.42	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Staircase bracing beam	1	x	2	1.15	0.30	0.45	0.31	
	Staircase landing beam @ 20.0 & 22.0 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
	Floor slab & beam								
	Bottom slab	1	x	1	1285.07		0.50	642.54	
	Walkway slab	1	x	1	195.56		0.15	29.33	
	Kerb wall around platform	1	x	1	135.09	0.10	0.15	2.03	
	Bottom slab beam @ 20.00 m lvl								
	A-M & 1-13	1	x	2	33.85	0.50	1.00	33.85	
	B-L & 2-12	1	x	4	34.47	0.50	1.00	68.94	
	C-K & 3-11	1	x	4	30.43	0.50	1.00	60.86	
	D-J & 4-10	1	x	4	26.20	0.50	1.00	52.40	
	Ring beam	1	x	1	128.49	0.60	1.00	77.09	
	Tank wall	1	x	1	128.49	0.45	2.50	144.55	
	Column inside tank	1	x	49	0.60	0.60	2.50	44.10	
								1215.03	<b>1215.00</b>
									cum
h)	<u>22.5 m to 25.95 m</u>								
	Column C2	1	x	49	0.60	0.60	3.25	57.33	
	Tank wall from 22.5 to 25.95 m lvl	1	x	1	128.49	0.45	3.25	187.92	
	Roof slab	1	x	1	1285.07		0.20	257.01	
	Column cap	1	x	49	1.50	1.50	0.25	27.56	
	Staircase landing beam @ 24.0 & 25.95 m	1	x	2	3.20	0.30	0.45	0.86	
	waist slab	1	x	2	4.43	1.78	0.18	2.75	
	Steps	1	x	14	1.98	0.30	0.15	1.24	
	landing slab	1	x	2	3.55	1.50	0.18	1.86	
	Kerb wall for manhole opening	1	x	2	5.60	0.20	0.60	1.34	
	Stub column for ventilator opening	4	x	4	0.15	0.15	0.75	0.27	
	Kerb wall for ventilator opening	1	x	4	4.80	0.15	0.15	0.43	
	Kerb wall around roof slab	1	x	1	128.49	0.10	0.15	1.93	
								540.52	<b>540.50</b>
									cum
	<b>Total RCC (M-30) Qty.</b>								<b>3283.10</b>
	<b>Shuttering works</b>								
6	Providing form work with centering for soffits of Reinforced Cement Concrete slabs or plain surfaces including strutting upto 3m high								
a)	<u>0 m to 1.5 m below G.L.</u>								
	Column C1	4	x	69	0.60		0.90	149.04	
	Column C2	4	x	4	0.35		0.90	5.04	
	Plinth beam								
	A-M & 1-13	2	x	2	33.85		0.60	81.24	
	B-L & 2-12	2	x	4	34.47		0.60	165.46	
	C-K & 3-11	2	x	4	30.43		0.60	146.06	
	D-J & 4-10	2	x	4	26.20		0.60	125.76	
	Ring beam	2	x	1	127.08		0.60	152.49	
	Staircase pile cap beam	2	x	2	1.55		0.60	3.72	
	Staircase pile cap beam	2	x	2	1.15		0.60	2.76	
								831.57	<b>831.60</b>
									Sqm
	<u>'-1.5 m to 2.5 m below G.L.</u>								
	Pile cap PC1	4	x	69	2.40		0.80	529.92	
	Pile cap PC2	2	x	4	0.90		0.80	5.76	
		2	x	4	2.40		0.80	15.36	
	Column C1	4	x	69	0.60		0.20	33.12	
	Column C2	4	x	4	0.35		0.20	1.12	
								585.28	<b>585.30</b>
									Sqm
	<u>Above G.L.</u>								
b)	<u>0 m to 3.0 m</u>								
	Column	4	x	69	0.60		3.00	496.80	
	Staircase column	4	x	4	0.35		3.00	16.80	
	Staircase landing beam @ 2.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	waist slab	1	x	2	4.43		1.78	15.72	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Steps	2	x	14	1.78		0.15	7.46	
	landing slab	1	x	1	3.55		1.50	5.33	
							549.78	<b>549.80</b>	Sqm
c)	<u>3.0 m to 4.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
							171.20	<b>171.20</b>	Sqm
d)	<u>4.0 m to 5.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	<u>Bracing beam @ 4.0 m lvl</u>								
	A-M & 1-13	2	x	2	33.85		0.60	81.24	
		1	x	2	33.85		0.40	27.08	
	B-L & 2-12	2	x	4	34.47		0.60	165.46	
		1	x	4	34.47		0.40	55.15	
	C-K & 3-11	2	x	4	30.43		0.60	146.06	
		1	x	4	30.43		0.40	48.69	
	D-J & 4-10	2	x	4	26.20		0.60	125.76	
		1	x	4	26.20		0.40	41.92	
	Ring beam	2	x	1	127.08		0.60	152.49	
		1	x	1	127.08		0.40	50.83	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 4.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	waist slab	1	x	2	4.43		1.78	15.72	
	Steps	2	x	14	1.98		0.15	8.30	
	landing slab	1	x	1	3.55		1.50	5.33	
							1105.54	<b>1105.50</b>	Sqm
e)	<u>5.0 m to 6.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
							171.20	<b>171.20</b>	Sqm
e)	<u>6.0 m to 7.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 6.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							184.21	<b>184.20</b>	Sqm
f)	<u>7.0 m to 8.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
							188.11	<b>188.10</b>	Sqm
g)	<u>8.0 m to 9.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	<u>Bracing beam @ 8.0 m lvl</u>								
	A-M & 1-13	2	x	2	33.85		0.60	81.24	
		1	x	2	33.85		0.40	27.08	
	B-L & 2-12	2	x	4	34.47		0.60	165.46	
		1	x	4	34.47		0.40	55.15	
	C-K & 3-11	2	x	4	30.43		0.60	146.06	
		1	x	4	30.43		0.40	48.69	
	D-J & 4-10	2	x	4	26.20		0.60	125.76	
		1	x	4	26.20		0.40	41.92	
	Ring beam	2	x	1	127.08		0.60	152.49	
		1	x	1	127.08		0.40	50.83	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Starcase bracing beam @ 8.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
							1076.20	<b>1076.20</b>	Sqm
h)	<u>9.0 m to 10.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
							188.11	<b>188.10</b>	Sqm
i)	<u>10.0 m to 11.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 10.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							184.21	<b>184.20</b>	Sqm
j)	<u>11.0 m to 12.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							182.79	<b>182.80</b>	Sqm
k)	<u>12.0 m to 13.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 12.0 m lvl								
	A-M & 1-13	2	x	2	33.85		0.60	81.24	
		1	x	2	33.85		0.40	27.08	
	B-L & 2-12	2	x	4	34.47		0.60	165.46	
		1	x	4	34.47		0.40	55.15	
	C-K & 3-11	2	x	4	30.43		0.60	146.06	
		1	x	4	30.43		0.40	48.69	
	D-J & 4-10	2	x	4	26.20		0.60	125.76	
		1	x	4	26.20		0.40	41.92	
	Ring beam	2	x	1	127.08		0.60	152.49	
		1	x	1	127.08		0.40	50.83	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Starcase bracing beam @ 12.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
							1081.53	<b>1081.50</b>	Sqm
l)	<u>13.0 m to 14.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							182.79	<b>182.80</b>	Sqm
m)	<u>14.0 m to 15.0 m</u>								
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 14.0 m	2	x	2	3.20		0.45	5.76	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								184.21	<b>184.20</b>
n)	<u>15.0 m to 16.0 m</u>								Sqm
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								182.79	<b>182.80</b>
o)	<u>16.0 m to 17.0 m</u>								Sqm
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Bracing beam @ 16.0 m lvl								
	A-M & 1-13	2	x	2	33.85		0.60	81.24	
		1	x	2	33.85		0.40	27.08	
	B-L & 2-12	2	x	4	34.47		0.60	165.46	
		1	x	4	34.47		0.40	55.15	
	C-K & 3-11	2	x	4	30.43		0.60	146.06	
		1	x	4	30.43		0.40	48.69	
	D-J & 4-10	2	x	4	26.20		0.60	125.76	
		1	x	4	26.20		0.40	41.92	
	Ring beam	2	x	1	127.08		0.60	152.49	
		1	x	1	127.08		0.40	50.83	
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 16.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
								1081.53	<b>1081.50</b>
o)	<u>17.0 m to 18.0 m</u>								Sqm
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
								182.79	<b>182.80</b>
p)	<u>18.0 m to 19.0 m</u>								Sqm
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Staircase landing beam @ 18.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
								184.21	<b>184.20</b>
q)	<u>19.0 m to 20.0 m</u>								Sqm
	Column	4	x	69	0.60		1.00	165.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Floor beam @ 20.0 m lvl								
	A-M & 1-13	2	x	2	33.85		1.00	135.40	
		1	x	2	33.85		0.50	33.85	
	B-L & 2-12	2	x	4	34.47		1.00	275.76	
		1	x	4	34.47		0.50	68.94	
	C-K & 3-11	2	x	4	30.43		1.00	243.44	
		1	x	4	30.43		0.50	60.86	
	D-J & 4-10	2	x	4	26.20		1.00	209.60	
		1	x	4	26.20		0.50	52.40	
	Ring beam	1	x	2	128.49		1.00	256.98	
		1	x	1	128.49		0.60	77.09	
	Floor slab	1	x	1	1285.07			1285.07	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Walkway slab	1	x	1	195.56		195.56		
	Staircase bracing beam	2	x	2	1.55		0.45	2.79	
		1	x	2	1.55		0.30	0.93	
	Staircase bracing beam	2	x	2	1.15		0.45	2.07	
		1	x	2	1.15		0.30	0.69	
	Staircase bracing beam @ 20.0 m	2	x	1	3.20		0.45	2.88	
		1	x	1	3.20		0.30	0.96	
	landing slab	1	x	1	3.55		1.50	5.33	
							3081.81	<b>3081.80</b>	Sqm
r)	<u>20.0 m to 21.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
	Kerb wall around platform	2	x	1	135.09		0.15	40.53	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							432.30	<b>432.30</b>	Sqm
s)	<u>21.0 m to 22.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
							380.18	<b>380.20</b>	Sqm
t)	<u>22.0 m to 23.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	Staircase landing beam @ 22.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							404.77	<b>404.80</b>	Sqm
u)	<u>23.0 m to 24.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
							380.18	<b>380.20</b>	Sqm
v)	<u>24.0 m to 25.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
	Staircase landing beam @ 24.0 m	2	x	2	3.20		0.45	5.76	
		1	x	2	3.20		0.30	1.92	
	landing slab	1	x	1	3.55		1.50	5.33	
							404.77	<b>404.80</b>	Sqm
x)	<u>24.0 m to 25.0 m</u>								
	Column	4	x	49	0.60		1.00	117.60	
	Staircase column	4	x	4	0.35		1.00	5.60	
	Tank wall	2	x	1	128.49		1.00	256.98	
	waist slab	1	x	1	4.43		1.78	7.86	
	Steps	1	x	14	1.78		0.15	3.73	
							391.77	<b>391.80</b>	Sqm
y)	<u>25.0 m to 26.0 m</u>								
	Column	4	x	49	0.60		0.55	64.68	
	Staircase column	4	x	4	0.35		1.00	5.60	

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
	Tank wall	2	x	1	128.49		0.80	205.59	
	Roof slab	1	x	1	1285.07			1285.07	
	Column cap	4	x	49	1.50		0.25	73.50	
	Kerb wall around roof slab	2	x	1	128.49		0.15	38.55	
	Staircase landing beam @ 25.95 m	2	x	2	3.20		0.45	5.76	
			x	2	3.20		0.30	1.92	
	waist slab	1	x	2	4.43		1.78	15.72	
	Steps	1	x	14	1.78		0.15	3.73	
	landing slab	1	x	1	3.55		1.50	5.33	
	Kerb wall for manhole opening	2	x	2	5.60		0.60	13.44	
	Stub column for ventilator opening	4	x	8	0.15		0.75	3.60	
	Kerb wall for ventilator opening	2	x	2	4.80		0.15	2.88	
							1725.35	<b>1725.40</b>	Sqm
	<b>Total Shuttering qty.</b>							<b>15699.30</b>	Sqm
	<b>Reinforcement Steel</b>								
7	Reinforcements for foundation, staircase, slabs and walls, columns, beams, bracings								
	125 kg per cum	1	x	1			410.39		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			20.52		
							430.91	<b>430.90</b>	MT
	For pile foundation								
	130 kg per cum	1	x	1			208.78		
	Adding 5% extra (ie., development length, hooks & wastages)	1	x	1			10.44		
							219.22	<b>219.20</b>	MT
	<b>Piling works</b>								
8	Boring, providing and installation bored cast-in-situ reinforced cement concrete piles of grade M-25 of specified diameter and length below pile cap, to carry a safe working load not less than specified, excluding the cost of steel reinforcement but including the cost of boring with bentonite solution and temporary casing of appropriate length for setting out and removal of same and the length of the pile to be embedded in the pile cap etc. by Crawler mounted, telescopic boom hydraulic piling Rig all complete, including removal of excavated earth with all its lifts and leads (length of pile for payment shall be measured up to bottom of pile cap). Note: Truck Mounted rotary/TMR/Tube well boring machine shall not be used.								
	600 mm dia piles	1	x	284	20.00		5680.00		
							5680.00	<b>5680.00</b>	meters
9	Vertical load Test								
	Single pile upto 50 tonne Safe capacity	2	x				2.00		No.
10	Horizontal load Test	1	x				1.00		No.
11	Pull out Test	1	x				1.00		No.
	<b>Finishing works</b>								
12	Special ceiling Plastering with cement mortar 1:3 Crushed stone sand (M-sand) for 12mm thick including hacking and curing etc. complete.								
	Bottom slab	1	x				1285.07		
	Walkway platform	1	x				195.56		
	Staircase waist slab	1	x				125.74		
	Landing slab	1	x				74.55		
							1680.92	<b>1680.90</b>	Sqm.

Sl. No.	Description of Work	No.		Measurement			Qty	Total	
				Length	Breadth	Height		Qty	
13	Plastering with cement mortar 1:5 (Crushed stone sand (M-sand)) for 12mm thick including curing, etc., complete								
	External plastering	1	x				11889.52	<b>11889.50</b>	Sqm.
14	Flooring rendered smooth with 10 Kg./10 sqm of cement including curing, etc., complete.	1	x				1285.07	<b>1285.10</b>	Sqm.
15	Finishing with food grade epoxy paint (two or more coats) at internal surface of tank	1	x				3802.83	<b>3802.80</b>	Sqm.
16	Concrete with broken brick jelly 20mm gauge in pure slacked lime over R.C.C. roof slab for 80 mm thick	1	x		1285.07	0.08	102.81	<b>102.80</b>	cum
17	Terrace flooring with two course of flat tiles of 15cmx15cmx12mm using CM 1:3 mixed with crude oil 10% by weight of cement and pointed with same oiled mortar	1	x		1285.07		1285.07	<b>1285.10</b>	Sqm.
18	R.C.C. jolly work 50 mm thick in cement concrete 1:2:4 excluding cost of reinforcement but including moulding curing, etc., complete.								
	Precast Concrete jolly	1	x	16	1.20	0.60		11.52	
	Precast Concrete slab	1	x	4	2.10	2.10		17.64	
							29.16	<b>29.20</b>	Sqm
19	Colour washing two coats over one coat of white washing.								
	All external surfaces	1	x	1			11889.52	<b>11889.50</b>	Sqm.
20	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures								
	Vertical surface	1	x	1			2517.76		
	Horizontal surface	1	x	1			1285.07		
							3802.83	<b>3802.80</b>	Sqm.
<b>Miscellaneous works</b>									
21	Providing and fixing FRC cover and frame of size 100 x 100cm	1	x	2			2.00		
22	Supplying and fixing lightening arrestor	1	x	1			1.00		
23	Providing and fixing level indicator	1	x	1			1.00		
24	Providing and fixing Hand rails with MS tube								
	walkway platform								
	Horizontal top pipe 50 mm dia	1	x	1	135.09		5.44	734.88	Weight 5.44 kg/m, 3.91 mm thick as per steel tubes India
	Horizontal 20 mm square rod	4	x	207	0.60		3.14	1558.66	Weight 3.14 kg/m
	Vertical 20 mm square rod	4	x	208	0.85		3.14	2218.78	
	Insert plate 5 mm thick	2	x	208	0.15	0.10	0.005	244.72	7850 kg/m3
	Roof slab								
	Horizontal top pipe 50 mm dia	1	x	1	128.49		5.44	698.99	
	Vertical 20 mm square rod	4	x	198	0.60		3.14	1489.71	
	Horizontal 20 mm square rod	4	x	197	0.60		3.14	1482.17	
	Insert plate 5 mm thick	2	x	198	0.15	0.10	0.005	232.77	
	Staircase								
	Horizontal top pipe 50 mm dia	2	x	13	9.48		5.44	1340.49	
	Vertical 20 mm square rod	52	x	15	1.00		3.14	2380.74	
	Horizontal 20 mm square rod	52	x	14	0.60		3.14	1330.48	
	Insert plate 5 mm thick	379	x	15	0.15	0.10	0.005	3254.34	
							16966.72	<b>16966.70</b>	Kg
22	Providing and fixing 160 mm dia PVC Rainwater downfall pipe from roof to the RWH chamber for collecting the rain water.								
		1	x	15	31.00		465.00	<b>465.00</b>	Mtr.

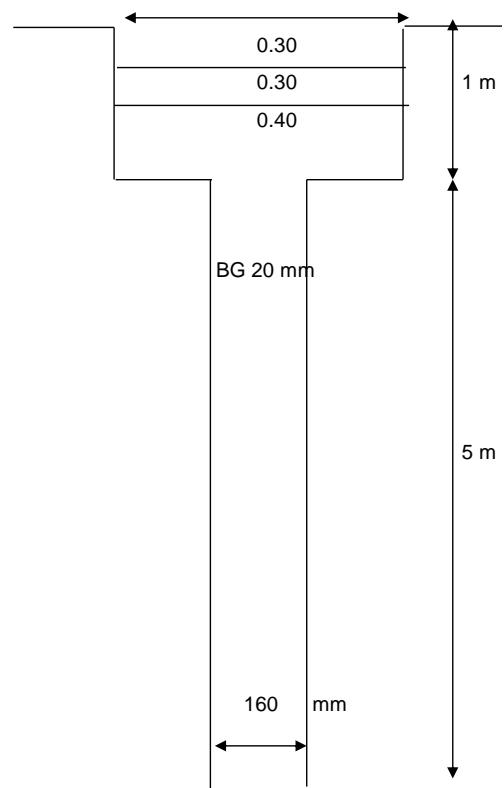
Sl. No.	Description of Work	No.			Measurement			Qty	Total	
					Length	Breadth	Height		Qty	
23	Supplying and fixing of stain less steel ladder consisting of side support and footrest at every 200mm all member of ladder made up of 18SWG, 304 Grade Stainless Steel with stainless steel welded joints. The width of ladder is 500 mm.	1	x	2	9.00			18.00	<b>18.00</b>	Mtr.
24	Providing and Placing in position suitable PVC water stops	2	x	1	128.49			256.98		
25	DUCTILE IRON PIPES AS PER IS 8329 / 2000 (K-9-FLANGED PIPES - 4M LENGTH) PN 10							256.98	<b>257.00</b>	Mtr.
	Inlet pipe 700 dia	1	x	1	33.00			33.00		
	Over flow pipe 700 dia	1	x	1	33.00			33.00		
								66.00	<b>66.00</b>	Mtr.
	Outlet pipe 800 dia	1	x	1	27.00			27.00		
								27.00	<b>27.00</b>	Mtr.
	Scour pipe 400 dia	1	x	1	27.00			27.00		
								27.00	<b>27.00</b>	Mtr.
26	Lifting and positioning of CI/GI/DI/MS pipes in vertical direction for service reservoir pipe connection									
	400 mm dia	1	x	2	66.00			179.64	359.27	Weight per mtr arrived as per online data
	700 mm dia	1	x	1	27.00			388.39	388.39	
	800 mm dia	1	x	1	27.00			491.61	491.61	
								1239.27	<b>1239.30</b>	Kg.
26	DUCTILE IRON SPECIALS ALL FLANGE AS PER IS 9523/2000									
	<u>Inlet pipe 700 dia</u>									
	Bend 90	1	x	1	420			420.00		
	<u>Over flow pipe 700 dia</u>									
	Bend 90	1	x	1	420			420.00		
								840.00	<b>840.00</b>	Kg
	<u>Outlet pipe 800 dia</u>									
	Bend 90	1	x	1	575			575.00		
	Bend 45	1	x	2	444			888.00		
								1463.00	<b>1463.00</b>	Kg
	<u>Scour pipe 400 dia</u>									
	Bend 90	1	x	1	128.0			128.00		
								128.00	<b>128.00</b>	Kg
27	DI Sluice valve									
	350 mm									
28	DI Butterfly valve									
	400 mm	1	x	1				1.00		Each
	700 mm	1	x	2				2.00		Each
	800 mm	1	x	1				1.00		
29	Concrete of thrust blocks for pipe support									
	400 mm									
	90 Bend	1	x	1				1.00		Each
	700 mm									
	90 Bend	1	x	2				2.00		Each
	800 mm									
	90 Bend	1	x	1				1.00		Each
	45 Bend	1	x	2				2.00		Each
30	Supplying and fixing of 100 mm dia CI ventilating pipe of 2m length each with cowl.	1	x	28				28.00		Each

ABSTRACT ESTIMATE							
CONSTRUCTION OF RAIN WATER HARVESTING STRUCTURE							
Item No.	Description of Works	No. or Qty.		Rate		Per	Amount
				Rs. P.		Rs. P.	
1.	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.						
	0 - 2m	1.00	cu.m	233.86		cu.m	233.86
2	Supplying and filling sand for RWH.	0.30	cu.m	447.00		cu.m	134.10
3	Supplying and filling hard broken stones 40 mm BG for filling.	1.40	cu.m	1029.00		cu.m	1440.60
4	Supplying and filling hard broken stones 20 mm BG for filling .	0.10	cu.m	1432.00		cu.m	143.20
5	Stock brick work in cement mortar 1:6 using second class bricks including curing etc. complete for 23 cm thick wall.	1.13	cu.m	7302.00		cu.m	8251.26
6	Supplying and laying of PVC pipe 160 mm DIA (6 KSC).	5.00	m	981.00		m	4905.00
7	Drilling of bore well of size 6" to 8" dia in sedimentary formation using hand boresets including insertion of casing pipes supplying and packing of pebbles and conveyance of hand boreset including loading and unloading.	5.00	m	1004.90		m	5024.50
	SUM						20,132.52
	SUNDRIES						867.48
	<b>TOTAL OF RAIN WATER HARVESTING</b>						<b>21,000.00</b>

#### DETAILED ESTIMATE

CONSTRUCTION OF RAIN WATER HARVESTING STRUCTURE									
Item No.	Description of Work	No.		Measurement			Qty	Total Qty	
				Length	Breadth	Height			
1.	Earth work excavation in hard stiff clay, stiff black cotton, hard red earth, shales, muram gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil as per SS 20B with initial lead of 10 mts. and lift of 2 mts.								
	0 - 2m	1	x	1	1.00	1.00	1.00	1.00	cu.m
2	Supplying sand for filling	1	x	1	1.00	1.00	0.30	0.30	cu.m
3	Supplying hard broken stones 40 mm BG for filling	1	x	2	1.00	1.00	0.70	1.40	1.40 cu.m
4	Supplying hard broken stones 20 mm BG for filling in the PVC pipe	1	x	1	0.02		5.00	0.10	0.10 cu.m
5	Stock brick work with second class bricks in cement mortar 1:6 for 23cm tk wall including curing etc complete.	1	x	4	1.23	0.23	1.00	1.13	1.13 cu.m
6	Supplying and laying of PVC pipe 160 mm DIA (6 KSC)	1	x	1	-	-	5.00	5.00	m
7	Drilling of bore well of size 6" to 8" dia in sedimentary formation using hand boresets including insertion of casing pipes supplying and packing of pebbles and conveyance of hand boreset including loading and unloading	1	x	1	-	-	5.00	5.00	m

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**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY  
-AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**GENERAL ABSTRACT - PIPING WORK**

SL.NO	DESCRIPTION OF WORK	AMOUNT	
		RS.	P.
1	PROVIDING DISTRIBUTION SYSTEM ,SPECIALS WITH HOUSE SERVICE CONNECTIONS WITH AMR METERS	3,643,649,091	
2	PROVIDING FEEDER MAINS & SPECIALS FOR THIS SYSTEM	61,295,426	
3	EXISTING PIPE REHABILITATION	40,775,389	
4	ROADCUT RESTORATION CHARGES TO CORPORATION	2,931,641,000	
	<b>TOTAL</b>	<b>6,677,360,907</b>	

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**ABSTRACT ESTIMATE - DISTRIBUTION SYSTEM**

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		AMOUNT
			Rs.	P.	
I	<b>PROVIDING DISTRIBUTION SYSTEM ,FEEDER MAINS ,SPECIALS WITH HOUSE SERVICE CONNECTIONS</b>				
1	Supplying, delivery at site and laying the following sizes of socket @ spigot end, push - on - joint DI pipes of classification K7 conforming to IS: 8329/2000 in standard lengths with cement mortar lining inside and outside Zinc coating, including rubber gasket, Labour charges for loading, unloading and stacking at the site etc as directed by the engineer at site ,including earthwork excavation for trenches in hard stiff clay, blackcotton, hard red earth, shales, murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil depositing the earth on banks with initial lead of 10m.conveying to the site of work, lowering into the trenches, aligning, refilling the trenches with excavated soil, watering and ramming to consolidation, disposal of surplus earth etc. complete for the pipes of following diametres in Asphaltic & concrete road.				
a.	100mm at 1.25m depth	445365.00	m	<b>1683.15</b>	m      749,616,100
b.	150mm at 1.25m depth	40352.00	m	<b>2280.85</b>	m      92,036,859
c.	200mm at 1.25m depth	17994.00	m	<b>2970.50</b>	m      53,451,177
d.	250mm at 1.25m depth	13894.00	m	<b>3797.17</b>	m      52,757,880
e.	300mm at 1.5m depth	9498.00	m	<b>4814.08</b>	m      45,724,132
f.	350mm at 1.5m depth	770.00	m	<b>5787.34</b>	m      4,456,252
g.	400mm at 2m depth	3612.00	m	<b>6960.80</b>	m      25,142,410
h.	450mm at 2m depth	429.00	m	<b>8092.49</b>	m      3,471,678
i.	500mm at 2m depth	3696.00	m	<b>10011.13</b>	m      37,001,136
j	600mm at 2m depth	3376.00	m	<b>12876.25</b>	m      43,470,220
k.	700mm at 2m depth	1379.00	m	<b>15822.02</b>	m      21,818,566
l.	750mm at 2m depth	0.00	m	<b>18107.59</b>	m      -
m.	800mm at 2m depth	75.00	m	<b>20252.33</b>	m      1,518,925
n.	900mm at 2m depth	1731.00	m	<b>23514.51</b>	m      40,703,617
o.	1200mm at 2.5m depth	13.00	m	<b>40466.72</b>	m      526,067

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
2	Supply, delivery, conveying and fixing following sizes of DI specials of DI push - on joint specials as mentioned below confirming to IS: 9523 including loading, unloading and stacking at the site etc as directed by the engineer at site, and including earthwork excavation, refilling with excavated soil, watering and ramming to consolidation and disposal of surplus earth etc complete. (As per data enclosed)						
a.	100mm 11.25 deg D/S bend	0.00	nos.	<b>1428.20</b>	each		-
b.	100mm 22.5 deg D/S bend	0.00	nos.	<b>1479.40</b>	each		-
c.	100mm 45 deg D/S bend	0.00	nos.	<b>1556.20</b>	each		-
d.	100mm 90 deg D/S bend	0.00	nos.	<b>1722.60</b>	each		-
e.	150mm 11.25 deg D/S bend	0.00	nos.	<b>2063.60</b>	each		-
f.	150mm 22.5 deg D/S bend	0.00	nos.	<b>2166.00</b>	each		-
g.	150mm 45 deg D/S bend	0.00	nos.	<b>2358.00</b>	each		-
h.	150mm 90 deg D/S bend	0.00	nos.	<b>2780.40</b>	each		-
i.	200mm 11.25 deg D/S bend	12.00	nos.	<b>3000.60</b>	each	36,007	
j	200mm 22.5 deg D/S bend	0.00	nos.	<b>3205.40</b>	each		-
k.	200mm 45 deg D/S bend	0.00	nos.	<b>3615.00</b>	each		-
l.	200mm 90 deg D/S bend	0.00	nos.	<b>4383.00</b>	each		-
m.	250mm 11.25 deg D/S bend	28.00	nos.	<b>4130.00</b>	each	115,640	
n.	250mm 22.5 deg D/S bend	0.00	nos.	<b>4450.00</b>	each		-
o.	250mm 45 deg D/S bend	0.00	nos.	<b>5154.00</b>	each		-
p.	250mm 90 deg D/S bend	0.00	nos.	<b>6434.00</b>	each		-
q.	300mm 11.25 deg D/S bend	100.00	nos.	<b>5854.00</b>	each	585,400	
r.	300mm 22.5 deg D/S bend	0.00	nos.	<b>6366.00</b>	each		-
s.	300mm 45 deg D/S bend	0.00	nos.	<b>7390.00</b>	each		-
t.	300mm 90 deg D/S bend	0.00	nos.	<b>9246.00</b>	each		-
u.	350mm 11.25 deg D/S bend	24.00	nos.	<b>6910.00</b>	each	165,840	
v.	350mm 22.5 deg D/S bend	0.00	nos.	<b>7678.00</b>	each		-

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
w.	350mm 45 deg D/S bend	0.00	nos.	<b>9086.00</b>	each		-
x.	350mm 90 deg D/S bend	0.00	nos.	<b>11902.00</b>	each		-
y.	400mm 11.25 deg D/S bend	64.00	nos.	<b>8867.00</b>	each	567,488	
z.	400mm 22.5 deg D/S bend	0.00	nos.	<b>9891.00</b>	each		-
aa.	400mm 45 deg D/S bend	0.00	nos.	<b>12003.00</b>	each		-
ab.	400mm 90 deg D/S bend	0.00	nos.	<b>15907.00</b>	each		-
ac.	450mm 11.25 deg D/S bend	16.00	nos.	<b>10808.00</b>	each	172,928	
ad.	450mm 22.5 deg D/S bend	0.00	nos.	<b>12088.00</b>	each		-
ae.	450mm 45 deg D/S bend	0.00	nos.	<b>14840.00</b>	each		-
af.	450mm 90 deg D/S bend	0.00	nos.	<b>19960.00</b>	each		-
ag.	500mm 11.25 deg D/S bend	16.00	nos.	<b>13678.00</b>	each	218,848	
ah.	500mm 22.5 deg D/S bend	0.00	nos.	<b>15342.00</b>	each		-
ai.	500mm 45 deg D/S bend	0.00	nos.	<b>18798.00</b>	each		-
aj.	500mm 90 deg D/S bend	0.00	nos.	<b>25582.00</b>	each		-
ak.	600mm 11.25 deg D/S bend	12.00	nos.	<b>19214.00</b>	each	230,568	
al.	600mm 22.5 deg D/S bend	0.00	nos.	<b>21646.00</b>	each		-
am.	600mm 45 deg D/S bend	0.00	nos.	<b>27534.00</b>	each		-
an.	600mm 90 deg D/S bend	0.00	nos.	<b>38030.00</b>	each		-
ao.	700mm 11.25 deg D/S bend	8.00	nos.	<b>41803.00</b>	each	334,424	
ap.	700mm 22.5 deg D/S bend	0.00	nos.	<b>47443.00</b>	each		-
aq.	700mm 45 deg D/S bend	0.00	nos.	<b>62483.00</b>	each		-
ar.	700mm 90 deg D/S bend	0.00	nos.	<b>81283.00</b>	each		-
as.	800mm 11.25 deg D/S bend	4.00	nos.	<b>54067.00</b>	each	216,268	
at.	800mm 22.5 deg D/S bend	0.00	nos.	<b>59519.00</b>	each		-
au.	800mm 45 deg D/S bend	0.00	nos.	<b>83207.00</b>	each		-
av.	800mm 90 deg D/S bend	0.00	nos.	<b>116107.00</b>	each		-
aw.	900mm 11.25 deg D/S bend	8.00	nos.	<b>66650.00</b>	each	533,200	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
ax.	900mm 22.5 deg D/S bend	0.00	nos.	<b>77682.00</b>	each		-
ay.	900mm 45 deg D/S bend	0.00	nos.	<b>110581.00</b>	each		-
az.	900mm 90 deg D/S bend	0.00	nos.	<b>195291.00</b>	each		-
ba.	1200mm 11.25 deg D/S bend	4.00	nos.	<b>146091.00</b>	each	584,364	
bb.	1200mm 22.5 deg D/S bend	0.00	nos.	<b>180651.00</b>	each		-
bc.	1200mm 45 deg D/S bend	0.00	nos.	<b>262971.00</b>	each		-
bd.	1200mm 90 deg D/S bend	0.00	nos.	<b>342171.00</b>	each		-
be.	1600mm 11.25 deg D/S bend	4.00	nos.	<b>344307.00</b>	each	1,377,228	
bf.	1600mm 22.5 deg D/S bend	0.00	nos.	<b>423439.00</b>	each		-
bg.	1600mm 45 deg D/S bend	0.00	nos.	<b>581411.00</b>	each		-
bh.	1600mm 90 deg D/S bend	0.00	nos.	<b>902611.00</b>	each		-
bi.	80mm FI/Spi tail piece	135.00	nos.	<b>1271.60</b>	each	171,666	
bj.	100mm FI/Spi tail piece	1718.00	nos.	<b>1543.80</b>	each	2,652,248	
bk.	150mm FI/Spi tail piece	14.00	nos.	<b>2399.40</b>	each	33,592	
bl.	200mm FI/Spi tail piece	15.00	nos.	<b>3403.00</b>	each	51,045	
bm.	250mm FI/Spi tail piece	37.00	nos.	<b>4709.00</b>	each	174,233	
bn.	300mm FI/Spi tail piece	125.00	nos.	<b>6233.00</b>	each	779,125	
bo.	350mm FI/Spi tail piece	32.00	nos.	<b>8158.00</b>	each	261,056	
bp.	400mm FI/Spi tail piece	80.00	nos.	<b>10270.00</b>	each	821,600	
bq.	450mm FI/Spi tail piece	22.00	nos.	<b>12605.00</b>	each	277,310	
br.	500mm FI/Spi tail piece	20.00	nos.	<b>16659.00</b>	each	333,180	
bs.	600mm FI/Spi tail piece	19.00	nos.	<b>23668.00</b>	each	449,692	
bt.	700mm FI/Spi tail piece	12.00	nos.	<b>44077.00</b>	each	528,924	
bu.	750mm FI/Spi tail piece	0.00	nos.	<b>49499.00</b>	each		-
bv.	800mm FI/Spi tail piece	7.00	nos.	<b>54044.00</b>	each	378,308	
bw.	900mm FI/Spi tail piece	12.00	nos.	<b>73317.00</b>	each	879,804	
bx.	1000mm FI/Spi tail piece	0.00	nos.	<b>90466.00</b>	each		-

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
by.	1200mm FI/Spi tail piece	9.00	nos.	<b>116482.00</b>	each	1,048,338	
bz.	1600mm FI/Spi tail piece	5.00	nos.	<b>266833.00</b>	each	1,334,165	
ca.	100mm M/J collar	994.00	nos.	<b>2925.00</b>	each	2,907,450	
cb.	150mm M/J collar	7.00	nos.	<b>4573.00</b>	each	32,011	
cc.	200mm M/J collar	12.00	nos.	<b>5953.00</b>	each	71,436	
cd.	250mm M/J collar	29.00	nos.	<b>8235.00</b>	each	238,815	
ce.	300mm M/J collar	101.00	nos.	<b>10662.00</b>	each	1,076,862	
cf	350mm M/J collar	25.00	nos.	<b>15079.00</b>	each	376,975	
cg.	400mm M/J collar	64.00	nos.	<b>17992.00</b>	each	1,151,488	
ch.	450mm M/J collar	16.00	nos.	<b>20863.00</b>	each	333,808	
ci.	500mm M/J collar	16.00	nos.	<b>27307.00</b>	each	436,912	
cj.	600mm M/J collar	12.00	nos.	<b>34588.00</b>	each	415,056	
ck.	700mm M/J collar	8.00	nos.	<b>50429.00</b>	each	403,432	
cl.	750mm M/J collar	0.00	nos.	<b>60552.00</b>	each	-	
cm.	800mm M/J collar	4.00	nos.	<b>102239.00</b>	each	408,956	
cn.	900mm M/J collar	7.00	nos.	<b>116783.00</b>	each	817,481	
co.	1000mm M/J collar	0.00	nos.	<b>145874.00</b>	each	-	
cp.	1200mm M/J collar	8.00	nos.	<b>147305.00</b>	each	1,178,440	
cq.	Add 10% cost of specials taken from Pipeline material costs for all dimensions	1.00	nos.	<b>117169501.84</b>	each	117,169,502	
3	Supply and delivery of DI D/F Gate sluice valves (soft seated) resilient seated soft sealing Gate Valves (Sluice Valves) with body Bonnet of Ductile cast iron of Grade GGG 40 or equivalent grade, Wedge fully rubber lined with EPDM replaceable spindle nut without gland packing and with 3 O Ring protection on the shaft and seals of NBR and the valves should be of Vacuum tight and 100% leak proof with face to face dimensions as per BS 5163-89/ISI 4846-2000/DIN 3202 F4. All the valves should be with electrostatic powder coating both inside and out side with pocket less straight through body passage. All the valves are to be compatible for buried application with pressure rating PN 10/16						
a	80mm	135.00	no.	<b>9810.00</b>	each	1,324,350	
b.	100mm	859.00	nos.	<b>12929.00</b>	each	11,106,011	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
c.	150mm	7.00	nos.	<b>20364.00</b>	each		142,548
d.	200mm	3.00	nos.	<b>32583.00</b>	each		97,749
e.	250mm	8.00	no.	<b>46865.00</b>	each		374,920
f.	300mm	26.00	nos.	<b>70836.00</b>	each		1,841,736
g.	350mm	7.00	nos.	<b>206448.00</b>	each		1,445,136
4	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095						
a.	400mm	16.00	nos.	<b>152208.00</b>	each		2,435,328
b.	450mm	7.00	nos.	<b>195516.00</b>	each		1,368,612
c.	500mm	8.00	nos.	<b>197380.00</b>	each		1,579,040
d.	600mm	4.00	nos.	<b>258694.00</b>	each		1,034,776
e.	700mm	2.00	nos.	<b>422219.00</b>	each		844,438
f.	750mm	0.00	nos.	<b>476736.50</b>	each		-
g.	800mm	1.00	nos.	<b>531254.00</b>	each		531,254
h.	900mm	1.00	nos.	<b>684196.00</b>	each		684,196
i.	1000mm	0.00	nos.	<b>881153.00</b>	each		-
j.	1100mm	0.00	nos.	<b>1043810.00</b>	each		-
k.	1200mm	2.00	nos.	<b>1216154.00</b>	each		2,432,308

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
5	DI Diaphragmtype Flow Control Valve with the function to limit the flow rate to a set point. In case the downstream demand increases beyond the set limit, the valve closes down to bring the flow back to set limit. The valve shall have orifice plate and the orifice diameter is designed based on the set point as per the requirement and installed downstream of the control valve. Manufacture supply and delivery of DI D/F Diaphragmtype own medium controlled Flow Control Valve with cast body of ductile iron grade G40/or equivalent grade or as per IS 3896 part-2-1985 customized control cylinder for linear control behavior, performed diaphragm and pull-out safe profile sealing ring of EPD, M-threaded inserts (CORFIX) to prevent the coating from coming off in the connections area as well as corrosion and incrustations in the control circuit or equivalent. Flange connection dimensions according to EN 1092, part 2/ISO 7005 (DIN)/IS 1538, all parts (Epoxy coating and diaphragm) in contact with medium are as per KTW and DVGW certified (harmless)/WRAS & NSF approved. The EPDM rubber & epoxy coating (EP-P) should be approved by W270. (EP-P)/WRAS & NSF. Pilot valve system having SS / brass fittings with spring of stainless steel 304 as per standard parts according to DIN EN 12 266-1, orifice plate shall be as per the set point of flow rate and all external tubing parts of SS 304/ Copper, reinforced plastic rated PN16, tightness to DIN EN 12 266-1, leakage rate A or equivalent and the needle valve / speed control device should be provided to vary opening speed of the main diaphragm with self-cleaning filter to avoid possibility of dirt build up inside the control tubing.						
a.	50mm	0.00	nos.	<b>87433.04</b>	each		-
b.	65mm	0.00	nos.	<b>102309.00</b>	each		-
c.	80mm	0.00	nos.	<b>112710.00</b>	each		-
d.	100mm	0.00	nos.	<b>140481.00</b>	each		-
e.	150mm	0.00	nos.	<b>184722.00</b>	each		-
f.	200 mm	3.00	nos.	<b>285666.00</b>	each	856,998	
g.	250mm	7.00	nos.	<b>351248.00</b>	each	2,458,736	
h.	300mm	26.00	nos.	<b>544557.00</b>	each	14,158,482	
i.	350mm	6.00	nos.	<b>807791.00</b>	each	4,846,746	
j.	400mm	16.00	nos.	<b>1374154.00</b>	each	21,986,464	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
6	<p>Electromagnetic Flow Meter shall be a velocity sensing Electromagnetic type, microprocessor based signal converter, sealed housing, flanged tube meter for 1.0 pMa working pressure, manufactured to highest standard available for mag-meters, equipped with minimum six digit digital totalizers, reading in different units (Kiloliters / Cubic meter) and shall be accurate within 0.5% of measured value, shall operate within a range of 0.3 m/sec to 4 m/sec and be constructed as follows: Meter tube (Sensor) shall be fabricated from stainless steel tube and use class PN10 flat face carbon steel flanges in accordance with IS 1538. These flanges shall be welded to the flow tube. The internal and external of the meter tube shall be blasted to near white and lined with hard rubber preferably by SBR or EPD. Meter tube shall have a constant nominal inside diameter offering no obstruction to the flow. The accuracy should be inclusive of linearity, hysteresis, repeatability, temperature and pressure effects. Coil Housing shall be fabricated from stainless steel (SS304) for corrosion resistance and welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of submerged or buried operation with IP68 Protection. Signal Converter shall be pulsed DC coil excitation type with auto zeroing. The signal converter shall be remotely mounted away from the meter. The converter shall indicate direction of flow and provide a flow rate indication and a total of flow volume for both forward and reverse directions. The converter shall provide an isolated 4-20 mA output into minimum 500-ohm load and a frequency output of a maximum of 0-10 KHZ and a scaled pulse output, Communication interface is RS485, HART output. The microprocessor based signal converter shall have a self diagnostic test mode and a backlit display that continuously displays "Rate of Flow" and "Total Volume". Converter shall be supplied with a programmable low flow drop out, higher flow and empty pipe zero return. The signal converter housing should be die-cast aluminum with glass window. The converter cum transmitter should be fully programmable from the front fascia.</p> <p>The programming should be user friendly, self-prompting menu driven. Flow meter test calibration certificate from FCRI, flow test lab / NABL accredited lab to be furnished.</p>						
h.	200 mm	3.00	nos.	<b>142680.00</b>	each	428,040	
i.	250 mm	7.00	nos.	<b>177018.00</b>	each	1,239,126	
j.	300 mm	25.00	nos.	<b>201706.00</b>	each	5,042,650	
k.	350 mm	6.00	nos.	<b>249793.00</b>	each	1,498,758	
l.	400 mm	16.00	nos.	<b>302785.00</b>	each	4,844,560	
m.	450 mm	4.00	nos.	<b>349423.00</b>	each	1,397,692	
n.	500 mm	4.00	nos.	<b>399545.00</b>	each	1,598,180	
o.	600 mm	3.00	nos.	<b>458380.00</b>	each	1,375,140	
p.	700 mm	2.00	nos.	<b>535153.00</b>	each	1,070,306	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE	PER	AMOUNT
			Rs. P.		Rs. P.
q.	800 mm	1.00 nos.	<b>599113.00</b>	each	599,113
r.	900 mm	2.00 nos.	<b>673938.00</b>	each	1,347,876
s.	1000 mm	0.00 nos.	<b>851775.00</b>	each	-
t.	1200 mm	1.00 nos.	<b>1223526.00</b>	each	1,223,526
u.	1400 mm	0.00 nos.	<b>1465545.00</b>	each	-
v.	1600 mm	1.00 nos.	<b>1667675.00</b>	each	1,667,675
w.	1800 mm	0.00 nos.	<b>2214000.00</b>	each	-
x.	2000 mm	0.00 nos.	<b>3179550.00</b>	each	-
y.	2200 mm	0.00 nos.	<b>3328175.00</b>	each	-
z.	2400 mm	0.00 nos.	<b>3662325.00</b>	each	-
aa.	2600 mm	0.00 nos.	<b>4086163.00</b>	each	-
ab.	2800 mm	0.00 nos.	<b>4536650.00</b>	each	-
ac.	3000 mm	0.00 nos.	<b>4882075.00</b>	each	-
7	Providing and fixing of Fire hydrant of Size upto 100mm of approval brand with bolts, nuts , rubber insertions etc., complete all (tail piece if required will be paid separately)	25.00 nos.	<b>174435.24</b>	each	4,360,881
8	Construction of chamber for 100mm to 250mm dia. sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.2 x 1.55 m	1012 no.	<b>53000.00</b>	each	53,636,000
9	Construction of chamber for 300mm to 400mm dia.sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	48 nos.	<b>63000.00</b>	each	3,024,000
10	Construction of chamber for 450mm to 600mm dia.sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	26 nos.	<b>136000.00</b>	each	3,536,000
11	Construction of chamber for 150mm to 250mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.60 x 1.60 x 3.00 m	3 nos	<b>262234.87</b>	each	786,705
12	Construction of chamber for 300mm to 500mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 2.50 x 2.50 x 3.00 m	62 nos	<b>375562.97</b>	each	23,284,904
13	Construction of chamber for 600mm to 700mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3.10 x 3.10 x 3.50 m	2 nos	<b>502079.75</b>	each	1,004,160

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
14	Construction of Air valve Chamber in second class brick work in CM 1:4 proportion with 12mm thick outside plastering and 20 mm thick inside plastering in CM 1:3 proportion, RCC cover slab in CC 1:2:4 proportion using 20 mm jelly, chamber foundation and bed block in PCC 1:3:6 proportion using 40 mm jelly including cost of reinforcement and labour charges, CI steps, etc. complete as per specifications.						
a.	80 mm dia Air valve as per data	0 nos.	9870.00	each		-	
15	Construction of thrust blocks using Cement Concrete 1:3:6 ,40mm B.G.jelly for Plain Cement Concrete						
	For Bends						
a.	100mm 11.25 deg D/S bend @ 2m depth	0 nos.	0.00	each		-	
b.	150mm 11.25 deg D/S bend @ 2m depth	0 nos.	3086.00	each		-	
c.	200mm 11.25 deg D/S bend @ 2m depth	12 nos.	3344.00	each		40,128	
d.	250mm 11.25 deg D/S bend @ 2m depth	28 nos.	3751.00	each		105,028	
e.	300mm 11.25 deg D/S bend @ 2m depth	100 nos.	4070.00	each		407,000	
f.	350mm 11.25 deg D/S bend @ 2m depth	24 nos.	4307.00	each		103,368	
g.	400mm 11.25 deg D/S bend @ 2m depth	64 nos.	4801.00	each		307,264	
h.	450mm 11.25 deg D/S bend @ 2m depth	16 nos.	5184.00	each		82,944	
i.	500mm 11.25 deg D/S bend @ 2m depth	16 nos.	6029.00	each		96,464	
j.	600mm 11.25 deg D/S bend @ 2m depth	12 nos.	7148.00	each		85,776	
k.	700mm 11.25 deg D/S bend @ 2m depth	8 nos.	8267.00	each		66,136	
l.	750mm 11.25 deg D/S bend @ 2m depth	0 nos.	9496.00	each		-	
m.	800mm 11.25 deg D/S bend @ 2m depth	4 nos.	10335.50	each		41,342	
n.	900mm 11.25 deg D/S bend @ 2m depth	8 nos.	12404.00	each		99,232	
o.	1200mm 11.25 deg D/S bend @ 2m depth	4 nos.	17670.00	each		70,680	
p.	1600mm 11.25 deg D/S bend @ 2m depth	4 nos.	25004.50	each		100,018	
16	Cutting of DI Pipes true to axis and finishing the ends complete.						
a.	100mm	0.00 nos.	210.00	each		-	
b.	150mm	0.00 nos.	280.00	each		-	
c.	200mm	12.00 nos.	376.00	each		4,512	
d.	250mm	28.00 nos.	484.00	each		13,552	
e.	300mm	100.00 nos.	554.00	each		55,400	
f.	350mm	24.00 nos.	624.00	each		14,976	
g.	400mm	64.00 nos.	694.00	each		44,416	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
h.	450mm	16.00	nos.	<b>764.00</b>	each	12,224	
i.	500mm	16.00	nos.	<b>1052.00</b>	each	16,832	
j.	600mm	12.00	nos.	<b>1231.00</b>	each	14,772	
k.	700mm	8.00	0	<b>1543.00</b>	each	12,344	
l.	750mm	0.00	sq.m	<b>1746.00</b>	each	-	
m.	800mm	4.00	sq.m	<b>1847.50</b>	each	7,390	
n.	900mm	8.00	sq.m	<b>2152.00</b>	each	17,216	
o.	1200mm	4.00	cu.m	<b>3283.00</b>	each	13,132	
p.	1600mm	4.00	0	<b>4718.50</b>	each	18,874	
17	Cutting asphaltic Road surface.						
a.	Bus Route	14586.00	sq.m	<b>309.00</b>	sq.m	4,507,074	
b.	Non-Bus Route	218784.00	sq.m	<b>155.00</b>	sq.m	33,911,520	
c.	Cutting Cement Concrete Road Surface.	5835.00	cu.m	<b>1020.90</b>	cu.m	5,956,952	
18	Making flange joints with nuts, bolts, rubber gaskets etc. complete for sluice valves (including jointing materials).						
a.	80mm	135.00	nos.	<b>161.60</b>	each	21,816	
b.	100mm	1718.00	nos.	<b>276.40</b>	each	474,855	
c.	150mm	14.00	nos.	<b>463.10</b>	each	6,483	
d.	200mm	15.00	nos.	<b>520.20</b>	each	7,803	
e.	250mm	37.00	nos.	<b>735.00</b>	each	27,195	
f.	300mm	125.00	nos.	<b>825.80</b>	each	103,225	
g.	350mm	32.00	nos.	<b>1065.60</b>	each	34,099	
h.	400mm	80.00	nos.	<b>1603.40</b>	each	128,272	
h.	450mm	22.00	nos.	<b>1836.20</b>	each	40,396	
j.	500mm	20.00	nos.	<b>2243.50</b>	each	44,870	
k.	600mm	19.00	nos.	<b>3150.10</b>	each	59,852	
l.	700mm	12.00	nos.	<b>3215.00</b>	each	38,580	
m.	750mm	0.00	nos.	<b>3306.50</b>	each	-	

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
n.	800mm	7.00	nos.	<b>3320.10</b>	each		23,241
o.	900mm	12.00	nos.	<b>3915.00</b>	each		46,980
p.	1200mm	9.00	nos.	<b>4679.90</b>	each		42,119
q.	1600mm	5.00	nos.	<b>6039.70</b>	each		30,199
19	Making Rubber joints including jointing Materials.(As per data enclosed)						
a.	100mm	0.00	nos.	<b>138.15</b>	each		-
b.	150mm	0.00	nos.	<b>194.85</b>	each		-
c.	200mm	25.00	nos.	<b>293.50</b>	each		7,338
d.	250mm	57.00	nos.	<b>413.17</b>	each		23,551
e.	300mm	201.00	nos.	<b>541.08</b>	each		108,756
f.	350mm	49.00	nos.	<b>618.34</b>	each		30,299
g.	400mm	129.00	nos.	<b>836.80</b>	each		107,948
h.	450mm	33.00	nos.	<b>932.49</b>	each		30,772
i.	500mm	33.00	nos.	<b>1200.13</b>	each		39,604
j.	600mm	25.00	nos.	<b>1532.25</b>	each		38,306
k.	700mm	17.00	nos.	<b>2127.02</b>	each		36,159
l.	750mm	1.00	nos.	<b>2484.59</b>	each		2,485
m.	800mm	9.00	nos.	<b>2719.83</b>	each		24,478
n.	900mm	17.00	nos.	<b>2980.51</b>	each		50,669
o.	1200mm	9.00	nos.	<b>4966.72</b>	each		44,700
p.	1600mm	9.00	nos.	<b>7213.62</b>	each		64,923
20	Testing of DI pipes with hydraulic testing equipment by filling with water (including cost of water) and testing to recommended pressure in convenient stretches and attending the bursts if any occurred during the test, excluding the cost of pipes, including other incidental and operational charges, etc., complete for the following diametres of pipes.						
a.	100mm	445365.00	m	<b>83.00</b>	m		36,965,295
b.	150mm	40352.00	m	<b>110.00</b>	m		4,438,720

Sl. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
c.	200mm	17994.00	m	134.00	m	2,411,196	
d.	250mm	13894.00	m	166.00	m	2,306,404	
e.	300mm	9498.00	m	201.00	m	1,909,098	
f.	350mm	770.00	m	237.00	m	182,490	
g.	400mm	3612.00	m	273.00	m	986,076	
h.	450mm	429.00	m	313.00	m	134,277	
i.	500mm	3696.00	m	384.00	m	1,419,264	
j.	600mm	3376.00	m	452.00	m	1,525,952	
k.	700mm	1379.00	m	573.00	m	790,167	
l.	750mm	0.00	m	671.00	m	-	
m.	800mm	75.00	m	694.00	m	52,050	
n.	900mm	1731.00	m	767.00	m	1,327,677	
o.	1200mm	13.00	m	1231.00	m	16,003	
21	Barricading work along one side of the trench for laying the pipeline with casuarina post at 1.52m centre to centre(8 to 10cm dia. and 1.52m height) verticals, painting the vertical posts in different colours, tieing with coir rope, fixing danger flags, danger lights, reflectors including watching during night for 1 metre.	1084368.00	m	76.00	m	82,411,968	
<b>Sub Total - A</b>							<b>1,683,384,427</b>
<b>HOUSE SERVICE CONNECTION</b>							
22	Making bore and tapping in the DI pipe line,supplying and fixing of plastic mould clamp saddle with stainless steel 304 threaded metel insert and specials consisting of Polypropylene compression fitting adopter with metal insert (male threaded), Polypropylene compression fitting 90 deg elbow, Stop cock (PP) with compression joint at one end and female threaded at other end and suitable enclosure (HDPE) with top side openable for housing ball valve and testing house service connections including cost of water, etc complete for following sizes.						
a.	20 mm O.D	112438.00	nos.	2211.00	each	248,600,418	
b.	25 mm O.D	21082.00	nos.	2410.00	each	50,807,620	
c.	32 mm O.D	7027.00	nos.	2785.00	each	19,570,195	
23	Supplying and laying of MDPE (PE80) Blue pipe (IS:4427) with necessary specials including earth work excavation laying jointing testing and refilling the trenches etc.complete.including disposal of surplus earth.						



**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**ABSTRACT ESTIMATE - FEEDER MAINS**

SI. No.	DESCRIPTION OF WORK	QTY	RATE		AMOUNT	
			PER	Rs. P.		
I	<b>PROVIDING DISTRIBUTION SYSTEM ,FEEDER MAINS ,SPECIALS WITH HOUSE SERVICE CONNECTIONS</b>					
1	Supplying, delivery at site and laying the following sizes of socket @ spigot end, push - on - joint DI pipes of classification K7 conforming to IS: 8329/2000 in standard lengths with cement mortar lining inside and outside Zinc coating, including rubber gasket, Labour charges for loading, unloading and stacking at the site etc as directed by the engineer at site ,including earthwork excavation for trenches in hard stiff clay, blackcotton, hard red earth, shales, murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil depositing the earth on banks with initial lead of 10m.conveying to the site of work, lowering into the trenches, aligning, refilling the trenches with excavated soil, watering and ramming to consolidation, disposal of surplus earth etc. complete for the pipes of following diametres in Asphaltic & concrete road.					
a.	400mm at 2m depth	148.00	m	<b>6960.80</b>	m	1,030,198
b.	450mm at 2m depth	2032.00	m	<b>8092.49</b>	m	16,443,940
c.	500mm at 2m depth	1078.00	m	<b>10011.13</b>	m	10,791,998
d.	600mm at 2m depth	1425.00	m	<b>12876.25</b>	m	18,348,656
2	Supply, delivery, conveying and fixing following sizes of DI specials of DI push - on joint specials as mentioned below confirming to IS: 9523 including loading, unloading and stacking at the site etc as directed by the engineer at site, and including earthwork excavation, refilling with excavated soil, watering and ramming to consolidation and disposal of surplus earth etc complete. (As per data enclosed)					
a.	400mm 11.25 deg D/S bend	0.00	nos.	<b>8867.00</b>	each	-
b.	400mm 22.5 deg D/S bend	0.00	nos.	<b>9891.00</b>	each	-
c.	400mm 45 deg D/S bend	0.00	nos.	<b>12003.00</b>	each	-
d.	400mm 90 deg D/S bend	1.00	nos.	<b>15907.00</b>	each	15,907
e.	450mm 11.25 deg D/S bend	0.00	nos.	<b>10808.00</b>	each	-
f.	450mm 22.5 deg D/S bend	2.00	nos.	<b>12088.00</b>	each	24,176

SI. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT	
			Rs.	P.		Rs.	P.
g.	450mm 45 deg D/S bend	0.00	nos.	<b>14840.00</b>	each	-	
h.	450mm 90 deg D/S bend	6.00	nos.	<b>19960.00</b>	each	119,760	
i.	500mm 11.25 deg D/S bend	0.00	nos.	<b>13678.00</b>	each	-	
j	500mm 22.5 deg D/S bend	0.00	nos.	<b>15342.00</b>	each	-	
k.	500mm 45 deg D/S bend	0.00	nos.	<b>18798.00</b>	each	-	
l.	500mm 90 deg D/S bend	3.00	nos.	<b>25582.00</b>	each	76,746	
m.	600mm 11.25 deg D/S bend	0.00	nos.	<b>19214.00</b>	each	-	
n.	600mm 22.5 deg D/S bend	1.00	nos.	<b>21646.00</b>	each	21,646	
o.	600mm 45 deg D/S bend	0.00	nos.	<b>27534.00</b>	each	-	
p.	600mm 90 deg D/S bend	5.00	nos.	<b>38030.00</b>	each	190,150	
q.	Add 10% cost of specials taken from Pipeline material costs for all dimensions	1.00	nos.	<b>4661479.25</b>	each	4,661,479	
11	Construction of thrust blocks using Cement Concrete 1:3:6 ,40mm B.G.jelly for Plain Cement Concrete						
	For Bends						
a.	400mm 11.25 deg D/S bend @ 2m depth	1.00	nos.	<b>4801.00</b>	each	4,801	
b.	450mm 11.25 deg D/S bend @ 2m depth	8.00	nos.	<b>5184.00</b>	each	41,472	
c.	500mm 11.25 deg D/S bend @ 2m depth	3.00	nos.	<b>6029.00</b>	each	18,087	
d.	600mm 11.25 deg D/S bend @ 2m depth	6.00	nos.	<b>7148.00</b>	each	42,888	
12	Cutting of DI Pipes true to axis and finishing the ends complete.						
a.	400mm	1.00	nos.	<b>694.00</b>	each	694	
b.	450mm	8.00	nos.	<b>764.00</b>	each	6,112	
c.	500mm	3.00	nos.	<b>1052.00</b>	each	3,156	
d.	600mm	6.00	nos.	<b>1231.00</b>	each	7,386	
13	Cutting asphaltic Road surface.						
a.	Bus Route	272.00	sq.m	<b>309.00</b>	sq.m	84,048	
b.	Non-Bus Route	4071.00	sq.m	<b>155.00</b>	sq.m	631,005	
c.	Cutting Cement Concrete Road Surface.	109.00	cu.m	<b>1020.90</b>	cu.m	111,278	
15	Making Rubber joints including jointing Materials.(As per data enclosed)						

SI. No.	DESCRIPTION OF WORK	QTY	RATE		PER	AMOUNT
			Rs.	P.		
a.	400mm	3.00 nos.	836.80	each		2,510
b.	450mm	17.00 nos.	932.49	each		15,852
c.	500mm	7.00 nos.	1200.13	each		8,401
d.	600mm	13.00 nos.	1532.25	each		19,919
16	Testing of DI pipes with hydraulic testing equipment by filling with water (including cost of water) and testing to recommended pressure in convenient stretches and attending the bursts if any occurred during the test, excluding the cost of pipes, including other incidental and operational charges, etc., complete for the following diametres of pipes.					
a.	400mm	148.00 m	273.00	m		40,404
b.	450mm	2032.00 m	313.00	m		636,016
c.	500mm	1078.00 m	384.00	m		413,952
d.	600mm	1425.00 m	452.00	m		644,100
17	Barricading work along one side of the trench for laying the pipeline with casuarina post at 1.52m centre to centre(8 to 10cm dia. and 1.52m height) verticals, painting the vertical posts in different colours, tieing with coir rope, fixing danger flags, danger lights, reflectors including watching during night for 1 metre.	9366.00 m	76.00	m		711,816
<b>Sub Total - A</b>						<b>55,168,555</b>
18	Railway crossing - trenchless items (Pipe jacking)					
	Casing Pipe for crossings					
a	Supply of M.S. Pipe Fe410 of 800 mm dia (ID) with wall thickness of 8mm with anticorrosive epoxy painting both outside and inside duly rolling the plate. The rate includes the cost of raw materials, labour, tools and plants, loading, transporting of and finished product to the site etc., complete as directed by Engineer in Charge. (Actual thickness of pipe to be designed by DBO contractor executing the works)					
i	Railway Crossing Between Arcot road in Depo - 134	36 m	17765	m		639523.6974

SI. No.	DESCRIPTION OF WORK	QTY	RATE		AMOUNT	
			PER	Rs. P.		
b.	Excavating of driving pit and receiving pit of size 3.00m (length) x 3.50m (breadth), depth upto 5m in all soil strata including shoring and strutting using 6mm tk MS Plate of size 3.50m x 3.50m usable for 15 operations and providing 16mm thickness MS plate of size 3.00m x 3.50m with 100mm x100mm x 12mm angles of 4m length for holding the MS plates for Thrust arrangements to receive the impacts during pushing operation of encasing pipe. Lowering the following size of MS encasing pipe by using Contractor's crane and machineries and jointing MS pipes by welding, across the National Highways/State Highways/ Railways/Canal crossing etc and driving the horizontal bore by pushing / jacking method (trenchless technology method) using contractor's machineries such as cranes, jacks, jacking materials, generator, welding machineries, compressor, jack hammer and other equipments etc. without interfering and causing any hindrance to the movement of traffic or any other vehicles, without any disturbances to the railway/road/canal formation etc. including bailing / pumping of water where ever necessary without affecting any installation like water supply pipeline/telephone cable, electric cables etc. passing nearby area and scooping the earth inside the pipes and pit and depositing the surplus earth in a convenient place and leveling the site after completion of entire work as directed by TWAD Engineers. The rate includes the cost of driving pit, thrust bed/wall and receiving pit to the depth of om to 5m excluding the cost of MS pipes					
i	For 800mm dia MS encasing pipe for various thickness					
	Railway Crossing Between Arcot road in Depo - 134	36	m	13710	m	493560
c.	After completion of the entire work converting the driving/reception pits into RCC inspection chambers to size of 6m X 6m internal dimension with 4.5m depth with M25 mix at both the ends of MS encasing pipe and providing covering over RCC chamber with precast RCC slab of each 600mm width with M25 mix and providing necessary PVC steps inside the chambers spaced at 300mm.					
i	Railway Crossing Between Arcot road in Depo - 134	2	nos.	2496835.22	m	4993670.44
	<b>Sub Total - B</b>					<b>6,126,754</b>
	Total					<b>61,295,309</b>
	Sundries					117.26
	<b>Grand Total (A+B) IN CRORES</b>					<b>61,295,426.10</b>
						6.13

REHABILITATION OF EXISTING CI/DI PIPES							CMWSSB SOR 2021-22	
ESTIMATE								
(AREA-X)								
S. No.	Item	Reference	Unit	Qty	Rate (Rs.)	Amount (Rs.)	Remarks	
I	<b>Rehabilitation of CI/DI pipes</b>							
1	Scraping and cleaning mains excluding necessary earthwork excavation, cutting mains, disjointing and fixing collars.							
	100	Sch 3, S.no.8	mtr.	31628.00	218.00	6,894,904		
	150	Sch 3, S.no.6	mtr.	9115.00	280.00	2,552,200		
	200	Sch 3, S.no.4	mtr.	4508.00	330.00	1,487,640		
	250	Sch 3, S.no.2	mtr.	1272.00	392.00	498,624		
	300	Sch 3, S.no.1	mtr.	10812.00	443.00	4,789,716		
	350	Extrapolated from the 300 mm rates	mtr.	1967.00	494.00	971,698		
	400		mtr.	9140.00	545.00	4,981,300		
	450		mtr.	1977.00	596.00	1,178,292		
	500		mtr.	4471.00	647.00	2,892,737		
	600		mtr.	1983.00	749.00	1,485,267		
	700		mtr.	668.00	851.00	568,468		
	750		mtr.	448.00	902.00	404,096		
	800		mtr.	494.00	953.00	470,782		
	900		mtr.	2729.00	1055.00	2,879,095		
	1200		mtr.	0.00	1361.00	-		
	1600		mtr.	1088.00	1769.00	1,924,672		
	<b>Total amount for scrapping of existing pipes</b>					<b>33,979,491</b>		
	Add 20% for excavation, cutting, disjointing and fixing collars					6,795,898		
	<b>Total amount for scrapping of existing pipes</b>					<b>40,775,389</b>		

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY - AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**MEASUREMENTS - DISTRIBUTION SYSTEM**

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
1	Supplying, delivery at site and laying the following sizes of socket @ spigot end, push - on - joint DI pipes of classification K7 conforming to IS: 8329/2000 in standard lengths with cement mortar lining inside and outside Zinc coating, including rubber gasket, Labour charges for loading, unloading and stacking at the site etc as directed by the engineer at site ,including earthwork excavation for trenches in hard stiff clay, blackcotton, hard red earth, shales, murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil depositing the earth on banks with initial lead of 10m.conveying to the site of work, lowering into the trenches, aligning, refilling the trenches with excavated soil, watering and ramming to consolidation, disposal of surplus earth etc. complete for the pipes of following diameters in Asphaltic & concrete road.								
a.	100mm at 1.25m depth	1x	1	445365				445365.00	m
b.	150mm at 1.25m depth	1x	1	40352				40352.00	m
c.	200mm at 1.25m depth	1x	1	17994				17994.00	m
d.	250mm at 1.25m depth	1x	1	13894				13894.00	m
e.	300mm at 1.5m depth	1x	1	9498				9498.00	m
f.	350mm at 1.5m depth	1x	1	770				770.00	m
g.	400mm at 2m depth	1x	1	3612				3612.00	m
h.	450mm at 2m depth	1x	1	429				429.00	m
i.	500mm at 2m depth	1x	1	3696				3696.00	m
j.	600mm at 2m depth	1x	1	3376				3376.00	m
k.	700mm at 2m depth	1x	1	1379				1379.00	m
l.	750mm at 2m depth	1x	1	0				0.00	m
m.	800mm at 2m depth	1x	1	75				75.00	m
n.	900mm at 2m depth	1x	1	1731				1731.00	m
o	1200mm at 2m depth	1x	1	13				13.00	m

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
2	Supply, delivery, conveying and fixing following sizes of DI specials of DI push - on joint specials as mentioned below confirming to IS: 9523 including loading, unloading and stacking at the site etc as directed by the engineer at site, and including earthwork excavation, refilling with excavated soil, watering and ramming to consolidation and disposal of surplus earth etc complete. (As per data enclosed)								
a.	100mm 11.25 deg D/S bend	1x	0					0.00	nos.
b.	100mm 22.5 deg D/S bend	1x	0					0.00	nos.
c.	100mm 45 deg D/S bend	1x	0					0.00	nos.
d.	100mm 90 deg D/S bend	1x	0					0.00	nos.
e.	150mm 11.25 deg D/S bend	1x	0					0.00	nos.
f.	150mm 22.5 deg D/S bend	1x	0					0.00	nos.
g.	150mm 45 deg D/S bend	1x	0					0.00	nos.
h.	150mm 90 deg D/S bend	1x	0					0.00	nos.
i.	200mm 11.25 deg D/S bend	1x	12					12.00	nos.
j	200mm 22.5 deg D/S bend	1x	0					0.00	nos.
k.	200mm 45 deg D/S bend	1x	0					0.00	nos.
l.	200mm 90 deg D/S bend	1x	0					0.00	nos.
m.	250mm 11.25 deg D/S bend	1x	28					28.00	nos.
n.	250mm 22.5 deg D/S bend	1x	0					0.00	nos.
o.	250mm 45 deg D/S bend	1x	0					0.00	nos.
p.	250mm 90 deg D/S bend	1x	0					0.00	nos.
q.	300mm 11.25 deg D/S bend	1x	100					100.00	nos.
r.	300mm 22.5 deg D/S bend	1x	0					0.00	nos.
s.	300mm 45 deg D/S bend	1x	0					0.00	nos.
t.	300mm 90 deg D/S bend	1x	0					0.00	nos.
u.	350mm 11.25 deg D/S bend	1x	24					24.00	nos.
v.	350mm 22.5 deg D/S bend	1x	0					0.00	nos.
w.	350mm 45 deg D/S bend	1x	0					0.00	nos.
x.	350mm 90 deg D/S bend	1x	0					0.00	nos.
y.	400mm 11.25 deg D/S bend	1x	64					64.00	nos.
z.	400mm 22.5 deg D/S bend	1x	0					0.00	nos.
aa.	400mm 45 deg D/S bend	1x	0					0.00	nos.

Sl. No	Description of work	Nos.		Length m	Width m	Height m	Area or Contents	Total Quantity	
								0.00	nos.
ab.	400mm 90 deg D/S bend	1x	0						
ac.	450mm 11.25 deg D/S bend	1x	16					16.00	nos.
ad.	450mm 22.5 deg D/S bend	1x	0					0.00	nos.
ae.	450mm 45 deg D/S bend	1x	0					0.00	nos.
af.	450mm 90 deg D/S bend	1x	0					0.00	nos.
ag.	500mm 11.25 deg D/S bend	1x	16					16.00	nos.
ah.	500mm 22.5 deg D/S bend	1x	0					0.00	nos.
ai.	500mm 45 deg D/S bend	1x	0					0.00	nos.
aj.	500mm 90 deg D/S bend	1x	0					0.00	nos.
ak.	600mm 11.25 deg D/S bend	1x	12					12.00	nos.
al.	600mm 22.5 deg D/S bend	1x	0					0.00	nos.
am.	600mm 45 deg D/S bend	1x	0					0.00	nos.
an.	600mm 90 deg D/S bend	1x	0					0.00	nos.
ao.	700mm 11.25 deg D/S bend	1x	8					8.00	nos.
ap.	700mm 22.5 deg D/S bend	1x	0					0.00	nos.
aq.	700mm 45 deg D/S bend	1x	0					0.00	nos.
ar.	700mm 90 deg D/S bend	1x	0					0.00	nos.
as.	800mm 11.25 deg D/S bend	1x	4					4.00	nos.
at.	800mm 22.5 deg D/S bend	1x	0					0.00	nos.
au.	800mm 45 deg D/S bend	1x	0					0.00	nos.
av.	800mm 90 deg D/S bend	1x	0					0.00	nos.
aw	900mm 11.25 deg D/S bend	1x	8					8.00	nos.
ax	900mm 22.5 deg D/S bend	1x	0					0.00	nos.
ay	900mm 45 deg D/S bend	1x	0					0.00	nos.
az	900mm 90 deg D/S bend	1x	0					0.00	nos.
ba	1200mm 11.25 deg D/S bend	1x	4					4.00	nos.
bb	1200mm 22.5 deg D/S bend	1x	0					0.00	nos.
bc	1200mm 45 deg D/S bend	1x	0					0.00	nos.
bd	1200mm 90 deg D/S bend	1x	0					0.00	nos.
be	1600mm 11.25 deg D/S bend	1x	4					4.00	nos.
bf	1600mm 22.5 deg D/S bend	1x	0					0.00	nos.

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
bg	1600mm 45 deg D/S bend	1x	0					0.00	nos.
bh	1600mm 90 deg D/S bend	1x	0					0.00	nos.
bi.	80mm FI/Spi tail piece	1x	135					135.00	nos.
bj.	100mm FI/Spi tail piece	1x	1718					1718.00	nos.
bk.	150mm FI/Spi tail piece	1x	14					14.00	nos.
bl.	200mm FI/Spi tail piece	1x	15					15.00	nos.
bm.	250mm FI/Spi tail piece	1x	37					37.00	nos.
bn.	300mm FI/Spi tail piece	1x	125					125.00	nos.
bo.	350mm FI/Spi tail piece	1x	32					32.00	nos.
bp.	400mm FI/Spi tail piece	1x	80					80.00	nos.
bq.	450mm FI/Spi tail piece	1x	22					22.00	nos.
br.	500mm FI/Spi tail piece	1x	20					20.00	nos.
bs.	600mm FI/Spi tail piece	1x	19					19.00	nos.
bt.	700mm FI/Spi tail piece	1x	12					12.00	nos.
bu.	750mm FI/Spi tail piece	1x	0					0.00	nos.
bv.	800mm FI/Spi tail piece	1x	7					7.00	nos.
bw.	900mm FI/Spi tail piece	1x	12					12.00	nos.
bx.	1000mm FI/Spi tail piece	1x	0					0.00	nos.
by.	1200mm FI/Spi tail piece	1x	9					9.00	nos.
bz.	1600mm FI/Spi tail piece	1x	5					5.00	nos.
ca.	100mm M/J collar	1x	994					994.00	nos.
cb.	150mm M/J collar	1x	7					7.00	nos.
cc.	200mm M/J collar	1x	12					12.00	nos.
cd.	250mm M/J collar	1x	29					29.00	nos.
ce.	300mm M/J collar	1x	101					101.00	nos.
cf	350mm M/J collar	1x	25					25.00	nos.
cg.	400mm M/J collar	1x	64					64.00	nos.
ch.	450mm M/J collar	1x	16					16.00	nos.
ci.	500mm M/J collar	1x	16					16.00	nos.
cj.	600mm M/J collar	1x	12					12.00	nos.
ck.	700mm M/J collar	1x	8					8.00	nos.

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
cl.	750mm M/J collar	1x	0					0.00	nos.
cm.	800mm M/J collar	1x	4					4.00	nos.
cn.	900mm M/J collar	1x	7					7.00	nos.
co.	1000mm M/J collar	1x	0					0.00	nos.
cp.	1200mm M/J collar	1x	8					8.00	nos.
<b>3</b>	<b>DI D/F GATE VALVES</b>								
	Supply and delivery of DI D/F Gate sluice valves (soft seated) resilient seated soft sealing Gate Valves (Sluice Valves) with body Bonnet of Ductile cast iron of Grade GGG 40 or equivalent grade, Wedge fully rubber lined with EPDM replaceable spindle nut without gland packing and with 3 O Ring protection on the shaft and seals of NBR and the valves should be of Vacuum tight and 100% leak proof with face to face dimensions as per BS 5163-89/ISI 4846-2000/DIN 3202 F4. All the valves should be with electrostatic powder coating both inside and outside with pocket less straight through body passage. All the valves are to be compatible for buried application with pressure rating PN 10/16								
a.	50mm	1x						0.00	nos.
b.	80mm	1x	135					135.00	no.
c.	100mm	1x	859					859.00	nos.
d.	150mm	1x	7					7.00	nos.
e.	200mm	1x	3					3.00	nos.
f.	250mm	1x	8					8.00	no.
g.	300mm	1x	26					26.00	nos.
h.	350mm	1x	7					7.00	nos.
<b>4</b>	<b>DI D/F BUTTERFLY VALVES</b>								
	Supply and delivery of DI D/F Butterfly Valves with GGG 40 or equivalent grade as per IS3896 (Part 2) 1985 and subsequent revisions Double eccentrically disc with renewable soft seal on the disc and body seat face of Stainless Steel / nickel weld overlay micro finished with powder or liquid Epoxy coating with minimum thickness of 250 microns applied on both body and disc inside and outside Face to Face dimensions as per AWWA C 504 or BS 5155 or IS 13095								
a.	400mm	1x	16					16.00	nos.
b.	450mm	1x	7					7.00	nos.
c.	500mm	1x	8					8.00	nos.

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
d.	600mm	1x	4					4.00	nos.
e.	700mm	1x	2					2.00	nos.
f.	750mm	1x	0					0.00	nos.
g.	800mm	1x	1					1.00	nos.
h.	900mm	1x	1					1.00	nos.
i.	1000mm	1x	0					0.00	nos.
j.	1100mm	1x	0					0.00	nos.
k.	1200mm	1x	2					2.00	nos.
5	DI Diaphragmtype Flow Control Valve with the function to limit the flow rate to a set point. In case the downstream demand increases beyond the set limit, the valve closes down to bring the flow back to set limit. The valve shall have orifice plate and the orifice diameter is designed based on the set point as per the requirement and installed downstream of the control valve. Manufacture supply and delivery of DI D/F Diaphragm type own medium controlled Flow Control Valve with cast body of ductile iron grade G40/or equivalent grade or as per IS 3896 part-2-1985 customized control cylinder for linear control behavior, performed diaphragm and pull-out safe profile sealing ring of EPDM threaded inserts (CORFIX) to prevent the coating from coming off in the connections area as well as corrosion and incrustations in the control circuit or equivalent. Flange connection dimensions according to EN 1092, part 2/ISO 7005 (DIN)/IS 1538, all parts (Epoxy coating and diaphragm) in contact with medium are as per KTW and DVGW certified (harmless) /WRAS & NSF approved. The EPDM rubber & epoxy coating (EP-P) should be approved by W270. (EP-P)/WRAS & NSF. Pilot valve system having SS / brass fittings with spring of stainless steel 304 as per standard parts according to DIN EN 12 266-1, orifice plate shall be as per the set point of flow rate and all external tubing parts of SS 304/Copper, reinforced plastic rated PN16, tightness to DIN EN 12 266-1, leakage rate A or equivalent and the needle valve / speed control device should be provided to vary opening speed of the main diaphragm with self-cleaning filter to avoid possibility of dirt build up inside the control tubing.								
a.	50mm	1x						0.00	nos.
b.	65mm	1x						0.00	nos.
c.	80mm	1x						0.00	nos.
d.	100mm	1x						0.00	nos.
e.	150mm	1x						0.00	nos.
f.	200 mm	1x	3					3.00	nos.

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
g.	250mm	1x	7					7.00	nos.
h.	300mm	1x	26					26.00	nos.
i.	350mm	1x	6					6.00	nos.
j.	400mm	1x	16					16.00	nos.
6	Electromagnetic Flow Meter shall be a velocity sensing Electromagnetic type, microprocessor based signal converter, sealed housing, flanged tube meter for 1.0 Mpa working pressure, manufactured to highest standard available for mag-meters, equipped with minimum six digit digital totalizers, reading in different units (Kiloliters/Cubic meter) and shall be accurate within 0.5% of Measured value, shall operate within a range of 0.3 m/sec to 4 m/sec and be constructed as follows: Meter tube (Sensor) shall be fabricated fromstainless steel tube and use class PN10 flat face carbon steel flanges in accordance with IS 1538. These flanges shall be welded to the flow tube. The internal and external of the meter tube shall be blasted to near white and lined with hard rubber preferably by SBR or EPDM Meter tube shall have a constant nominal inside diameter offering no obstruction to the flow. The accuracy should be inclusive of linearity, hysteresis, repeatability, temperature and pressure effects. Coil Housing shall be fabricated fromstainless steel (SS304) for corrosion resistance and welded to the tube providing a completely sealed environment for all coils, electrode connections and wiring harness capable of submerged or buried operation with IP68 Protection. Signal Converter shall be pulsed DC coil excitation type with auto zeroing. The signal converter shall be remotely mounted away from the meter. The converter shall indicate direction of flow and provide a flow rate indication and a total of flow volume for both forward and reverse directions. The converter shall provide an isolated 4-20 mA output into minimum 500-ohm load and a frequency output of a maximumof 0-10 KHZ and a scaled pulse output, Comunication interface is RS485, HART output. The microprocessor based signal converter shall have a self diagnostic test mode and a backlit display that continuously displays "Rate of Flow" and "Total Volume". Converter shall be supplied with a programmable low flow drop out, higher flow and empty pipe zero return.								
a.	10mm	1x	0					0.00	nos.
b.	25 mm	1x	0					0.00	nos.
c.	50 mm	1x	0					0.00	nos.
d.	80 mm	1x	0					0.00	nos.
e.	100 mm	1x	0					0.00	nos.
f.	125 mm	1x	0					0.00	nos.
g.	150 mm	1x	0					0.00	nos.
h.	200 mm	1x	3					3.00	nos.

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
i.	250 mm	1x	7					7.00	nos.
j.	300 mm	1x	25					25.00	nos.
k.	350 mm	1x	6					6.00	nos.
l.	400 mm	1x	16					16.00	nos.
m.	450 mm	1x	4					4.00	nos.
n.	500 mm	1x	4					4.00	nos.
o.	600 mm	1x	3					3.00	nos.
p.	700 mm	1x	2					2.00	nos.
q.	800 mm	1x	1					1.00	nos.
r.	900 mm	1x	2					2.00	nos.
s.	1000 mm	1x	0					0.00	nos.
t.	1200 mm	1x	1					1.00	nos.
u.	1400 mm	1x	0					0.00	nos.
v.	1600 mm	1x	1					1.00	nos.
7	Providing and fixing of Fire hydrant of Size upto 100mm of approval brand with bolts, nuts , rubber insertions etc., complete all (tail piece if required will be paid separately)	1x	25					25.00	nos.
8	Construction of chamber for 100mm to 250mm dia. sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.2 x 1.55 m	1x	1012					1012	nos.
9	Construction of chamber for 300mm to 400mm dia.sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.35 x 1.35 x 1.95 m	1x	48					48	nos.
10	Construction of chamber for 450mm to 600mm dia.sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3 x 2.5 x 3 m	1x	26					26	nos.
11	Construction of chamber for 150mm to 250mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 1.60 x 1.60 x 3.00 m	1x	3					3	nos.
12	Construction of chamber for 300mm to 500mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 2.50 x 2.50 x 3.00 m	1x	62					62	nos.
13	Construction of chamber for 600mm to 700mm dia.for Flow control Valve & sluice valve including providing and fixing FRC cover and frame of size 60 x 60cm for size 3.10 x 3.10 x 3.50 m	1x	2					2	nos.

Sl. No	Description of work	Nos.	Length	Width	Height	Area or Contents	Total Quantity	
			m	m	m			
14	Construction of Air valve Chamber in second class brick work in CM 1:4 proportion with 12mm thick outside plastering and 20 mm thick inside plastering in CM 1:3 proportion, RCC cover slab in CC 1:2:4 proportion using 20 mm jelly, chamber foundation and bed block in PCC 1:3:6 proportion using 40 mm jelly including cost of reinforcement and labour charges, CI steps, etc. complete as per specifications.							
a.	80 mm dia Air valve as per data	1x					0	nos.
15	Construction of thrust blocks using Cement Concrete 1:3:6 ,40mm B.G.jelly for Plain Cement Concrete							
	For Bends							
a.	100mm 11.25 deg D/S bend @ 2m depth	1x	0				0	nos.
b.	150mm 11.25 deg D/S bend @ 2m depth	1x	0				0	nos.
c.	200mm 11.25 deg D/S bend @ 2m depth	1x	12				12	nos.
d.	250mm 11.25 deg D/S bend @ 2m depth	1x	28				28	nos.
e.	300mm 11.25 deg D/S bend @ 2m depth	1x	100				100	nos.
f.	350mm 11.25 deg D/S bend @ 2m depth	1x	24				24	nos.
g.	400mm 11.25 deg D/S bend @ 2m depth	1x	64				64	nos.
h.	450mm 11.25 deg D/S bend @ 2m depth	1x	16				16	nos.
i.	500mm 11.25 deg D/S bend @ 2m depth	1x	16				16	nos.
j.	600mm 11.25 deg D/S bend @ 2m depth	1x	12				12	nos.
k.	700mm 11.25 deg D/S bend @ 2m depth	1x	8				8	nos.
l.	750mm 11.25 deg D/S bend @ 2m depth	1x	0				0	nos.
m.	800mm 11.25 deg D/S bend @ 2m depth	1x	4				4	nos.
n.	900mm 11.25 deg D/S bend @ 2m depth	1x	8				8	nos.
o.	1200mm 11.25 deg D/S bend @ 2m depth	1x	4				4	nos.
p.	1600mm 11.25 deg D/S bend @ 2m depth	1x	4				4	nos.
16	Cutting of DI Pipes true to axis and finishing the ends complete.							
a.	100mm	1x	0				0.00	nos.
b.	150mm	1x	0				0.00	nos.
c.	200mm	1x	12				12.00	nos.
d.	250mm	1x	28				28.00	nos.
e.	300mm	1x	100				100.00	nos.
f.	350mm	1x	24				24.00	nos.
g.	400mm	1x	64				64.00	nos.
h.	450mm	1x	16				16.00	nos.
i.	500mm	1x	16				16.00	nos.



Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
	FOR DI PIPES & SPECIALS				specials				
a.	100mm	1x	0		0			0.00	nos.
b.	150mm	1x	0		0			0.00	nos.
c.	200mm	1x	1		24			25.00	nos.
d.	250mm	1x	1		56			57.00	nos.
e.	300mm	1x	1		200			201.00	nos.
f.	350mm	1x	1		48			49.00	nos.
g.	400mm	1x	1		128			129.00	nos.
h.	450mm	1x	1		32			33.00	nos.
i.	500mm	1x	1		32			33.00	nos.
j.	600mm	1x	1		24			25.00	nos.
k.	700mm	1x	1		16			17.00	nos.
l.	750mm	1x	1		0			1.00	nos.
m.	800mm	1x	1		8			9.00	nos.
n.	900mm	1x	1		16			17.00	nos.
o.	1200mm	1x	1		8			9.00	nos.
p.	1600mm	1x	1		8			9.00	nos.
20	Testing of DI pipes with hydraulic testing equipment by filling with water (including cost of water) and testing to recommended pressure in convenient stretches and attending the bursts if any occurred during the test, excluding the cost of pipes, including other incidental and operational charges, etc., complete for the following diametres of pipes.								
a.	100mm	1x	1	445365.00				445365.00	m
b.	150mm	1x	1	40352.00				40352.00	m
c.	200mm	1x	1	17994.00				17994.00	m
d.	250mm	1x	1	13894.00				13894.00	m
e.	300mm	1x	1	9498.00				9498.00	m
f.	350mm	1x	1	770.00				770.00	m
g.	400mm	1x	1	3612.00				3612.00	m
h.	450mm	1x	1	429.00				429.00	m
i.	500mm	1x	1	3696.00				3696.00	m
j.	600mm	1x	1	3376.00				3376.00	m

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
k.	700mm	1x	1	1379.00				1379.00	m
l.	750mm	1x	1	0.00				0.00	m
m.	800mm	1x	1	75.00				75.00	m
n.	900mm	1x	1	1731.00				1731.00	m
o.	1200mm	1x	1	13.00				13.00	m
21	Barricading work along one side of the trench for laying the pipeline with casuarina post at 1.52m centre to centre(8 to 10cm dia. and 1.52m height) verticals, painting the vertical posts in different colours, tieing with coir rope, fixing danger flags, danger lights, reflectors including watching during night for 1 metre.	1x	2	542184.00				1084368.00	m
<b>HOUSE SERVICE CONNECTION</b>									
22	Making bore and tapping in the DI pipe line, supplying and fixing of plastic mould clamp saddle with stainless steel 304 threaded metel insert and specials consisting of Polypropylene compression fitting adopter with metal insert (male threaded), Polypropylene compression fitting 90 deg elbow, Stop cock (PP) with compression joint at one end and female threaded at other end and suitable enclosure (HDPE) with top side openable for housing ball valve and testing house service connections including cost of water, etc complete for following sizes.								
a.	20 mm O.D	1x	112438					112438.00	nos.
b.	25 mm O.D	1x	21082					21082.00	nos.
c.	32 mm O.D	1x	7027					7027.00	nos.
23	Supplying and laying of MDPE (PE80) Blue pipe (IS:4427) with necessary specials including earth work excavation laying jointing testing and refilling the trenches etc.complete.including disposal of surplus earth.								
a.	20 mm O.D	1x	56219	3.5				196767.00	m
		1x	56219	7				393533.00	m
	Total							590300.00	m
b.	25 mm O.D	1x	10541	3.5				36894.00	m
		1x	10541	7				73787.00	m
	Total							110681.00	m
c.	32 mm O.D	1x	3514	3.5				12299.00	m
		1x	3514	7				24598.00	m
	Total							36897.00	m

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
24	Supply, installation testing commissioning of AMR water meters with Data capture by wireless system using Long Range Gateways. Transfer Billing System including all hardware & software of various sizes in Chennai City								
a.	15mm	1x	110702					110702.00	nos
b.	20mm	1x	21082					21082.00	nos
c.	25mm	1x	7027					7027.00	nos
d.	32mm	1x	5					5.00	nos
e.	40mm	1x	5					5.00	nos
f.	50mm	1x	5					5.00	nos
g.	100mm	1x	20					20.00	nos
25	Supply and delivery of protection box of size 20cm x 30cm for fixing of Water Meter. The box should be rectangular base in construction and material of construction should be weather resistant polyethylene (PE) blue/black Reinforcement ribs should be provided at the walls of the box. Box should be at two components comprising body and lid. Lid should be press fitted to the body. No hinges should be used for opened /closed. Operation meter box should be provided with built in lock. The body as inlet and outlet windows to pass the pipe through suitable for use with pipes of sizes up to 1". Base of the box should be designed in such a way. That the box can be installed to the floor/wall using anchor Bolts / screws without grouting the entire base of the meter Box. Provision for fixing Name plate showing the name of the Department etc., complete and as directed by the CWMSS Board Officers.	1x	138846					138846.00	nos

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY - AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**MEASUREMENTS - FEEDER MAINS**

Sl. No	Description of work	Nos.	Length	Width	Height	Area or Contents	Total Quantity
			m	m	m		
1	Supplying, delivery at site and laying the following sizes of socket @ spigot end, push - on - joint DI pipes of classification K9 conforming to IS: 8329/2000 in standard lengths with cement mortar lining inside and outside Zinc coating, including rubber gasket, Labour charges for loading, unloading and stacking at the site etc as directed by the engineer at site ,including earthwork excavation for trenches in hard stiff clay, blackcotton, hard red earth, shales, murams, gravel, stoney earth and earth mixed with small size boulders and hard gravelly soil depositing the earth on banks with initial lead of 10m.conveying to the site of work, lowering into the trenches, aligning, refilling the trenches with excavated soil, watering and ramming to consolidation, disposal of surplus earth etc . complete for the pipes of following diametres in Asphaltic & concrete road						
a.	400mm at 1.5m depth	1x	1	148			148.00 m
b.	450mm at 1.5m depth	1x	1	2032			2032.00 m
c.	500mm at 2m depth	1x	1	1078			1078.00 m
d.	600mm at 2m depth	1x	1	1425			1425.00 m
2	Supply, delivery, conveying and fixing following sizes of DI specials of DI push - on joint specials as mentioned below confirming to IS: 9523 including loading, unloading and stacking at the site etc as directed by the engineer at site, and including earthwork excavation, refilling with excavated soil, watering and ramming to consolidation and disposal of surplus earth etc complete.(As per data enclosed)						
a.	400mm 11.25 deg D/S bend	1x	0				0.00 nos.



Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity
				m	m	m		
a.	Bus Route	1x	1	271.39			272.00	sq.m
b.	Non-Bus Route	1x	1	4070.78			4071.00	sq.m
c.	Cutting Cement Concrete Road Surface.	1x	1	1085.54	0.10		109.00	cu.m
6	Making Rubber joints including jointing Materials.(As per data enclosed)							
	FOR DI PIPES & SPECIALS				specials			
a.	400mm	1x	1	2			3.00	nos.
b.	450mm	1x	1	16			17.00	nos.
c.	500mm	1x	1	6			7.00	nos.
d.	600mm	1x	1	12			13.00	nos.
7	Testing of DI pipes with hydraulic testing equipment by filling with water (including cost of water) and testing to recommended pressure in convenient stretches and attending the bursts if any occurred during the test, excluding the cost of pipes, including other incidental and operational charges, etc., complete for the following diametres of pipes.							
a.	400mm	1x	1	148.00			148.00	m
b.	450mm	1x	1	2032.00			2032.00	m
c.	500mm	1x	1	1078.00			1078.00	m
d.	600mm	1x	1	1425.00			1425.00	m
8	Barricading work along one side of the trench for laying the pipeline with casuarina post at 1.52m centre to centre(8 to 10cm dia. and 1.52m height) verticals, painting the vertical posts in different colours, tieing with coir rope, fixing danger flags, danger lights, reflectors including watching during night for 1 metre.	1x	2	4683.00			9366.00	m
	<b>Railway crossing - trenchless items (Pipe jacking)</b>							
9	Casing Pipe for crossings							

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
9a	Supply of M.S. Pipe Fe410 of 800 mm dia (ID) with wall thickness of 8mm with anticorrosive epoxy painting both outside and inside duly rolling the plate. The rate includes the cost of raw materials, labour, tools and plants, loading, transporting of and finished product to the site etc., complete as directed by Engineer in Charge. (Actual thickness of pipe to be designed by DBO contractor executing the works)								
i	Railway Crossing Between Arcot road in Depo - 134	1x	1	36				36	m

Sl. No	Description of work	Nos.	Length	Width	Height	Area or Contents	Total Quantity
			m	m	m		
9b	Excavating of driving pit and receiving pit of size 3.00m (length) x 3.50m (breadth), depth upto 5m in all soil strata including shoring and strutting using 6mm tk MS Plate of size 3.50m x 3.50m usable for 15 operations and providing 16mm thickness MS plate of size 3.00m x 3.50m with 100mm x100mm x 12mm angles of 4m length for holding the MS plates for Thrust arrangements to receive the impacts during pushing operation of encasing pipe. Lowering the following size of MS encasing pipe by using Contractor's crane and machineries and jointing MS pipes by welding, across the National Highways/State Highways/ Railways/Canal crossing etc and driving the horizontal bore by pushing / jacking method (trenchless technology method) using contractor's machineries such as cranes, jacks, jacking materials, generator, welding machineries, compressor, jack hammer and other equipments etc. without interfering and causing any hindrance to the movement of traffic or any other vehicles, without any disturbances to the railway/road/canal formation etc. including bailing / pumping of water where ever necessary without affecting any installation like water supply pipeline / telephone cable, electric cables etc. passing nearby area and scooping the earth inside the pipes and pit and depositing the surplus earth in a convenient place and leveling the site after completion of entire work as directed by TWAD Engineers. The rate includes the cost of driving pit, thrust bed/wall and receiving pit to the depth of om to 5m excluding the cost of MS pipes						
i	Railway Crossing Between Arcot road in Depo - 134						
	For 800mm dia MS encasing pipe for various thickness	1x	1	36		36	m

Sl. No	Description of work	Nos.		Length	Width	Height	Area or Contents	Total Quantity	
				m	m	m			
9c	After completion of the entire work converting the driving/reception pits into RCC inspection chambers to size of 6m X 6m internal dimension with 4.5m depth with M25 mix at both the ends of MS encasing pipe and providing covering over RCC chamber with precast RCC slab of each 600mm width with M25 mix and providing necessary PVC steps inside the chambers spaced at 300mm.								
i	Railway Crossing Between Arcot road in Depo - 134	1x	1	2				2	nos

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X**  
**EXISTING WATER DISTRIBUTION SYSTEM**

**EDPM Rubber Gaskets - SOR 2021-22**

Sl.No.	Pipe size	Basic Rate as per SOR 2021-2022, pg-160	Labour rate P-23&24, Sch. 20.2	Labour rate per pipe P-23&24, Sch. 20.2	Total cost	Remarks
	mm	Rs. P.	Rs. P.	Rs. P.		
1	100	107.06	171.00	31.09	138.15	
2	125	122.96	198.00	36.00	158.96	
3	150	151.58	238.00	43.27	194.85	
4	200	235.32	320.00	58.18	293.50	
5	250	333.90	436.00	79.27	413.17	
6	300	449.44	504.00	91.64	541.08	
7	350	511.98	585.00	106.36	618.34	
8	400	714.44	673.00	122.36	836.80	
9	450	793.94	762.00	138.55	932.49	
10	500	1043.04	864.00	157.09	1200.13	
11	600	1356.80	965.00	175.45	1532.25	
12	700	1929.20	1088.00	197.82	2127.02	
13	750	2262.04	1224.00	222.55	2484.59	
14	800	2475.10	1346.00	244.73	2719.83	
15	900	2713.60	1468.00	266.91	2980.51	
16	1000	3547.82	1625.00	295.45	3843.27	
17	1200	4620.54	1904.00	346.18	4966.72	Rates are extrapolated from 1000mm & 800mm
17	1600	6765.98	2462.00	447.64	7213.62	Rates are extrapolated from 1200mm & 800mm

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X EXISTING  
WATER DISTRIBUTION SYSTEM**

**DATA SHEET - RATES FOR DI SPECIALS (AS PER IS 9523/2000)**

Sl. No.	Dia  mm	Description	Weight  kg	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
							Rs. P.
1	100	100mm 11.25 deg D/S bend	6.9	128.00	883.20	545.00	1428.20
2	100	100mm 22.5 deg D/S bend	7.3	128.00	934.40	545.00	1479.40
3	100	100mm 45 deg D/S bend	7.9	128.00	1011.20	545.00	1556.20
4	100	100mm 90 deg D/S bend	9.2	128.00	1177.60	545.00	1722.60
5	150	150mm 11.25 deg D/S bend	11.2	128.00	1433.60	630.00	2063.60
6	150	150mm 22.5 deg D/S bend	12	128.00	1536.00	630.00	2166.00
7	150	150mm 45 deg D/S bend	13.5	128.00	1728.00	630.00	2358.00
8	150	150mm 90 deg D/S bend	16.8	128.00	2150.40	630.00	2780.40
9	200	200mm 11.25 deg D/S bend	17.2	128.00	2201.60	799.00	3000.60
10	200	200mm 22.5 deg D/S bend	18.8	128.00	2406.40	799.00	3205.40
11	200	200mm 45 deg D/S bend	22	128.00	2816.00	799.00	3615.00
12	200	200mm 90 deg D/S bend	28	128.00	3584.00	799.00	4383.00
13	250	250mm 11.25 deg D/S bend	24.5	128.00	3136.00	994.00	4130.00
14	250	250mm 22.5 deg D/S bend	27	128.00	3456.00	994.00	4450.00
15	250	250mm 45 deg D/S bend	32.5	128.00	4160.00	994.00	5154.00
16	250	250mm 90 deg D/S bend	42.5	128.00	5440.00	994.00	6434.00
17	300	300mm 11.25 deg D/S bend	37	128.00	4736.00	1118.00	5854.00
18	300	300mm 22.5 deg D/S bend	41	128.00	5248.00	1118.00	6366.00
19	300	300mm 45 deg D/S bend	49	128.00	6272.00	1118.00	7390.00
20	300	300mm 90 deg D/S bend	63.5	128.00	8128.00	1118.00	9246.00
21	350	350mm 11.25 deg D/S bend	44	128.00	5632.00	1278.00	6910.00
22	350	350mm 22.5 deg D/S bend	50	128.00	6400.00	1278.00	7678.00
23	350	350mm 45 deg D/S bend	61	128.00	7808.00	1278.00	9086.00
24	350	350mm 90 deg D/S bend	83	128.00	10624.00	1278.00	11902.00
25	400	400mm 11.25 deg D/S bend	58	128.00	7424.00	1443.00	8867.00
26	400	400mm 22.5 deg D/S bend	66	128.00	8448.00	1443.00	9891.00
27	400	400mm 45 deg D/S bend	82.5	128.00	10560.00	1443.00	12003.00
28	400	400mm 90 deg D/S bend	113	128.00	14464.00	1443.00	15907.00
29	450	450mm 11.25 deg D/S bend	71.5	128.00	9152.00	1656.00	10808.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
30	450	450mm 22.5 deg D/S bend	81.5	128.00	10432.00	1656.00	12088.00
31	450	450mm 45 deg D/S bend	103	128.00	13184.00	1656.00	14840.00
32	450	450mm 90 deg D/S bend	143	128.00	18304.00	1656.00	19960.00
33	500	500mm 11.25 deg D/S bend	90	128.00	11520.00	2158.00	13678.00
34	500	500mm 22.5 deg D/S bend	103	128.00	13184.00	2158.00	15342.00
35	500	500mm 45 deg D/S bend	130	128.00	16640.00	2158.00	18798.00
36	500	500mm 90 deg D/S bend	183	128.00	23424.00	2158.00	25582.00
37	600	600mm 11.25 deg D/S bend	126	128.00	16128.00	3086.00	19214.00
38	600	600mm 22.5 deg D/S bend	145	128.00	18560.00	3086.00	21646.00
39	600	600mm 45 deg D/S bend	191	128.00	24448.00	3086.00	27534.00
40	600	600mm 90 deg D/S bend	273	128.00	34944.00	3086.00	38030.00
41	700	700mm 11.25 deg D/S bend	200	188.00	37600.00	4203.00	41803.00
42	700	700mm 22.5 deg D/S bend	230	188.00	43240.00	4203.00	47443.00
43	700	700mm 45 deg D/S bend	310	188.00	58280.00	4203.00	62483.00
44	700	700mm 90 deg D/S bend	410	188.00	77080.00	4203.00	81283.00
45	750	750mm 11.25 deg D/S bend	250	188.00	47000.00	4935.00	51935.00
46	750	750mm 22.5 deg D/S bend	280	188.00	52640.00	4935.00	57575.00
47	750	750mm 45 deg D/S bend	360	188.00	67680.00	4935.00	72615.00
48	750	750mm 90 deg D/S bend	490	188.00	92120.00	4935.00	97055.00
49	800	800mm 11.25 deg D/S bend	260	188.00	48880.00	5187.00	54067.00
50	800	800mm 22.5 deg D/S bend	289	188.00	54332.00	5187.00	59519.00
51	800	800mm 45 deg D/S bend	415	188.00	78020.00	5187.00	83207.00
52	800	800mm 90 deg D/S bend	590	188.00	110920.00	5187.00	116107.00
53	900	900mm 11.25 deg D/S bend	307	197.00	60479.00	6171.00	66650.00
54	900	900mm 22.5 deg D/S bend	363	197.00	71511.00	6171.00	77682.00
55	900	900mm 45 deg D/S bend	530	197.00	104410.00	6171.00	110581.00
56	900	900mm 90 deg D/S bend	960	197.00	189120.00	6171.00	195291.00
57	1200	1200mm 11.25 deg D/S bend	583	240.00	139920.00	6171.00	146091.00
58	1200	1200mm 22.5 deg D/S bend	727	240.00	174480.00	6171.00	180651.00
59	1200	1200mm 45 deg D/S bend	1070	240.00	256800.00	6171.00	262971.00
60	1200	1200mm 90 deg D/S bend	1400	240.00	336000.00	6171.00	342171.00
61	1600	1600mm 11.25 deg D/S bend	1158	292.00	338136.00	6171.00	344307.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
62	1600	1600mm 22.5 deg D/S bend	1429	292.00	417268.00	6171.00	423439.00
63	1600	1600mm 45 deg D/S bend	1970	292.00	575240.00	6171.00	581411.00
64	1600	1600mm 90 deg D/S bend	3070	292.00	896440.00	6171.00	902611.00
65	100	100x100mm A/S cross	19	128.00	2432.00	545.00	2977.00
66	150	150x100mm A/S cross	25	128.00	3200.00	630.00	3830.00
67	150	150x150mm A/S cross	32	128.00	4096.00	630.00	4726.00
68	200	200x100mm A/S cross	34	128.00	4352.00	799.00	5151.00
69	200	200x150mm A/S cross	40	128.00	5120.00	799.00	5919.00
70	200	200x200mm A/S cross	50	128.00	6400.00	799.00	7199.00
71	250	250x100mm A/S cross	41	128.00	5248.00	994.00	6242.00
72	250	250x150mm A/S cross	48	128.00	6144.00	994.00	7138.00
73	250	250x200mm A/S cross	58	128.00	7424.00	994.00	8418.00
74	250	250x250mm A/S cross	67	128.00	8576.00	994.00	9570.00
75	300	300x100mm A/S cross	54	128.00	6912.00	1118.00	8030.00
76	300	300x150mm A/S cross	61	128.00	7808.00	1118.00	8926.00
77	300	300x200mm A/S cross	72	128.00	9216.00	1118.00	10334.00
78	400	400x250mm A/S cross	114	128.00	14592.00	1443.00	16035.00
79	400	400x350mm A/S cross	122	128.00	15616.00	1443.00	17059.00
80	400	400x400mm A/S cross	149	128.00	19072.00	1443.00	20515.00
81	100	100x80mm D/S taper	6.60	128.00	844.80	545.00	1389.80
82	150	150x80mm D/S taper	10.90	128.00	1395.20	630.00	2025.20
83	150	150x100mm D/S taper	10.80	128.00	1382.40	630.00	2012.40
84	200	200x100mm D/S taper	17.00	128.00	2176.00	799.00	2975.00
85	200	200x150mm D/S taper	16.40	128.00	2099.20	799.00	2898.20
86	250	250x100mm D/S taper	27.00	128.00	3456.00	994.00	4450.00
87	250	250x150mm D/S taper	24.50	128.00	3136.00	994.00	4130.00
88	250	250x200mm D/S taper	23.50	128.00	3008.00	994.00	4002.00
89	300	300x100mm D/S taper	38.00	128.00	4864.00	1118.00	5982.00
90	300	300x150mm D/S taper	35.50	128.00	4544.00	1118.00	5662.00
91	300	300x200mm D/S taper	34.50	128.00	4416.00	1118.00	5534.00
92	300	300x250mm D/S taper	33.00	128.00	4224.00	1118.00	5342.00
93	350	350x100mm D/S taper	50.00	128.00	6400.00	1278.00	7678.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
94	350	350x150mm D/S taper	50.00	128.00	6400.00	1278.00	7678.00
95	350	350x200mm D/S taper	44.50	128.00	5696.00	1278.00	6974.00
96	350	350x250mm D/S taper	44.00	128.00	5632.00	1278.00	6910.00
97	350	350x300mm D/S taper	43.00	128.00	5504.00	1278.00	6782.00
98	400	400x100mm D/S taper	59.00	128.00	7552.00	1443.00	8995.00
99	400	400x150mm D/S taper	64.00	128.00	8192.00	1443.00	9635.00
100	400	400x200mm D/S taper	63.00	128.00	8064.00	1443.00	9507.00
101	400	400x250mm D/S taper	59.50	128.00	7616.00	1443.00	9059.00
102	400	400x300mm D/S taper	58.00	128.00	7424.00	1443.00	8867.00
103	400	400x350mm D/S taper	53.00	128.00	6784.00	1443.00	8227.00
104	450	450x150mm D/S taper	76.00	128.00	9728.00	1656.00	11384.00
105	450	450x250mm D/S taper	80.00	128.00	10240.00	1656.00	11896.00
106	450	450x300mm D/S taper	78.00	128.00	9984.00	1656.00	11640.00
107	450	450x350mm D/S taper	69.50	128.00	8896.00	1656.00	10552.00
108	450	450x400mm D/S taper	66.00	128.00	8448.00	1656.00	10104.00
109	500	500x100mm D/S taper	101.00	128.00	12928.00	2158.00	15086.00
110	500	500x150mm D/S taper	103.00	128.00	13184.00	2158.00	15342.00
111	500	500x200mm D/S taper	101.00	128.00	12928.00	2158.00	15086.00
112	500	500x250mm D/S taper	98.00	128.00	12544.00	2158.00	14702.00
113	500	500x300mm D/S taper	98.00	128.00	12544.00	2158.00	14702.00
114	500	500x350mm D/S taper	90.50	128.00	11584.00	2158.00	13742.00
115	500	500x400mm D/S taper	86.50	128.00	11072.00	2158.00	13230.00
116	500	500x450mm D/S taper	96.00	128.00	12288.00	2158.00	14446.00
117	600	600x250mm D/S taper	166.00	128.00	21248.00	3086.00	24334.00
118	600	600x300mm D/S taper	135.00	128.00	17280.00	3086.00	20366.00
119	600	600x350mm D/S taper	141.00	128.00	18048.00	3086.00	21134.00
120	600	600x400mm D/S taper	133.00	128.00	17024.00	3086.00	20110.00
121	600	600x450mm D/S taper	122.00	128.00	15616.00	3086.00	18702.00
122	600	600x500mm D/S taper	122.00	128.00	15616.00	3086.00	18702.00
124	100	100x80mm A/S tee	12.60	128.00	1612.80	545.00	2157.80
125	100	100x100mm A/S tee	13.80	128.00	1766.40	545.00	2311.40
126	150	150x100mm A/S tee	19.50	128.00	2496.00	630.00	3126.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
127	150	150x150mm A/S tee	25.00	128.00	3200.00	630.00	3830.00
128	200	200x80mm A/S tee	25.50	128.00	3264.00	799.00	4063.00
129	200	200x100mm A/S tee	27.00	128.00	3456.00	799.00	4255.00
130	200	200x150mm A/S tee	31.50	128.00	4032.00	799.00	4831.00
131	200	200x200mm A/S tee	37.50	128.00	4800.00	799.00	5599.00
132	250	250x80mm A/S tee	35.50	128.00	4544.00	994.00	5538.00
133	250	250x100mm A/S tee	36.00	128.00	4608.00	994.00	5602.00
134	250	250x150mm A/S tee	45.00	128.00	5760.00	994.00	6754.00
135	250	250x200mm A/S tee	48.00	128.00	6144.00	994.00	7138.00
136	250	250x250mm A/S tee	55.00	128.00	7040.00	994.00	8034.00
137	300	300x100mm A/S tee	49.00	128.00	6272.00	1118.00	7390.00
138	300	300x150mm A/S tee	55.00	128.00	7040.00	1118.00	8158.00
139	300	300x200mm A/S tee	62.00	128.00	7936.00	1118.00	9054.00
140	300	300x250mm A/S tee	68.00	128.00	8704.00	1118.00	9822.00
141	300	300x300mm A/S tee	81.50	128.00	10432.00	1118.00	11550.00
142	350	350x100mm A/S tee	57.00	128.00	7296.00	1278.00	8574.00
143	350	350x150mm A/S tee	60.00	128.00	7680.00	1278.00	8958.00
144	350	350x200mm A/S tee	73.50	128.00	9408.00	1278.00	10686.00
145	350	350x250mm A/S tee	83.00	128.00	10624.00	1278.00	11902.00
146	350	350x300mm A/S tee	91.00	128.00	11648.00	1278.00	12926.00
147	350	350x350mm A/S tee	102.00	128.00	13056.00	1278.00	14334.00
148	400	400x100mm A/S tee	72.50	128.00	9280.00	1443.00	10723.00
149	400	400x150mm A/S tee	88.50	128.00	11328.00	1443.00	12771.00
150	400	400x200mm A/S tee	91.00	128.00	11648.00	1443.00	13091.00
151	400	400x250mm A/S tee	101.00	128.00	12928.00	1443.00	14371.00
152	400	400x300mm A/S tee	130.00	128.00	16640.00	1443.00	18083.00
153	400	400x350mm A/S tee	123.00	128.00	15744.00	1443.00	17187.00
154	400	400x400mm A/S tee	137.00	128.00	17536.00	1443.00	18979.00
155	450	450x100mm A/S tee	87.50	128.00	11200.00	1656.00	12856.00
156	450	450x200mm A/S tee	114.00	128.00	14592.00	1656.00	16248.00
157	450	450x250mm A/S tee	151.00	128.00	19328.00	1656.00	20984.00
158	450	450x300mm A/S tee	128.00	128.00	16384.00	1656.00	18040.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
159	450	450x350mm A/S tee	154.00	128.00	19712.00	1656.00	21368.00
160	450	450x400mm A/S tee	158.00	128.00	20224.00	1656.00	21880.00
161	450	450x450mm A/S tee	171.00	128.00	21888.00	1656.00	23544.00
162	500	500x100mm A/S tee	106.00	128.00	13568.00	2158.00	15726.00
163	500	500x150mm A/S tee	120.00	128.00	15360.00	2158.00	17518.00
164	500	500x200mm A/S tee	129.00	128.00	16512.00	2158.00	18670.00
165	500	500x250mm A/S tee	160.00	128.00	20480.00	2158.00	22638.00
166	500	500x350mm A/S tee	168.00	128.00	21504.00	2158.00	23662.00
167	500	500x400mm A/S tee	188.00	128.00	24064.00	2158.00	26222.00
168	500	500x450mm A/S tee	198.00	128.00	25344.00	2158.00	27502.00
169	500	500x500mm A/S tee	219.00	128.00	28032.00	2158.00	30190.00
170	600	600x150mm A/S tee	167.00	128.00	21376.00	3086.00	24462.00
171	600	600x200mm A/S tee	171.00	128.00	21888.00	3086.00	24974.00
172	600	600x250mm A/S tee	216.00	128.00	27648.00	3086.00	30734.00
173	600	600x300mm A/S tee	220.00	128.00	28160.00	3086.00	31246.00
174	600	600x400mm A/S tee	247.00	128.00	31616.00	3086.00	34702.00
175	600	600x450mm A/S tee	275.00	128.00	35200.00	3086.00	38286.00
176	600	600x500mm A/S tee	281.00	128.00	35968.00	3086.00	39054.00
177	600	600x600mm A/S tee	322.00	128.00	41216.00	3086.00	44302.00
178	100	100mm cap	6.00	128.00	768.00	244.00	1012.00
179	150	150mm cap	10.00	128.00	1280.00	309.00	1589.00
180	200	200mm cap	17.00	128.00	2176.00	388.00	2564.00
181	250	250mm cap	23.00	128.00	2944.00	488.00	3432.00
182	300	300mm cap	35.00	128.00	4480.00	605.00	5085.00
183	350	350mm cap	49.00	128.00	6272.00	721.00	6993.00
184	400	400mm cap	63.00	128.00	8064.00	890.00	8954.00
185	450	450mm cap	81.00	128.00	10368.00	1081.00	11449.00
186	500	500mm cap	102.00	128.00	13056.00	1081.00	14137.00
187	600	600mm cap	157.00	128.00	20096.00	1081.00	21177.00
188	700	700mm cap	219.00	188.00	41172.00	1081.00	42253.00
189	800	800mm cap	300.00	188.00	56400.00	1081.00	57481.00
190	100	100x100x40mm S/S/F tee	13.00	134.00	1742.00	545.00	2287.00

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
191	100	100x100x50mm S/S/F tee	15.00	134.00	2010.00	545.00	2555.00
192	100	100x100x80mm S/S/F tee	14.30	134.00	1916.20	545.00	2461.20
193	150	150x150x80mm S/S/F tee	21.00	134.00	2814.00	630.00	3444.00
194	150	150x150x100mm S/S/F tee	21.50	134.00	2881.00	630.00	3511.00
195	200	200x200x80mm S/S/F tee	27.00	134.00	3618.00	799.00	4417.00
196	200	200x200x100mm S/S/F tee	29.00	134.00	3886.00	799.00	4685.00
197	250	250x250x80mm S/S/F tee	37.00	134.00	4958.00	994.00	5952.00
198	300	300x300x80mm S/S/F tee	48.00	134.00	6432.00	1118.00	7550.00
199	300	300x300x100mm S/S/F tee	51.00	134.00	6834.00	1118.00	7952.00
200	350	350x350x80mm S/S/F tee	57.00	134.00	7638.00	1278.00	8916.00
201	100	100x50mm D/F taper	9.00	134.00	1206.00	545.00	1751.00
202	100	100x80mm D/F taper	9.30	134.00	1246.20	545.00	1791.20
203	80	80mm Fl/Spi tail piece	7.90	134.00	1058.60	213.00	1271.60
204	100	100mm Fl/Spi tail piece	9.70	134.00	1299.80	244.00	1543.80
205	150	150mm Fl/Spi tail piece	15.60	134.00	2090.40	309.00	2399.40
206	200	200mm Fl/Spi tail piece	22.50	134.00	3015.00	388.00	3403.00
207	250	250mm Fl/Spi tail piece	31.50	134.00	4221.00	488.00	4709.00
208	300	300mm Fl/Spi tail piece	42.00	134.00	5628.00	605.00	6233.00
209	350	350mm Fl/Spi tail piece	55.50	134.00	7437.00	721.00	8158.00
210	400	400mm Fl/Spi tail piece	70.00	134.00	9380.00	890.00	10270.00
211	450	450mm Fl/Spi tail piece	86.00	134.00	11524.00	1081.00	12605.00
212	500	500mm Fl/Spi tail piece	109.00	134.00	14606.00	2053.00	16659.00
213	600	600mm Fl/Spi tail piece	159.00	134.00	21306.00	2362.00	23668.00
214	700	700mm Fl/Spi tail piece	206.00	197.00	40582.00	3495.00	44077.00
215	750	750mm Fl/Spi tail piece	232.00	197.00	45704.00	3795.00	49499.00
216	800	800mm Fl/Spi tail piece	254.00	197.00	50038.00	4006.00	54044.00
217	900	900mm Fl/Spi tail piece	320.00	215.00	68800.00	4517.00	73317.00
218	1000	1000mm Fl/Spi tail piece	395.00	215.00	84925.00	5541.00	90466.00
219	1200	1200mm Fl/Spi tail piece	470.00	233.00	109510.00	6972.00	116482.00
220	1600	1600mm Fl/Spi tail piece	955.00	269.00	256895.00	9938.00	266833.00
221	80	80mm Fl/Soc tail piece	7.30	134.00	978.20	213.00	1191.20
222	100	100mm Fl/Soc tail piece	8.70	134.00	1165.80	244.00	1409.80

Sl. No.	Dia	Description	Weight	Rate /kg CMWSSB SOR	Material Cost	Labour Rate (CMWSSB SOR 2021-22)	Rate / No.
223	150	150mm Fl/Soc tail piece	13.60	134.00	1822.40	309.00	2131.40
224	200	200mm Fl/Soc tail piece	19.70	134.00	2639.80	388.00	3027.80
225	250	250mm Fl/Soc tail piece	27.50	134.00	3685.00	488.00	4173.00
226	300	300mm Fl/Soc tail piece	38.00	134.00	5092.00	605.00	5697.00
227	350	350mm Fl/Soc tail piece	48.50	134.00	6499.00	721.00	7220.00
228	400	400mm Fl/Soc tail piece	62.50	134.00	8375.00	890.00	9265.00
229	450	450mm Fl/Soc tail piece	75.50	134.00	10117.00	1081.00	11198.00
230	500	500mm Fl/Soc tail piece	97.00	134.00	12998.00	2053.00	15051.00
231	600	600mm Fl/Soc tail piece	140.00	134.00	18760.00	2362.00	21122.00
232	700	700mm Fl/Soc tail piece	202.00	197.00	39794.00	3495.00	43289.00
233	750	750mm Fl/Soc tail piece	229.00	197.00	45113.00	3795.00	48908.00
234	800	800mm Fl/Soc tail piece	253.00	197.00	49841.00	4006.00	53847.00
235	900	900mm Fl/Soc tail piece	327.00	215.00	70305.00	4517.00	74822.00
236	1000	1000mm Fl/Soc tail piece	415.00	215.00	89225.00	5541.00	94766.00
237	100	100mm M/J collar	12.90	207.83	2681.00	244.00	2925.00
238	150	150mm M/J collar	19.70	216.45	4264.00	309.00	4573.00
239	200	200mm M/J collar	27.50	202.36	5565.00	388.00	5953.00
240	250	250mm M/J collar	36.00	215.19	7747.00	488.00	8235.00
241	300	300mm M/J collar	48.00	209.52	10057.00	605.00	10662.00
242	350	350mm M/J collar	54.00	265.89	14358.00	721.00	15079.00
243	400	400mm M/J collar	76.50	223.56	17102.00	890.00	17992.00
244	450	450mm M/J collar	91.00	217.38	19782.00	1081.00	20863.00
245	500	500mm M/J collar	96.00	263.06	25254.00	2053.00	27307.00
246	600	600mm M/J collar	130.00	247.89	32226.00	2362.00	34588.00
247	700	700mm M/J collar	176.00	266.67	46934.00	3495.00	50429.00
248	750	750mm M/J collar	189.00	300.30	56757.00	3795.00	60552.00
249	800	800mm M/J collar	199.00	493.63	98233.00	4006.00	102239.00
250	900	900mm M/J collar	287.00	391.17	112266.00	4517.00	116783.00
251	1000	1000mm M/J collar	315.70	444.51	140333.00	5541.00	145874.00
252	1200	1200mm M/J collar	373.10	376.13	140333.00	6972.00	147305.00

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X EXISTING  
WATER DISTRIBUTION SYSTEM**

**LABOUR RATE**

<b>Sl. No.</b>	<b>Description of works</b>	<b>Rate 2021-22</b>	<b>Per</b>	<b>Sch. No</b>	<b>Page</b>	<b>SOR</b>	<b>Remarks</b>
I	Laying including backfilling						
1	100	407	m	1.1.1	3	CMWSSB	1.25m depth
2	150	471	m	1.1.1	3	CMWSSB	1.25m depth
3	200	557	m	1.1.1	3	CMWSSB	1.25m depth
4	250	587	m	1.1.1	3	CMWSSB	1.25m depth
5	300	745	m	1.1.1	3	CMWSSB	1.5m depth
6	350	833	m	1.1.1	3	CMWSSB	1.5m depth
7	400	917	m	1.1.1	3	CMWSSB	1.5m depth
8	450	1005	m	1.1.1	3	CMWSSB	1.5m depth
9	500	1561	m	1.8.1	9	CMWSSB	2.0m depth
10	600	1784	m	1.8.1	9	CMWSSB	2.0m depth
11	700	1964	m	1.8.1	9	CMWSSB	2.0m depth
12	750	2156	m	1.8.1	9	CMWSSB	2.0m depth
13	800	2466.5	m	1.8.1	9	CMWSSB	2.0m depth
14	900	2969	m	1.8.1	9	CMWSSB	2.0m depth
15	1000	3139	m	1.8.1	9	CMWSSB	2.0m depth
16	1200	4828	m	1.8.1	9	CMWSSB	2.5m depth
II	Earthwork Excavation						
1	(0 - 2m)	212.60	cum	31	31	CMWSSB	
III	Conveying and fixing following sizes of CI specials (mm) (tee,bend,taper,cross) including earthwork excavation						<b>Labour Rates are taken as same for DI Specials</b>
1	100	545.00	each	5.0.	15	CMWSSB	
2	150	630.00	each	5.0.	15	CMWSSB	
3	200	799.00	each	5.0.	15	CMWSSB	
4	250	994.00	each	5.0.	15	CMWSSB	
5	300	1118.00	each	5.0.	15	CMWSSB	
6	350	1278.00	each	5.0.	15	CMWSSB	
7	400	1443.00	each	5.0.	15	CMWSSB	
8	450	1656.00	each	5.0.	15	CMWSSB	
9	500	2158.00	each	5.0.	14	CMWSSB	
10	600	3086.00	each	5.0.	14	CMWSSB	
11	700	4203.00	each	5.0.	14	CMWSSB	
12	750	4935.00	each	5.0.	14	CMWSSB	
13	800	5187.00	each	5.0.	14	CMWSSB	<b>NT</b>
14	900	6171.00	each	5.0.	14	CMWSSB	
IV	Conveying and fixing following sizes of DI caps (mm)						<b>Labour Rates are taken as same for DI caps</b>
1	100	244	each	9	18	CMWSSB	
2	150	309	each	9	18	CMWSSB	
3	200	388	each	9	18	CMWSSB	
V	Conveying and fixing following sizes of Dummy flange (mm)						
1	250	488	each	8	18	CMWSSB	
2	300	605	each	8	18	CMWSSB	
3	350	721	each	8	18	CMWSSB	
4	400	890	each	8	18	CMWSSB	
5	450	1081	each	8	18	CMWSSB	

Sl. No.	Description of works	Rate 2021-22	Per	Sch. No	Page	SOR	Remarks
VI	Conveying and fixing following sizes of Collar, M/J Collar,Tailpiece,Bellmouth						Labour Rates are taken as same for DI Specials
1	80	213	each	7.0.	17	CMWSSB	
2	100	244.00	each	7.0.	17	CMWSSB	
3	150	309.00	each	7.0.	17	CMWSSB	
4	200	388.00	each	7.0.	17	CMWSSB	
5	250	488.00	each	7.0.	17	CMWSSB	
6	300	605.00	each	7.0.	17	CMWSSB	
7	350	721.00	each	7.0.	17	CMWSSB	
8	400	890.00	each	7.0.	17	CMWSSB	
9	450	1081.00	each	7.0.	17	CMWSSB	
10	500	2053.00	each	7.0.	17	CMWSSB	
11	600	2362.00	each	7.0.	17	CMWSSB	
12	700	3495.00	each	7.0.	17	CMWSSB	
13	750	3795.00	each	7.0.	17	CMWSSB	
14	800	4006.00	each	7.0.	17	CMWSSB	RateExtrapolated from 900mm & 700mm
15	900	4517.00	each	7.0.	17	CMWSSB	
16	1000	5541.00	each	7.0.	17	CMWSSB	
17	1200	6972.00	each	7.0.	17	CMWSSB	
18	1600	9938.00	each	7.0.	17	CMWSSB	RateExtrapolated from 1200mm & 800mm
VII	Conveying and fixing sluice valves/ALL VALVES with tail pieces including fixing the surface boxes/valves, covers.						
1	50	688.00	each	6.0	16	CMWSSB	
2	65	813.00	each	6.0	16	CMWSSB	
3	80	994.00	each	6.0	16	CMWSSB	
4	100	1278.00	each	6.0	16	CMWSSB	
5	150	1491.00	each	6.0	16	CMWSSB	
6	200	1789.00	each	6.0	16	CMWSSB	
7	250	2236.00	each	6.0	16	CMWSSB	
8	300	2982.00	each	6.0	16	CMWSSB	
9	350	4472.00	each	6.0	16	CMWSSB	
10	400	5591.00	each	6.0	16	CMWSSB	
11	450	7454.00	each	6.0	16	CMWSSB	
12	500	17265.00	each	6.0	16	CMWSSB	
13	600	25428.00	each	6.0	16	CMWSSB	
14	700	29526.00	each	6.0	16	CMWSSB	
15	750	31576.00	each	6.0	16	CMWSSB	
16	800	33626.00	each	6.0	16	CMWSSB	RateExtrapolated from 750mm
17	900	37723.00	each	6.0	16	CMWSSB	
18	1050	42635.00	each	6.0	16	CMWSSB	
19	1200	47546.00	each	6.0	16	CMWSSB	
VIII	Conveying and fixing of double air valves						
1	80	1087.00	each	10.0	18	CMWSSB	
2	100	1087.00	each	10.0	18	CMWSSB	
IX	Making flanged joints including jointing material (mm)						

Sl. No.	Description of works	Rate 2021-22	Per	Sch. No	Page	SOR	Remarks
1	50mm	161.60					value for 50 mm is not available. Hence, value for 80 mm is adopted.
2	80mm	161.60	each	8c	243	TWAD	
3	100mm	276.40	each	8c	243	TWAD	
4	150mm	463.10	each	8c	243	TWAD	
5	200mm	520.20	each	8c	243	TWAD	
6	250mm	735.00	each	8c	243	TWAD	
7	300mm	825.80	each	8c	243	TWAD	
8	350mm	1065.60	each	8c	243	TWAD	
9	400mm	1603.40	each	8c	243	TWAD	
10	450mm	1836.20	each	8c	243	TWAD	
11	500mm	2243.50	each	8c	244	TWAD	
12	600mm	3150.10	each	8c	244	TWAD	
13	700mm	3215.00	each	8c	244	TWAD	
14	750mm	3306.50	each	8c	244	TWAD	
15	800mm	3320.10	each	8c	244	TWAD	
16	900mm	3915.00	each	8c	244	TWAD	
17	1200mm	4679.90	each	8c	244	TWAD	RateExtrapolated from 900mm & 600mm
18	1600mm	6039.70	each	8c	244	TWAD	RateExtrapolated from 1200mm & 800mm
X	Testing of DI pipes(mm)						
1	100mm	83.00	m	22.1.	25	CMWSSB	
2	150mm	110.00	m	22.1.	25	CMWSSB	
3	200mm	134.00	m	22.1.	25	CMWSSB	
4	250mm	166.00	m	22.1.	25	CMWSSB	
5	300mm	201.00	m	22.1.	25	CMWSSB	
6	350mm	237.00	m	22.1.	25	CMWSSB	
7	400mm	273.00	m	22.1.	25	CMWSSB	
8	450mm	313.00	m	22.1.	25	CMWSSB	
9	500mm	384.00	m	22.1.	25	CMWSSB	
10	600mm	452.00	m	22.1.	25	CMWSSB	
11	700mm	573.00	m	22.1.	25	CMWSSB	
12	750mm	671.00	m	22.1.	25	CMWSSB	
13	800mm	694.00	m	22.1.	25	CMWSSB	RateExtrapolated from 900mm & 700mm
14	900mm	767.00	m	22.1.	25	CMWSSB	
15	1200mm	1231.00	m	22.1.	25	CMWSSB	
XI	Cutting of CI mains.						Labour Rates are taken as same for DI mains
1	100mm	210	each	4	13	CMWSSB	
2	150mm	280	each	4	13	CMWSSB	
3	200mm	376	each	4	13	CMWSSB	
4	250mm	484	each	4	13	CMWSSB	
5	300mm	554	each	4	13	CMWSSB	
6	350mm	624	each	4	13	CMWSSB	
7	400mm	694	each	4	13	CMWSSB	
8	450mm	764	each	4	13	CMWSSB	
9	500mm	1052	each	4	13	CMWSSB	
10	600mm	1231	each	4	13	CMWSSB	
11	700mm	1543	each	4	13	CMWSSB	
12	750mm	1746	each	4	13	CMWSSB	
13	800mm	1847.5	each	4	13	CMWSSB	

Sl. No.	Description of works	Rate 2021-22	Per	Sch. No	Page	SOR	Remarks
14	900mm	2152	each	4	13	CMWSSB	
15	1200mm	3283	each	4	13	CMWSSB	
16	1600mm	4719	each	4	13	CMWSSB	RateExtrapolated from 1200mm & 800mm
XII	Cutting -Asphaltic Road Surface.						
1	Bus route	309	Sqm	37	33	CMWSSB	
2	Non bus route	155	Sqm	37	33	CMWSSB	
XIII	Cutting -Concrete Road Surface.	1020.90	cum	5	168	CMWSSB	
XIV	Barricading						
1	All Pipelines	76	m	13.4	63	CMWSSB	
XV	Refilling with excavated soils						
1	All Pipelines	37.00	cum	3.2/2	89/1	CMWSSB	
XVI	Disposal of excavated material /Surplus earth						
1	All Pipelines	140.75	cum	1	1	CMWSSB	
XVII	Making HSC						
1	20mm dia O.D	2211	each	16ii	170	CMWSSB	
2	25mm dia O.D	2410	each	16ii	170	CMWSSB	
3	32mm dia O.D	2785	each	16ii	170	CMWSSB	
XVIII	Supply & laying MDPE pipe						
1	20mm dia O.D	213.4	m	16i	170	CMWSSB	
2	25mm dia O.D	223.5	m	16i	170	CMWSSB	
3	32mm dia O.D	226.4	m	16i	170	CMWSSB	
XIX	Conveying and fixing of Surface box						
1	All dia valves	581	m	13(1)	19	CMWSSB	
xx	Construction of Thrust blocks						
1	100mm 11.25 deg D/S bend @ 2m depth	0	nos			CMWSSB	Minimum of 22.5 deg bend rates are taken for 11.25 deg bend
2	150mm 11.25 deg D/S bend @ 2m depth	3086	nos	sch no.39	35	CMWSSB	
3	200mm 11.25 deg D/S bend @ 2m depth	3344	nos	sch no.39	35	CMWSSB	
4	250mm 11.25 deg D/S bend @ 2m depth	3751	nos	sch no.39	35	CMWSSB	
5	300mm 11.25 deg D/S bend @ 2m depth	4070	nos	sch no.39	35	CMWSSB	
6	350mm 11.25 deg D/S bend @ 2m depth	4307	nos	sch no.39	35	CMWSSB	
7	400mm 11.25 deg D/S bend @ 2m depth	4801	nos	sch no.39	36	CMWSSB	
8	450mm 11.25 deg D/S bend @ 2m depth	5184	nos	sch no.39	36	CMWSSB	
9	500mm 11.25 deg D/S bend @ 2m depth	6029	nos	sch no.39	36	CMWSSB	
10	600mm 11.25 deg D/S bend @ 2m depth	7148	nos	sch no.39	36	CMWSSB	
11	700mm 11.25 deg D/S bend @ 2m depth	8267	nos	sch no.39	36	CMWSSB	
12	750mm 11.25 deg D/S bend @ 2m depth	9496	nos	sch no.39	36	CMWSSB	
13	800mm 11.25 deg D/S bend @ 2m depth	10335.5	nos	sch no.39	36	CMWSSB	
14	900mm 11.25 deg D/S bend @ 2m depth	12404	nos	sch no.39	37	CMWSSB	
15	1200mm 11.25 deg D/S bend @ 2m depth	17670	nos	sch no.39	37	CMWSSB	

PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY - AREA X EXISTING WATER DISTRIBUTION SYSTEM

MATERIAL RATE

DUCTILE IRON SOCKET/SPIGOT PIPES FOR CLASS K7 AS PER IS 8329/2000

Sl. No.	Description	Pipe Diameter	Laying depth	Rate / M (Rate as per CMWSSB Board's SOR-21- 22 p.141) (K7)	LABOUR RATE for Laying of pipes including backfilling (Sch.1.1.1, p.2, sch no.1.8.1.pg no.9 CMWSSB SOR 2021-22)	Disposal of surplus earth (SOR 2020- 21,pgno.1)	TOTAL RATE	Material & labour cost for rubber gasket/m	TOTAL RATE including rubber gasket
	mm	mm	m	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.
1	100mm at 1.25m depth	100	1.25m	1138.00	407.00	0.00	1545.00	138.15	1683.15
2	150mm at 1.25m depth	150	1.25m	1615.00	471.00	0.00	2086.00	194.85	2280.85
3	200mm at 1.25m depth	200	1.25m	2120.00	557.00	0.00	2677.00	293.50	2970.50
4	250mm at 1.25m depth	250	1.25m	2797.00	587.00	0.00	3384.00	413.17	3797.17
5	300mm at 1.5m depth	300	1.5m	3528.00	745.00	0.00	4273.00	541.08	4814.08
6	350mm at 1.5m depth	350	1.5m	4336.00	833.00	0.00	5169.00	618.34	5787.34
7	400mm at 1.5m depth	400	1.5m	5207.00	917.00	0.00	6124.00	836.80	6960.80
8	450mm at 1.5m depth	450	1.5m	6155.00	1005.00	0.00	7160.00	932.49	8092.49
9	500mm at 2.0m depth	500	2m	7250.00	1561.00	0.00	8811.00	1200.13	10011.13
10	600mm at 2.0m depth	600	2m	9560.00	1784.00	0.00	11344.00	1532.25	12876.25
11	700mm at 2.0m depth	700	2m	11731.00	1964.00	0.00	13695.00	2127.02	15822.02
12	750mm at 2.0m depth	750	2m	13467.00	2156.00	0.00	15623.00	2484.59	18107.59
13	800mm at 2.0m depth	800	2m	15066.00	2466.50	0.00	17532.50	2719.83	20252.33
14	900mm at 2.0m depth	900	2m	17565.00	2969.00	0.00	20534.00	2980.51	23514.51
15	1000mm at 2.0m depth	1000	2m	22869.00	3139.00	0.00	26008.00	3843.27	29851.27
16	1200mm at 2.5m depth	1200	2.5m	30672.00	4828.00	0.00	35500.00	4966.72	40466.72

RATE FOR DI D/F SLUICE VALVE WITH CAP/ WHEEL AS PER IS 14846/2000 PN 10

Sl. No.	Description in mm	Valve Diameter		Materials rate including conveyance (TWAD SOR 2021-22 CLAUSE- 12.9&12.10) WOED	Materials rate for Fl/Spi T.P & Fl/Sco T.P (CMWSSB SOR 2021-22)	Labour Cost (Sch.6.0, p.16, CMWSSB SOR 2021-22)	Total Cost	Material rate for TPI (S.V+Flange rate)	Remarks
	mm	mm		Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	
1	50mm	50		7657.00		688.00	8345.00	7657.00	D/F GATE VALVES
2	80mm	80		9810.00		994.00	10804.00	9810.00	
3	100mm	100		12929.00	2465.60	1278.00	16672.60	15394.60	
4	150mm	150		20364.00	3912.80	1491.00	25767.80	24276.80	
5	200mm	200		32583.00	5654.80	1789.00	40026.80	38237.80	
6	250mm	250		46865.00	7906.00	2236.00	57007.00	54771.00	
7	300mm	300		70836.00	10720.00	2982.00	84538.00	81556.00	
8	350mm	350		206448.00	13936.00	4472.00	224856.00	220384.00	

9	400mm	400		152208.00	17755.00	5591.00	175554.00	169963.00	D/F BUTTERFLY VALVES
10	450mm	450		195516.00	21641.00	7454.00	224611.00	217157.00	
11	500mm	500		197380.00	27604.00	17265.00	242249.00	224984.00	
12	600mm	600		258694.00	40066.00	25428.00	324188.00	298760.00	
13	700mm	700		422219.00	80376.00	29526.00	532121.00	502595.00	
14	750mm	750		476736.50	90817.00	31576.00	599129.50	567553.50	
15	800mm	800		531254.00	99879.00	33626.00	664759.00	631133.00	
16	900mm	900		684196.00	139105.00	37723.00	861024.00	823301.00	
17	1000mm	1000		881153.00	174150.00	37723.00	1093026.00	1055303.00	
18	1100mm	1100		1043810.00	174150.00	42635.00	1260595.00	1217960.00	
19	1200mm	1200		1216154.00	174150.00	47546.00	1437850.00	1390304.00	

RATE FOR DI DIAPHRAGM FLOW CONTROL VALVES AS PER CMWSSB SOR

Sl. No.	Description in mm	Valve Diameter	Materials rate including conveyance (SOR 2021-22 CLAUSE-36,Pgno.165) <b>WOED</b>	Materials rate for FI/Spi T.P & FI/Sco T.P (CMWSSB SOR 2021-22)	Labour Cost (Sch.6.0, p.16, CMWSSB SOR 2021-22)	Total Cost Rs. P.	Material rate for TPI (S.V+Flange rate)	Remarks
	mm	mm	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	
1	50	50	87433.04					
2	65	65	102309					
3	80	80	112710					
4	100	100	140481	2465.60	1278.00	144224.60	142946.60	
5	150	150	184722	3912.80	1491.00	190125.80	188634.80	
6	200	200	285666	5654.80	1789.00	293109.80	291320.80	
7	250	250	351248	7906.00	2236.00	361390.00	359154.00	
8	300	300	544557	10720.00	2982.00	558259.00	555277.00	
9	350	350	807791	13936.00	4472.00	826199.00	821727.00	
10	400	400	1374154	17755.00	5591.00	1397500.00	1391909.00	

RATE FOR DI SINGLE CHAMBER AIR RELEASE VALVE

Sl. No.	Main Size	Valve Diameter	Materials rate including conveyance (CMWSSB SOR 2021-22, cl.8,pg.153)	Labour Cost (Sch.10, p.18, CMWSSB SOR 2021-22)	Total Cost	Main Size	Remarks
	mm	mm	Rs. P.	Rs. P.	Rs. P.	mm	
1	40	40		0.00	100 mm		
2	50	50	12215.00	12215.00	125 - 200mm		
3	80	80	15529.00	1087.00	16616.00	250 - 350mm	
4	100	100	17450.00	1087.00	18537.00	400 - 500mm	
5	150	150	32847.00		32847.00	600 mm	

**D.I. D/F REFLUX VALVE AS PER I.S. 5312/ PART I/ 84 WITH BYE-PASS ARRANGEMENTS (PN-1) WITH IS MARKING**

Sl. No.	Main Size	Valve Diameter	Materials rate including conveyance (TWAD 2021-22,) CL.12.1,pg.66	Labour(CMWSS B 2021-22,clause 6 Pgno.16)	Total (With excise duty +Labour)	Remarks
	mm	mm	Rs. P.	Rs. P.	Rs. P.	
1	50	50	4301.00	688.00	4989.00	
2	65	65	4793.00	813.00	5606.00	
3	80	80	5820.00	994.00	6814.00	
4	100	100	7518.00	1278.00	8796.00	
5	125	125	9523.00	1278.00	10801.00	
6	150	150	11376.00	1491.00	12867.00	
7	200	200	23955.00	1789.00	25744.00	
8	250	250	35315.00	2236.00	37551.00	
9	300	300	45849.00	2982.00	48831.00	
10	350	350	72596.00	4472.00	77068.00	
11	400	400	95381.00	5591.00	100972.00	
12	450	450	133695.00	7454.00	141149.00	
13	500	500	192567.00	17265.00	209832.00	
14	600	600	248857.00	25428.00	274285.00	

DI Specials as per IS 9523/2000 - material cost as per CMWSSB SOR

Sl.No.	Main Size	(Double Flange) Rate / kg as per SOR 2021 - 22. P- 145 (WOED)	(Socket Spigot) Rate / kg as per SOR 2021-22. P- 145 (WOED)	Remarks
	mm	Rs. P.	Rs. P.	
1	80	134.00	128.00	100mm dia rate adopted
2	100	134.00	128.00	
3	150	134.00	128.00	
4	200	134.00	128.00	
5	250	134.00	128.00	
6	300	134.00	128.00	
7	350	134.00	128.00	
8	400	134.00	128.00	
9	450	134.00	128.00	
10	500	134.00	128.00	
11	600	134.00	128.00	
12	700	197.00	188.00	
13	750	197.00	188.00	
14	800	197.00	188.00	
15	900	215.00	197.00	
16	1000	215.00	214.00	
17	1200	233.00	240.00	Rates are extrapolated from 1000 mm & 800 mm
18	1600	269.00	292.00	Rates are extrapolated from 1200 mm & 800 mm

**M/J Collars for DI pipes- material cost as per CMWSSB SOR**

Sl.No.	Main Size in mm	Rate / piece as per CMWSSB SOR 2021-22, CL.17,P-156	Remarks
1	100	2681.00	
2	150	4264.00	
3	200	5565.00	
4	250	7747.00	
5	300	10057.00	
6	350	14358.00	
7	400	17102.00	
8	450	19782.00	
9	500	25254.00	
10	600	32226.00	
11	700	46934.00	
12	750	56757.00	
13	800	98233.00	
14	900	112266.00	
15	1000	140333.00	
16	1200	196467.00	Rates are Extrapolated from 1000 mm & 900 mm dia
17	1600	308735.00	Rates are Extrapolated from 1000 mm & 1200 mm dia

**Construction of Sluice Valve Chamber of following sizes**

Sl.No.	Description	Rate (Rs. P)	Unit	Schedule No.	Page	Remarks
1	1.2 m x 1.35 m x 1.55 m size chamber for upto 250mm Dia Sluice Valves	53000.00	each	38	page 33	CMWSSB 2021-22
2	1.35 m x 1.35 m x 1.95 m size chamber for 300 mm to 400 mm dia Sluice Valves.	63000.00	each	38	page 33	CMWSSB 2021-22
3	3.00 m x 2.50 m x 3.00 m size chamber for 450 mm to 600 mm dia Sluice Valves.	136000.00	each	38	page 34	CMWSSB 2021-22
4	0.8 m x 0.8 m x 1.88 m size chamber for 50 mm dia Air Valves.	13865.00	each	38	page 33	CMWSSB 2021-22
5	1.2 m x 0.9 m x 1.80 m size chamber for 80 mm dia Air Valves for 100mm to 350mm dia pipeline including FRC cover of size 60x60cm	47000.00	each	38	page 34	CMWSSB 2021-22
6	Construction of Chamber for 80mm dia Fire Hydrant	9870.00	each	38	page 33	CMWSSB 2021-22
7	Providing FRC COVER and Frame 60 X 60 cm including necessary masonry work and plastering etc., complete	3925.00	each	39.1	page 51	CMWSSB 2021-22

**Rate for FI/Spi T.P**

Sl.No.	Description	Material	Rate as per SOR 2021 - 22	Total material	Remarks
		weight kg			
1	100 mm	9.70	134.00	1299.80	
2	150	15.60	134.00	2090.40	
3	200	22.50	134.00	3015.00	
4	250	31.50	134.00	4221.00	
5	300	42.00	134.00	5628.00	
6	350	55.50	134.00	7437.00	
7	400	70.00	134.00	9380.00	
8	450	86.00	134.00	11524.00	
9	500	109.00	134.00	14606.00	
10	600	159.00	134.00	21306.00	
11	700	206.00	197.00	40582.00	
12	750	232.00	197.00	45704.00	
13	800	254.00	197.00	50038.00	
14	900	320.00	215.00	68800.00	
15	1000	395.00	215.00	84925.00	

**Rate for FI/Soc T.P**

Sl.No.	Description	Material	Rate as per SOR 2021 - 22	Total material	Remarks
		weight kg			
1	100 mm	8.70	134.00	1165.80	
2	150	13.60	134.00	1822.40	
3	200	19.70	134.00	2639.80	
4	250	27.50	134.00	3685.00	
5	300	38.00	134.00	5092.00	
6	350	48.50	134.00	6499.00	
7	400	62.50	134.00	8375.00	
8	450	75.50	134.00	10117.00	
9	500	97.00	134.00	12998.00	
10	600	140.00	134.00	18760.00	
11	700	202.00	197.00	39794.00	
12	750	229.00	197.00	45113.00	
13	800	253.00	197.00	49841.00	
14	900	327.00	215.00	70305.00	
15	1000	415.00	215.00	89225.00	

**RATE FOR ELECTROMAGNETIC FLOW METER AS PER SOR**

Sl. No.	Description	Unit	Materials rate including conveyance (CMWSSB SOR 2021-22 SECTION 11 Additional items - CL.30,pg.161) WOED	Remarks
	mm	Nos	Rs. P.	
i)	10mm	1	55914.00	
ii)	25 mm	1	44775.00	
iii)	50 mm	1	49925.00	
iv)	80 mm	1	79950.00	
v)	100 mm	1	98127.00	
vi)	125 mm	1	102705.00	
vii)	150 mm	1	114903.00	
viii)	200 mm	1	142680.00	
ix)	250 mm	1	177018.00	
x)	300 mm	1	201706.00	
xi)	350 mm	1	249793.00	
xii)	400 mm	1	302785.00	
xiii)	450 mm	1	349423.00	
xiv)	500 mm	1	399545.00	
xv)	600 mm	1	458380.00	
xvi)	700 mm	1	535153.00	
xvii)	800 mm	1	599113.00	
xviii)	900 mm	1	673938.00	
xix)	1000 mm	1	851775.00	
xx)	1200 mm	1	1223526.00	
xxi)	1400 mm	1	1465545.00	
xxii)	1600 mm	1	1667675.00	
xxiii)	1800 mm	1	2214000.00	
xxiv)	2000 mm	1	3179550.00	
xxv)	2200 mm	1	3328175.00	
xxvi)	2400 mm	1	3662325.00	
xxvii)	2600 mm	1	4086163.00	
xxviii)	2800 mm	1	4536650.00	
xxix)	3000 mm	1	4882075.00	

Sl.No.	Description	Rate 2021-22	Per	Sch. No	Page	SOR	Remarks
<b>I Rate for AMR water meters</b>							
1	15 mm	9982	nos	31	162	CMWSSB	
2	20 mm	10775	nos	31	162	CMWSSB	
3	25 mm	13350	nos	31	162	CMWSSB	
4	32 mm	18123	nos	31	162	CMWSSB	
5	40 mm	19123	nos	31	162	CMWSSB	
6	50 mm	49812	nos	31	162	CMWSSB	
7	100 mm	82178	nos	31	162	CMWSSB	
<b>II Rate for water meters Protection Box</b>							
1	Water meter protection Box	390	nos	25viii	159	CMWSSB	

**III RATE FOR FIRE HYDRANT WITH ALL COMPONENTS**

Sl. No.	Main Size	Valve Diameter	Excavation(2.00x1.35x0.50m= 1.35cum)(Sch.no.3.1.0, pg no.31, CMWSSB SOR 2021-22)	Fire Hydrant rate (as per quote received from VAG valves 2021)	Labour Cost for fixing Fire Hydrant including conveyance (Sch.no.11.0,pg no.18,CMWSSB SOR 2021-22)	Supply and fixing of 100mm 90 deg D/S bend	Construction of Thrust blocks (Sch.no.39.0, pg no.35, CMWSSB SOR 2021-22)	Sluice valve Material rate including conveyance (TWAD SOR 2021-22 CLAUSE-12.9&12.10) WOED	Labour Cost for fixing Sluice Valve (Sch.6.0, p.16, CMWSSB SOR 2021-22)	Supply and fixing of 100mm DI Double Flanged pipe PN16(2X 600mm Length)(Sch.2.0, p.145, CMWSSB SOR 2021-22)	Supply and fixing of 150mm DI pipe upto pipe top	Total Cost	Remarks
	mm	mm	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	Rs. P.	
1	100	100	287.01	149616.00	813.00	1722.60	3086.00	12929	1278.00	1852.56	2851.06	<b>174435.24</b>	Thrust block size - 500x500x500mm

**PROVIDING WATER SUPPLY IMPROVEMENT SCHEME TO CHENNAI CORE CITY -AREA X EXISTING WATER DISTRIBUTION SYSTEM**

**ABSTRACT ESTIMATE-ROAD CUT RESTORATION CHARGES**

Sl. No.	Description of work	Qty		RATE	RATE	Unit	AMOUNT	Remarks
				RS. P	RS. P		RS. P	
<b>1</b>	<b>House Service Connection</b>							
	Asphaltic road surface (Bus route)	12649.23	sq.m	<b>5280.00</b>	5280.00	sq.m	66787934.40	As per MOM of GCC on 20.08.2020,Tentati ve rates as per SOR 2020-21
	Asphaltic road surface (Non Bus route)	189738.45	sq.m	<b>4405.00</b>	4405.00	sq.m	835797872.25	
	Cement Concrete Road Surface	50596.92	sq.m	<b>3980.00</b>	3980.00	sq.m	201375741.60	
<b>2</b>	<b>Distribution System</b>							
	Asphaltic road surface (Bus route)	20007.39	sq.m	<b>5730.00</b>	3500.00	sq.m	70025873.75	
	Asphaltic road surface (Non Bus route)	300110.89	sq.m	<b>4700.00</b>	4700.00	sq.m	1410521171.25	
	Cement Concrete Road Surface	80029.57	sq.m	<b>3980.00</b>	3980.00	sq.m	318517688.60	
<b>3</b>	<b>Feeder Mains</b>							
	Asphaltic road surface (Bus route)	318.22	sq.m	<b>5730.00</b>	3500.00	sq.m	1113752.50	
	Asphaltic road surface (Non Bus route)	4773.23	sq.m	<b>4700.00</b>	4700.00	sq.m	22434157.50	
	Cement Concrete Road Surface	1272.86	sq.m	<b>3980.00</b>	3980.00	sq.m	5065982.80	
	<b>Total</b>						2931640174.65	
	<b>Sundries</b>						825.35	
	<b>Grand Total</b>				<b>say</b>		<b>2931641000.00</b>	
					<b>say</b>		<b>293.16</b>	cr

<b>Cost Abstract - Mechanical Works</b>		
<b>S.No</b>	<b>Description for Zone X</b>	<b>Cost in INR</b>
1	Choolamedu Mechanical Equipment Cost with Chlorination	<b>46,713,610.61</b>
2	KK Nagar New Mechanical Equipment Cost with Chlorination	<b>45,809,956.39</b>
3	KK Nagar HW Mechanical Equipment Cost with Chlorination	<b>30,619,705.37</b>
4	Valluvarkottam Mechanical Equipment Cost with Chlorination	<b>24,083,467.44</b>
	<b>Total Sum of Mechanical Works</b>	<b>147,226,739.81</b>

Mechanical Cost - Clear Water Pumping Station at Choolamedu WDS						
Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost	Remarks
<b>A</b>	<b>Mechanical Equipment (Pump with piping and valves)</b>					
1	New HSCF Pumps capacity 1591 cu.m/hr capacity at 32 M Head, Casing: Cast Iron, CI FG 260, Impeller: Stainless Steel: Bronze, LTB2 complete with all accessories	2	Nos.	2,346,770.00	4,693,540.00	TWAD SOR 1450 RPM HIGHER SIDE
2	New Supply, Installation, Testing of Horizontal Squirrel Cage Induction motor minimum 210 KW, 3.3 KV compatible for pumps of item no (1) as per ABB EMAIL OFR 27.10.2021	2	Nos.	2,398,000.00	4,796,000.00	
3	Existing HSCF Pumps capacity 3780 cu.m/hr capacity at 30 M Head, Casing: Cast Iron, CI FG 260, Impeller: Stainless Steel: Bronze, LTB2 complete with all accessories	4	Nos.			
4	Existing Horizontal Motor of 500 KW, 3.3 KV	1	Nos.	-	-	
5	MS pipes (Fe-410 grade) conforming to IS 3589-2001					
a	800 NB Common Discharge header	100.00	Mtr.	30,338.00	3,033,800.00	
b	800 NB Discharge line of each pump	40.00	Mtr.	30,338.00	1,213,520.00	
c	800 NB suction line of each pump	20.00	Mtr.	30,338.00	606,760.00	
d	700 NB line from common header to 6 ML OHT	100.00	Mtr.	20,212.00	2,021,200.00	
e	600 NB line from common header to 4 ML OHT	100.00	Mtr.	16,859.00	1,685,900.00	
4	MS specials confirming to IS 1916/ 7322 : 1985 with latest amendments.	10,000.00	Kgs.	106.00	1,060,000.00	
6	<b>Supply, installation, testing &amp; Commissioning of Ductile Iron, Electrically operated Long Body, Double Flanged, DIDF Sluice Valve</b>	VAG OFFER		-		
a	700 NB line from common header to 6 ML OHT	1	No.	887,118.30	887,118.30	
d	600 NB line from common header to 4 ML OHT	1	No.	541,512.00	541,512.00	
c	800 NB Discharge line of each pump of new pump	2	No.	2,340,012.00	4,680,024.00	
d	800 NB suction line of each pump of new pump	2	No.	2,340,012.00	4,680,024.00	
7	<b>Supply, installation, testing &amp; Commissioning of Ductile Iron flanged Dual plate check valve conforming to API 594.</b>	VAG OFFER				
a	700 NB line from common header to 6 ML OHT	1	No.	875,270.00	875,270.00	
	600 NB line from common header to 4 ML OHT	1		403,300.00	403,300.00	
b	800 NB Discharge line of each pump of new pump	2	No.	981,000.00	1,962,000.00	
8	Supply, installation, testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges, bolts & Gaskets for Dismantling purpose					
a	700 NB line from common header to 6 ML OHT	1	Nos.	76,300.00	76,300.00	
d	600 NB line from common header to 4 ML OHT	1	Nos.	65,400.00	65,400.00	
c	800 NB Discharge line of each pump of new pump	2	Nos.	87,200.00	174,400.00	
d	800 NB suction line of each pump of new pump	2	Nos.	87,200.00	174,400.00	
9	Manufacture, Supply and Delivery of Tamper proof CI single chamber air release valves with pressure range from PN 10			-	-	
a	100 mm PN 10 both on Common header for Air release valve arrangement	1	Nos.	17,200.00	17,200.00	
10	MS fabricated supports & chequered plates for pipeline, Ladder & platforms for valve and pump operation & maintenance and other Equipments	2500	Kgs.	112.00	280,000.00	
<b>B</b>	<b>Air Conditioning &amp; Ventilation system</b>					
1	Supply, Installation, Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V, 50Hz, AC supply to provide 10 air changes per hour	20	Nos.	3,176.32	63,526.40	
2	Supplying, Erecting, Testing, commissioning package type Duct able type split Air-Conditioner (5.5 TR) with microprocessor control, fitted with twin scroll Compressor with Latest Refrigerant.	1	Nos.	144,704.00	144,704.00	

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Remarks</b>
3	S.I.T.C. of Double Girder type fully electrically operated EOT crane - 10 T capacity for Pump House	1	Nos.	2,282,187.50	2,282,187.50	
4	S.I.T.C. of Double Girder type fully electrically operated EOT crane - 15 T capacity for DG Room	1	Nos.	2,546,594.25	2,546,594.25	
<b>C</b>	<b>Dewatering System &amp; Sump drainage drainage arrangement</b>			-	-	
1	Supply and delivery of submersible centrifugal sewage non-clog pumps, vertical spindle type pump , wear resistance with submersible motor for the various duty conditions as stated in the annexure. Pump shall be capable of handling min 100 mm solid size with sewage specific gravity of up to 1.05 .			-	-	
a	Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories	2	Nos.	272,500.00	545,000.00	
2	Supply and Delivery of CIDF Gate (sluice) valves (Soft Seated) resilient seated soft sealing gate valves (sluice valves)			-	-	
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps)	2	Nos.	6,300.00	12,600.00	
3	Manufacture, Supply and Delivery of CIDF Slanted seat Swing Check Valve.			-	-	
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	2	Nos.	12,200.00	24,400.00	
4	Supplying, of 100 mm P.N 10 of DI flanged pipe confirming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML)	40	RM	3,513.44	140,537.60	
<b>D</b>	<b>Service water Pumpset Arrangement</b>			-	-	
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side.	2	Nos.	20,597.88	41,195.76	
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,138.08	4,276.16	
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,159.14	4,318.27	
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammdements including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)			-	-	
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	80	RM	413.28	33,062.40	
ii	50 mm dia Elbow	10	Nos.	174.72	1,747.20	
iii	50 mm dia Tee	5	Nos.	258.72	1,293.60	
iv	50 mm dia Nipple	10	Nos.	118.72	1,187.20	
v	50 mm dia Socket	8	Nos.	177.58	1,420.61	
vi	50 mm dia Union	10	Nos.	329.28	3,292.80	

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Remarks</b>
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Adminstrative Building)	1	No.	8,853.60	8,853.60	
<b>E</b>	<b>Fire fighting equipment</b>			-	-	
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	2	Nos.	665.28	1,330.56	
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk complete including cost of materials, labour, HOM complete as per specifications.	2	Nos.	726.88	1,453.76	
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire extinguisher with initial charges with wall mounting bracket, ready for use (TS 2678)	2	Nos.	2,596.16	5,192.32	
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24 SWG 9 ltr. capacity painted inside white and outside red with a word 'fina' on the face of the bucket along with stand to hang the buckets.	2	Nos.	1,037.12	2,074.24	
e	Supply of first aid chart and shock treatment chart with lamination.complete	2	Nos.	692.16	1,384.32	
f	Supplying of wooden first aid box.complete	2	Nos.	873.60	1,747.20	
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	2	Nos.	3,473.12	6,946.24	
<b>F</b>	<b>Tool. Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>			-	-	
a	6" Chain wrench best India make or equivalent	2	Nos.	754.88	1,509.76	
b	8"Chain Wrench Best India Make or equivalent	2	Nos.	1,020.32	2,040.64	
c	Connector Screw Driver 901 Taparia Make	2	Nos.	66.08	132.16	
d	200mm Screw Driver 825 Taparia Make	2	Nos.	108.64	217.28	
e	300mm Screw Driver 829 Taparia Make	2	Nos.	200.48	400.96	
f	400mm Screw Driver 930 Taparia Make	2	Nos.	292.32	584.64	
g	200mm Cutting Plier Taparia Make	2	Nos.	355.04	710.08	
h	800gm Ball Pane Hammer with Handle Taparia Make	2	Nos.	448.00	896.00	
i	Digital Tong Tester CE Make	2	Nos.	3,961.44	7,922.88	
j	Digital Multi Meter CE Make	2	Nos.	2,661.12	5,322.24	
k	15" Screw Spanner Taparia Make	2	Nos.	921.76	1,843.52	
l	12" Bearing Puller	2	Nos.	915.04	1,830.08	
m	Lever Type Grease Gun	2	Nos.	748.16	1,496.32	
n	12"Screw Spanner	2	Nos.	677.60	1,355.20	
o	Crow Bar 5"	2	Nos.	661.92	1,323.84	
p	1" Cold Chisel	2	Nos.	241.92	483.84	
q	Hacksaw Frame with Blade	2	Nos.	150.08	300.16	
r	Electrical Air Blower	1	Nos.	3,432.80	3,432.80	
s	Digital Tachometer	2	Nos.	2,306.08	4,612.16	
t	Hand Crimping Tool 8"	2	Nos.	623.84	1,247.68	
w	DE Spanner set 6 to 32 Jhalani Make	2	Sets.	1,193.92	2,387.84	
u	Rings spanner set 6 to 32 Jhalani Make	2	Sets.	2,672.32	5,344.64	
v	Pipe Wrench 24" Jhalani Make	1	Nos.	1,528.80	1,528.80	
x	Pipe Wrench 14" Jhalani Make	1	Nos.	754.88	754.88	
y	12" Flat rough File Scissors Make	1	Nos.	376.32	376.32	
z	12" Flat smooth File Scissors Make	1	Nos.	566.72	566.72	
aa	12"Round File Rough Scissors	1	Nos.	437.92	437.92	
ab	12" Round File Smooth Scissors Make	1	Nos.	523.04	523.04	
ac	12"Half Round File Rough Scissors Make	1	Nos.	764.96	764.96	
ad	12"Half Round File Smooth Scissors Make	1	Nos.	764.96	764.96	
<b>G</b>	<b>Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations</b>	500	Kgs.	116.48	58,240.00	

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>	<b>Remarks</b>
<b>H</b>	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	200	Kgs.	96.32	19,264.00	
<b>I</b>	<b>CHLORINATION</b>	1	Sets.	5,450,000.00	5,450,000.00	
<b>J</b>	<b>VACUMN PUMPSETS -10 HP(1w+1s)</b>	2	Sets.	163,500.00	327,000.00	
<b>K</b>	<b>INCIDENTAL &amp; MISC EXPENDITURE</b>	1	Sets.	1,000,000.00	1,000,000.00	
<b>Choolamedu Mechanical Equipment Cost with Chlorination</b>					<b>46,713,610.61</b>	

**Cost Analysis - Clear Water Pumping Station at Nandhanam**

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			Rs.	Rs	Rs	Rs	Rs	Rs	Rs	Rs.	Rs
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
<b>A</b>	<b>Mechanical Equipment (Pump with piping and valves)</b>										
1	SITC of New HSCF Pumps capacity 1591 cu.m/hr capacity at 32 M Head, Casing: Cast Iron, CI FG 260, Impeller: Stainless Steel: Bronze, LTB2 complete with all accessories Shaft: Stainless Steel: SS 410 as per TWAD SOR 26500 LPM, 32 MWC Head	1	2,153,000.00	2,153,000.00	2,153,000.00	21,530.00	43,060.00	21,530.00	2,239,120.00	107,650.00	2,346,770.00
2	Supply,Installation,Testing of Horizontal Squirrel Cage Induction motor minimum 210 Kw, 3.3 KV compatable for pumps of item no (1) as per ABB EMAIL OFR 27.10.2021	1	2,200,000.00	2,200,000.00	2,200,000.00	22,000.00	44,000.00	22,000.00	2,288,000.00	110,000.00	2,398,000.00
	Existing HSCF Pumps capacity 3780 cu.m/hr capacity at 30 M Head, Casing: Cast Iron, CI FG 260, Impeller: Stainless Steel: Bronze, LTB2 complete with all accessories Shaft: Stainless Steel: SS 410	1	-	-	-	-	-	-	-	-	-
3	<b>SITC of MS Pipe as per IS 3589.</b>										
a	800 NB Common Discharge header	1	30,338.00	30,338.00	30,338.00	-	-	-	30,338.00	-	30,338.00
b	800 NB Discharge line of each pump	1	30,338.00	30,338.00	30,338.00	-	-	-	30,338.00	-	30,338.00
c	800 NB suction line of each pump	1	30,338.00	30,338.00	30,338.00	-	-	-	30,338.00	-	30,338.00
d	700 NB line from common header to 6 ML OHT	1	20,212.00	20,212.00	20,212.00	-	-	-	20,212.00	-	20,212.00
e	600 NB line from common header to 4 ML OHT	1	16,859.00	16,859.00	16,859.00	-	-	-	16,859.00	-	16,859.00
4	<b>Manufacturing, providing, transporting, rolling, lowering, laying &amp; Jointing, testing, commissioning of MS specials confirming to IS 1916/ 7322 : 1985</b>	1	106.00	106.00	106.00	-	-	-	106.00	-	106.00
5	<b>Supply,installation,testing &amp; Commissioning of of Electrically operated DI, Long Body, Double Flanged, Sluice Valve</b>	VAG OFFR									
a	700 NB line from common header to 6 ML OHT	1	813,870.00	813,870.00	813,870.00	8,138.70	16,277.40	8,138.70	846,424.80	40,693.50	887,118.30
d	600 NB line from common header to 4 ML OHT	1	496,800.00	496,800.00	496,800.00	4,968.00	9,936.00	4,968.00	516,672.00	24,840.00	541,512.00
c	800 NB Discharge line of each pump of new pump	2	1,073,400.00	1,073,400.00	2,146,800.00	21,468.00	42,936.00	21,468.00	2,232,672.00	107,340.00	2,340,012.00
d	800 NB suction line of each pump of new pump	2	1,073,400.00	1,073,400.00	2,146,800.00	21,468.00	42,936.00	21,468.00	2,232,672.00	107,340.00	2,340,012.00
8	<b>Supply,installation,testing &amp; Commissioning of Manufacture, Supply and delivery of DIFD Tilting disc Swing Check Valves Slanted seated with maximum swing.</b>	VAG OFFR									
a	700 NB line from common header to 6 ML OHT	1	803,000.00	803,000.00	803,000.00	8,030.00	16,060.00	8,030.00	835,120.00	40,150.00	875,270.00
	600 NB line from common header to 4 ML OHT	1	370,000.00	370,000.00	370,000.00	3,700.00	7,400.00	3,700.00	384,800.00	18,500.00	403,300.00
a	800 NB Discharge line of each pump of new pump	1	900,000.00	900,000.00	900,000.00	9,000.00	18,000.00	9,000.00	936,000.00	45,000.00	981,000.00
10	<b>Supply,installation,testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges,bolts &amp; Gaskets for Dismantling purpose - PRECISE ENGINEER OFR TAKEN</b>										
a	700 NB line from common header to 6 ML OHT	1	70,000.00	70,000.00	70,000.00	700.00	1,400.00	700.00	72,800.00	3,500.00	76,300.00
d	600 NB line from common header to 4 ML OHT	1	60,000.00	60,000.00	60,000.00	600.00	1,200.00	600.00	62,400.00	3,000.00	65,400.00
c	800 NB Discharge line of each pump of new pump	1	80,000.00	80,000.00	80,000.00	800.00	1,600.00	800.00	83,200.00	4,000.00	87,200.00
d	800 NB suction line of each pump of new pump	1	80,000.00	80,000.00	80,000.00	800.00	1,600.00	800.00	83,200.00	4,000.00	87,200.00
13	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for	1	112.00	112.00	112.00	-	-	-	112.00	-	112.00
<b>B</b>	<b>Air Conditioning &amp; Ventilation system</b>										
1	Supply, Installation,Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V,50Hz AC supply to provide 10 air changes per hour	1	3,176.32	3,176.32	3,176.32	-	-	-	3,176.32	-	3,176.32
2	Supplying, Erecting, Testing, commissioning package type Duct able type split Air-Conditioner ( <b>5.5 TR</b> ) with microprocessor control, fitted with twin scroll Compressor with R22/Latest Refrigerant. The unit shall be pre-wired to operate on 415V, 50Hz AC Supply. The unit shall comprise, Evaporated condenser unit, Indoor-Outdoor Motor Fans, suitable over vent fins made up of Aluminium, Copper Refrigerant coil, Etc...complete and corded control unit.	1	144,704.00	144,704.00	144,704.00	-	-	-	144,704.00	-	144,704.00
3	S.I.T.C. of 10 TON Double Girder type fully electrically operated EOT crane with electrically operated hoist class II duty geared travelling trolley with seven mtr. lift complete with long travel rail track (40 mm sq.bar) moving or cross girder, all three motions electrically operated by suitable rating motor	1	2,093,750.00	2,093,750.00	2,093,750.00	20,937.50	41,875.00	20,937.50	2,177,500.00	104,687.50	2,282,187.50

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			Rs.	Rs	Rs	Rs	Rs	Rs	Rs	Rs.	Rs
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
	S.I.T.C. of 15 TON Double Girder type fully electrically operated EOT crane with electrically operated hoist class II duty geared travelling trolley with seven mtr. lift complete with long travel rail track (40 mm sq.bar) moving or cross girder, all three motions electrically operated by suitable rating motor IP 54, control panel & down pendant control block, brake , safety device, cable from motor to starter pannel & other required accessories & tested to 50% overload etc. comp. as per site requirement -15 TON capacity for DG Room	1	2,336,325.00	2,336,325.00	2,336,325.00	23,363.25	46,726.50	23,363.25	2,429,778.00	116,816.25	2,546,594.25
C	Dewatering System & Sump drainage drainage arrangement										
1	Supply and delivery of submersible centrifugal sewage non-clog pumps, vertical										
a	Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories	1	250,000.00	250,000.00	250,000.00	2,500.00	5,000.00	2,500.00	260,000.00	12,500.00	272,500.00
2	Supply and Delivery of CI D/F Gate (sluice) valves (Soft Seated) resilient seated		-								
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps)	1	6,300.00	6,300.00	6,300.00	-	-	-	6,300.00	-	6,300.00
3	Manufacture, Supply and Delivery of DI D/F Slanted seat Swing Check Valve,										
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	1	12,200.00	12,200.00	12,200.00	-	-	-	12,200.00	-	12,200.00
4	Supplying, of 100 mm P.N 10 of DI flanged pipe conforming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML) with Portland Slag Cement as per IS 455:1989 and Metallic Coating as per annex A of IS 8329 with finishing layer of Bituminous Coating as per Annex C of IS 8329 and Flanges: Metallic Zinc rich epoxy paint & Bituminous Coating, laying true to line and hoisting in position and aligning to correct plumb including cost of jointing material, conveying to work spot with all lead and lifts etc.(PN10) Flange joint pipe/mtr (length considered for fittings also).	1	3,513.44	3,513.44	3,513.44	-	-	-	3,513.44	-	3,513.44
D	Service water Pumpset Arrangement										
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side. Pump shall have common shaft for pump and motor. Motor shall be suitable for working on 3.0 HP, 415 V ± 10%, 3 Ph, 50Hz A.C. Supply. Motor shall be TEFC type. Pump set shall be suitable for working at various discharge and head requirements. Pump shall be erected on Provided C.C. foundation block with suitable foundation bolts grouted in C.C foundation block.	1	20,597.88	20,597.88	20,597.88	-	-	-	20,597.88	-	20,597.88
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,138.08	2,138.08	2,138.08	-	-	-	2,138.08	-	2,138.08
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,159.14	2,159.14	2,159.14	-	-	-	2,159.14	-	2,159.14
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)		1,830,275.00								
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	1	413.28	413.28	413.28	-	-	-	413.28	-	413.28
ii	50 mm dia Elbow	1	174.72	174.72	174.72	-	-	-	174.72	-	174.72
iii	50 mm dia Tee	1	258.72	258.72	258.72	-	-	-	258.72	-	258.72
iv	50 mm dia Nipple	1	118.72	118.72	118.72	-	-	-	118.72	-	118.72
v	50 mm dia Socket	1	177.58	177.58	177.58	-	-	-	177.58	-	177.58
vi	50 mm dia Union	1	329.28	329.28	329.28	-	-	-	329.28	-	329.28

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
									Rs.	Rs.	
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Administrative Building)	1	8,853.60	8,853.60	8,853.60	-	-	-	8,853.60	-	8,853.60
E	<b>Fire fighting equipment</b>										
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	1	665.28	665.28	665.28	-	-	-	665.28	-	665.28
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk	1	726.88	726.88	726.88	-	-	-	726.88	-	726.88
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire	1	2,596.16	2,596.16	2,596.16	-	-	-	2,596.16	-	2,596.16
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24 SWG	1	1,037.12	1,037.12	1,037.12	-	-	-	1,037.12	-	1,037.12
e	Supply of first aid chart and shock treatment chart with lamination.complete	1	692.16	692.16	692.16	-	-	-	692.16	-	692.16
f	Supplying of wooden first aid box complete	1	873.60	873.60	873.60	-	-	-	873.60	-	873.60
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	1	3,473.12	3,473.12	3,473.12	-	-	-	3,473.12	-	3,473.12
F	<b>Tool. Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>					-	-	-			
a	6" Chain wrench best India make or equivalent	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
b	8"Chain Wrench Best India Make or equivalent	1	1,020.32	1,020.32	1,020.32	-	-	-	1,020.32	-	1,020.32
c	Connector Screw Driver 901 Taparia Make	1	66.08	66.08	66.08	-	-	-	66.08	-	66.08
d	200mm Screw Driver 825 Taparia Make	1	108.64	108.64	108.64	-	-	-	108.64	-	108.64
e	300mm Screw Driver 829 Taparia Make	1	200.48	200.48	200.48	-	-	-	200.48	-	200.48
f	400mm Screw Driver 930 Taparia Make	1	292.32	292.32	292.32	-	-	-	292.32	-	292.32
g	200mm Cutting Plier Taparia Make	1	355.04	355.04	355.04	-	-	-	355.04	-	355.04
h	800gm Ball Pane Hammer with Handle Taparia Make	1	448.00	448.00	448.00	-	-	-	448.00	-	448.00
i	Digital Tong Tester CE Make	1	3,961.44	3,961.44	3,961.44	-	-	-	3,961.44	-	3,961.44
j	Digital Multi Meter CE Make	1	2,661.12	2,661.12	2,661.12	-	-	-	2,661.12	-	2,661.12
k	15" Screw Spanner Taparia Make	1	921.76	921.76	921.76	-	-	-	921.76	-	921.76
l	12" Bearing Puller	1	915.04	915.04	915.04	-	-	-	915.04	-	915.04
m	Lever Type Grease Gun	1	748.16	748.16	748.16	-	-	-	748.16	-	748.16
n	12" Screw Spanner	1	677.60	677.60	677.60	-	-	-	677.60	-	677.60
o	Crow Bar 5"	1	661.92	661.92	661.92	-	-	-	661.92	-	661.92
p	1" Cold Chisel	1	241.92	241.92	241.92	-	-	-	241.92	-	241.92
q	Hacksaw Frame with Blade	1	150.08	150.08	150.08	-	-	-	150.08	-	150.08
r	Electrical Air Blower	1	3,432.80	3,432.80	3,432.80	-	-	-	3,432.80	-	3,432.80
s	Digital Tachometer	1	2,306.08	2,306.08	2,306.08	-	-	-	2,306.08	-	2,306.08
t	Hand Crimping Tool 8"	1	623.84	623.84	623.84	-	-	-	623.84	-	623.84
w	DE Spanner set 6 to 32 Jhalani Make	1	1,193.92	1,193.92	1,193.92	-	-	-	1,193.92	-	1,193.92
u	Rings spanner set 6 to 32 Jhalani Make	1	2,672.32	2,672.32	2,672.32	-	-	-	2,672.32	-	2,672.32
v	Pipe Wrench 24" Jhalani Make	1	1,528.80	1,528.80	1,528.80	-	-	-	1,528.80	-	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
y	12" Flat rough File Scissors Make	1	376.32	376.32	376.32	-	-	-	376.32	-	376.32
z	12" Flat smooth File Scissors Make	1	566.72	566.72	566.72	-	-	-	566.72	-	566.72
aa	12"Round File Rough Scissors	1	437.92	437.92	437.92	-	-	-	437.92	-	437.92
ab	12" Round File Smooth Scissors Make	1	523.04	523.04	523.04	-	-	-	523.04	-	523.04
ac	12"Half Round File Rough Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
ad	12"Half Round File Smooth Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
G	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	1	116.48	116.48	116.48	-	-	-	116.48	-	116.48
H	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	1	96.32	96.32	96.32	-	-	-	96.32	-	96.32
I	<b>CHLORINATION based on offers recd</b>	1	5000000	5,000,000.00	5,000,000.00	50,000.00	100,000.00	50,000.00	5,200,000.00	250,000.00	5,450,000.00
J	<b>VACUMN PUMPSETS -10 HP-offer from JAKIM Pumps</b>	1	150,000.00	150,000.00	150,000.00	1,500.00	3,000.00	1,500.00	156,000.00	7,500.00	163,500.00

Mechanical Cost - Clear Water Pumping Station at KK Nagar New					
Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost
A	<b>Mechanical Equipment (Pump with piping and valves)</b>				
1	NEW VT type 1 Pumpsets having 2000 cu.m/hr capacity at 32 M Head as per TWAD SOR	2	Nos.	3,684,200.00	7,368,400.00
2	250 VEKWRTICAL Foot Mounted Motor, 1500 rpm, 415 v as per TWAD SOR	2	Nos.	1,463,497.22	2,926,994.44
3	NEW VT type 2 Pumpsets having 955 cu.m/hr capacity at 34 M Head as per TWAD SOR	2	Nos.	1,678,600.00	3,357,200.00
4	132 KW VERTICAL Foot Mounted Motor, 1500 rpm, 415 v as per TWAD SOR	2	Nos.	831,314.66	1,662,629.32
5	<b>SITC of MS Pipes as per IS 3589</b>			-	-
a	800 mm discharge side of pump type1	40.00	Mtr.	29,612.00	1,184,480.00
b	800 mm common header of pump type1	40.00	Mtr.	29,612.00	1,184,480.00
c	500 mm discharge side of pump type 2	200.00	Mtr.	12,322.00	2,464,400.00
d	500 mm common header of pump type 2	20.00	Mtr.	12,322.00	246,440.00
e	600 mm from common header to 2 nos 6ml OHT	40.00	Mtr.	16,859.00	674,360.00
f	500 mm from common header to 3.5 ml OHT	100.00	Mtr.	12,322.00	1,232,200.00
g	400 mm from common header to 2.5 ml OHT	100.00	Mtr.	9,182.00	918,200.00
6	<b>Manufacturing, providing, transporting, rolling, lowering, laying &amp; Jointing, testing, commissioning of MS specials confirming to IS 1916/ 7322 : 1985</b>	10,000.00	Kgs.	106.00	1,060,000.00
7	<b>SITC of DIDF Sluice valve, PN 10 rating</b>	VAG OFR			
a	800 mm discharge side of pump type1	2	Nos.	1,170,006.00	2,340,012.00
b	600 mm from common header to 2 nos 6 ML OHTs	2	Nos.	541,512.00	1,083,024.00
c	500 mm discharge side of pump type 2	2	Nos.	421,394.00	842,788.00
d	500 mm common header to 3.5 ml OHT	1	Nos.	421,394.00	421,394.00
e	400 mm common header to 2.5 ml OHT	1	Nos.	235,658.00	235,658.00
8	<b>Supply,installation,testing &amp; Commissioning of DIDF Double flanged Dual plate check valve conforming to API 594</b>				
a	800 mm discharge side of pump type1	2	Nos.	875,270.00	1,750,540.00
b	600 mm common header to 2 nos 6ml OHT	2	Nos.	403,300.00	806,600.00
c	500 mm discharge side of pump type 2	2	Nos.	280,348.00	560,696.00
d	500 mm common header to 3.5 ml OHT	1	Nos.	280,348.00	280,348.00
e	400 mm common header to 2.5 ml OHT	1	Nos.	235,658.00	235,658.00
9	<b>Supply,installation,testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges,bolts &amp; Gaskets for Dismantling purpose</b>				
a	800 mm discharge side of pump type1	2	Nos.		-
b	600 mm from common header to 2 nos 6 ML OHTs	2	Nos.		-
c	500 mm discharge side of pump type 2	2	Nos.		-
d	500 mm common header to 3.5 ml OHT	1	Nos.		
e	400 mm common header to 2.5 ml OHT	1	Nos.		
10	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for valve and pump operation & maintainence and other Equipments	2500	Kgs.	112.00	280,000.00
11	200 mm PN 16 on Common header for Air release valve arrangement	2	Nos.	39,784.72	79,569.44
B	<b>Air Conditioning &amp; Ventilation system</b>				

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
1	Supply, Installation,Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V,50Hz,AC supply to provide 10 air changes per hour	20	Nos.	3,176.32	63,526.40
2	Supplying, Erecting, Testing, commissioning package type Duct able type split Air-Conditioner ( <b>5.5 TR</b> ) with microprocessor control, fitted with twin scroll Compressor with R22/Latest Refrigerant. The unit shall be pre-wired to operate on 415V, 50Hz AC Supply. The unit shall comprise, Evaporated condenser unit, Indoor-Outdoor Motor Fans, suitable over vent fins made up of Aluminium, Copper Refrigerant coil, Etc.,complete and corded control unit.	1	Nos.	144,704.00	144,704.00
3	S.I.T.C. of Double Girder type fully electrically operated EOT crane - 10 T capacity for pump house	1	Nos.	2,282,187.50	2,282,187.50
	S.I.T.C. of Double Girder type fully electrically operated EOT crane - 15 T capacity for DG Room	1	Nos.	2,546,594.25	2,546,594.25
<b>C</b>	<b>Dewatering System &amp; Sump drainage drainage arrangement</b>				-
1	SITC of submersible centrifugal sewage non-clog pumps,Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories				-
a	Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories	2	Nos.	272,500.00	545,000.00
2	Supply and Delivery of DI D/F Gate (sluice) valves (Soft Seated) resilient seated soft sealing gate valves (sluice valves)			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps)	2	Nos.	13,825.72	27,651.44
3	Manufacture, Supply and Delivery of DI D/F Slanted seat Swing Check Valve.			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	2	Nos.	13,825.72	27,651.44
4	Supplying, of 100 mm P.N 10 of DI flanged pipe confirming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML).	40	RM	3,513.44	140,537.60
5	Supplying and fixing of DI specials with ISI mark confirming to IS 9523 / 2000 suitable for jointing 100mm to 600 mm dia DI pipe coated with rust prevention coatings of DI K12 Fittings & Dismantling joints (Note: In respect of flanged and spigot, flanged and socketted type specials, the rate applicable for flanged type specials is allowed.)			-	-
a	100mm - 200 mm dia	1000	Kgs.	136.64	136,640.00
<b>D</b>	<b>Service water Pumpset Arrangement</b>			-	-

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side. Pump shall have common shaft for pump and motor. Motor shall be suitable for working on 3.0 HP, 415 V $\pm$ 10%, 3 Ph, 50Hz A.C. Supply. Motor shall be TEFC type. Pump set shall be suitable for working at various discharge and head requirements. Pump shall be erected on Provided C.C. foundation block with suitable foundation bolts grouted in C.C foundation block.	2	Nos.	20,597.88	41,195.76
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,138.08	4,276.16
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,159.14	4,318.27
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)			-	-
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	80	RM	413.28	33,062.40
ii	50 mm dia Elbow	10	Nos.	174.72	1,747.20
iii	50 mm dia Tee	5	Nos.	258.72	1,293.60
iv	50 mm dia Nipple	10	Nos.	118.72	1,187.20
v	50 mm dia Socket	8	Nos.	177.58	1,420.61
vi	50 mm dia Union	10	Nos.	329.28	3,292.80
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Adminstrative Building)	1	No.	8,853.60	8,853.60
<b>E</b>	<b>Fire fighting equipment</b>			-	-
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	2	Nos.	665.28	1,330.56
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk complete including cost of materials, labour, HOM complete as per specifications.	2	Nos.	726.88	1,453.76
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire extinguisher with initial charges with wall mounting bracket, ready for use (TS 2678)	2	Nos.	2,596.16	5,192.32

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets 24 SWG 9 ltr. capacity painted inside white and outside red with a word 'fina' on the face of the bucket along with stand to hang the buckets.	2	Nos.	1,037.12	2,074.24
e	Supply of first aid chart and shock treatment chart with lamination.complete	2	Nos.	692.16	1,384.32
f	Supplying of wooden first aid box.complete	2	Nos.	873.60	1,747.20
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	2	Nos.	3,473.12	6,946.24
<b>F</b>	<b>Tool Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>				-
a	6" Chain wrench best India make or equivalent	2	Nos.	754.88	1,509.76
b	8"Chain Wrench Best India Make or equivalent	2	Nos.	1,020.32	2,040.64
c	Connector Screw Driver 901 Taparia Make	2	Nos.	66.08	132.16
d	200mm Screw Driver 825 Taparia Make	2	Nos.	108.64	217.28
e	300mm Screw Driver 829 Taparia Make	2	Nos.	200.48	400.96
f	400mm Screw Driver 930 Taparia Make	2	Nos.	292.32	584.64
g	200mm Cutting Plier Taparia Make	2	Nos.	355.04	710.08
h	800gm Ball Pane Hammer with Handle Taparia Make	2	Nos.	448.00	896.00
i	Digital Tong Tester CE Make	2	Nos.	3,961.44	7,922.88
j	Digital Multi Meter CE Make	2	Nos.	2,661.12	5,322.24
k	15" Screw Spanner Taparia Make	2	Nos.	921.76	1,843.52
l	12" Bearing Puller	2	Nos.	915.04	1,830.08
m	Lever Type Grease Gun	2	Nos.	748.16	1,496.32
n	12"Screw Spanner	2	Nos.	677.60	1,355.20
o	Crow Bar 5"	2	Nos.	661.92	1,323.84
p	1" Cold Chisel	2	Nos.	241.92	483.84
q	Hacksaw Frame with Blade	2	Nos.	150.08	300.16
r	Electrical Air Blower	1	Nos.	3,432.80	3,432.80
s	Digital Tachometer	2	Nos.	2,306.08	4,612.16
t	Hand Crimping Tool 8"	2	Nos.	623.84	1,247.68
w	DE Spanner set 6 to 32 Jhalani Make	2	Sets.	1,193.92	2,387.84
u	Rings spanner set 6 to 32 Jhalani Make	2	Sets.	2,672.32	5,344.64
v	Pipe Wrench 24" Jhalani Make	1	Nos.	1,528.80	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	Nos.	754.88	754.88
y	12" Flat rough File Scissors Make	1	Nos.	376.32	376.32
z	12" Flat smooth File Scissors Make	1	Nos.	566.72	566.72
aa	12"Round File Rough Scissors	1	Nos.	437.92	437.92
ab	12" Round File Smooth Scissors Make	1	Nos.	523.04	523.04
ac	12"Half Round File Rough Scissors Make	1	Nos.	764.96	764.96
ad	12"Half Round File Smooth Scissors Make	1	Nos.	764.96	764.96
<b>G</b>	<b>Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations</b>	500	Kgs.	116.48	58,240.00
<b>H</b>	<b>Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)</b>	200	Kgs.	96.32	19,264.00
<b>I</b>	<b>CHLORINATION</b>	1	Sets.	5,450,000.00	5,450,000.00
<b>K</b>	<b>INCIDENTAL &amp; MISC EXPENDITURE</b>	1	Sets.	1,000,000.00	1,000,000.00
	<b>KK Nagar New Mechanical Equipment Cost with Chlorination</b>				<b>45,809,956.39</b>

**Cost Analysis - Clear Water Pumping Station at KK Nagar New**

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			Rs.	Rs	Rs	Rs	Rs	Rs	Rs.	Rs.	Rs
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
<b>A Mechanical Equipment (Pump with piping and valves)</b>											
1	NEW VT type 1 Pumpsets having 2000 cu.m/hr capacity at 32 M Head as per TWAD SOR	1	3,380,000.00	3,380,000.00	3,380,000.00	33,800.00	67,600.00	33,800.00	3,515,200.00	169,000.00	3,684,200.00
	250 kw VERTICAL Foot Mounted Motor, 1500 rpm, 415 v as per TWAD SOR	1	1342658	1,342,658.00	1,342,658.00	13,426.58	26,853.16	13,426.58	1,396,364.32	67,132.90	1,463,497.22
	NEW VT type 2 Pumpsets having 955 cu.m/hr capacity at 34 M Head as per TWAD SOR	1	1,540,000.00	1,540,000.00	1,540,000.00	15,400.00	30,800.00	15,400.00	1,601,600.00	77,000.00	1,678,600.00
2	132 kw VERTICAL Foot Mounted Motor, 1500 rpm, 415 v as per TWAD SOR	1	762,674	762,674.00	762,674.00	7,626.74	15,253.48	7,626.74	793,180.96	38,133.70	831,314.66
3	<b>SITC of MS Pipes as per IS 3589</b>										
a	800 mm discharge side of pump type1	1	29,612.00	29,612.00	29,612.00	-	-	-	29,612.00	-	29,612.00
b	800 mm common header of pump type1	1	29,612.00	29,612.00	29,612.00	-	-	-	29,612.00	-	29,612.00
c	500 mm discharge side of pump type 2	1	12,322.00	12,322.00	12,322.00	-	-	-	12,322.00	-	12,322.00
d	500 mm common header of pump type 2	1	12,322.00	12,322.00	12,322.00	-	-	-	12,322.00	-	12,322.00
e	600 mm from common header to 2 nos 6ml OHT	1	16,859.00	16,859.00	16,859.00	-	-	-	16,859.00	-	16,859.00
f	500 mm from common header to 3.5 ml OHT	1	12,322.00	12,322.00	12,322.00	-	-	-	12,322.00	-	12,322.00
g	400 mm from common header to 2.5 ml OHT	1	9,182.00	9,182.00	9,182.00	-	-	-	9,182.00	-	9,182.00
4	Manufacturing, providing, transporting, rolling, lowering, laying & Jointing, testing, commissioning of MS specials conforming to IS 1916/ 7322 : 1985	1	106.00	106.00	106.00	-	-	-	106.00	-	106.00
5	<b>SITC of DIDF motorized Sluice valve, PN 10 rating</b>										
a	800 mm discharge side of pump type1	1	1,073,400.00	1,073,400.00	1,073,400.00	10,734.00	21,468.00	10,734.00	1,116,336.00	53,670.00	1,170,006.00
b	600 mm from common header to 2 nos 6 ML OHTs	1	496,800.00	496,800.00	496,800.00	4,968.00	9,936.00	4,968.00	516,672.00	24,840.00	541,512.00
c	500 mm discharge side of pump type 2	1	386,600.00	386,600.00	386,600.00	3,866.00	7,732.00	3,866.00	402,064.00	19,330.00	421,394.00
d	500 mm common header to 3.5 ml OHT	1	386,600.00	386,600.00	386,600.00	3,866.00	7,732.00	3,866.00	402,064.00	19,330.00	421,394.00
e	400 mm common header to 2.5 ml OHT	1	216,200.00	216,200.00	216,200.00	2,162.00	4,324.00	2,162.00	224,848.00	10,810.00	235,658.00
7	<b>Supply, installation, testing &amp; Commissioning of DIDF Double flanged Dual plate check valve conforming to API 594</b>	vag offer		-		-	-	-		-	-
a	800 mm discharge side of pump type1	1	803,000.00	803,000.00	803,000.00	8,030.00	16,060.00	8,030.00	835,120.00	40,150.00	875,270.00
b	600 mm common header to 2 nos 6ml OHT	1	370,000.00	370,000.00	370,000.00	3,700.00	7,400.00	3,700.00	384,800.00	18,500.00	403,300.00
c	500 mm discharge side of pump type 2	1	257,200.00	257,200.00	257,200.00	2,572.00	5,144.00	2,572.00	267,488.00	12,860.00	280,348.00
d	500 mm common header to 3.5 ml OHT	1	257,200.00	257,200.00	257,200.00	2,572.00	5,144.00	2,572.00	267,488.00	12,860.00	280,348.00
e	400 mm common header to 2.5 ml OHT	1	216,200.00	216,200.00	216,200.00	2,162.00	4,324.00	2,162.00	224,848.00	10,810.00	235,658.00
10	<b>Supply, installation, testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges,bolts &amp; Gaskets for Dismantling purpose</b>										
a	800 mm discharge side of pump type1	1	80,000.00	80,000.00	80,000.00	800.00	1,600.00	800.00	83,200.00	4,000.00	87,200.00
b	600 mm from common header to 2 nos 6 ML OHTs	1	60,000.00	60,000.00	60,000.00	600.00	1,200.00	600.00	62,400.00	3,000.00	65,400.00
c	500 mm discharge side of pump type 2	1	50,000.00	50,000.00	50,000.00	500.00	1,000.00	500.00	52,000.00	2,500.00	54,500.00
d	500 mm common header to 3.5 ml OHT	1	50,000.00	50,000.00	50,000.00	500.00	1,000.00	500.00	52,000.00	2,500.00	54,500.00
e	400 mm common header to 2.5 ml OHT	1	40,000.00	40,000.00	40,000.00	400.00	800.00	400.00	41,600.00	2,000.00	43,600.00
12	Manufacture, Supply and Delivery of Tamper proof DI single chamber air release valves with pressure range from PN 1.0 to 2.5 with body and cover made of Ductile Iron of Grade GGG 40 or equivalent grade conforming to IS 1865 with Food Grade Epoxy Powder coating(EP-P) inside and for outside of colour blue RAL 5005. All internal parts such as float, shell etc., cover bolts, made of Austenitic alloy steel of SS AISI 304/316. The float shall be made of Polytetrafluoroethylene/ Austenitic alloy steel of AISI 304/316. Gaskets and seals of EPDM / Neoprene rubber for TWAD Board works anywhere in Tamil Nadu.(Note:Supply of valves includes 5 year warranty.)										
a	200 mm PN 16 both on Common header for Air release valve arrangement	1	39,784.72	39,784.72	39,784.72	-	-	-	39,784.72	-	39,784.72
13	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for	1	112.00	112.00	112.00	-	-	-	112.00	-	112.00



Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side. Pump shall have common shaft for pump and motor. Motor shall be suitable for working on 3.0 HP, 415 V ± 10%, 3 Ph, 50Hz A.C. Supply. Motor shall be TEFC type. Pump set shall be suitable for working at various discharge and head requirements. Pump shall be erected on Provided C.C. foundation block with suitable foundation bolts grouted in C.C foundation block.	1	20,597.88	20,597.88	20,597.88	-	-	-	20,597.88	-	20,597.88
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,138.08	2,138.08	2,138.08	-	-	-	2,138.08	-	2,138.08
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,159.14	2,159.14	2,159.14	-	-	-	2,159.14	-	2,159.14
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)										
i	50 mm dia GI pipe -GI PIPES (MEDIUM) AS PER IS 1239/PART I/2004	1	413.28	413.28	413.28	-	-	-	413.28	-	413.28
ii	50 mm dia Elbow	1	174.72	174.72	174.72	-	-	-	174.72	-	174.72
iii	50 mm dia Tee	1	258.72	258.72	258.72	-	-	-	258.72	-	258.72
iv	50 mm dia Nipple	1	118.72	118.72	118.72	-	-	-	118.72	-	118.72
v	50 mm dia Socket	1	177.58	177.58	177.58	-	-	-	177.58	-	177.58
vi	50 mm dia Union	1	329.28	329.28	329.28	-	-	-	329.28	-	329.28
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Administrative Building)	1	8,853.60	8,853.60	8,853.60	-	-	-	8,853.60	-	8,853.60
<b>E Fire fighting equipment</b>											
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	1	665.28	665.28	665.28	-	-	-	665.28	-	665.28
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk	1	726.88	726.88	726.88	-	-	-	726.88	-	726.88
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire	1	2,596.16	2,596.16	2,596.16	-	-	-	2,596.16	-	2,596.16
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24 SWG	1	1,037.12	1,037.12	1,037.12	-	-	-	1,037.12	-	1,037.12
e	Supply of first aid chart and shock treatment chart with lamination.complete	1	692.16	692.16	692.16	-	-	-	692.16	-	692.16
f	Supplying of wooden first aid box.complete	1	873.60	873.60	873.60	-	-	-	873.60	-	873.60
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	1	3,473.12	3,473.12	3,473.12	-	-	-	3,473.12	-	3,473.12
<b>F Tool Kit . Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>						-	-	-			
a	6" Chain wrench best India make or equivalent	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
b	8"Chain Wrench Best India Make or equivalent	1	1,020.32	1,020.32	1,020.32	-	-	-	1,020.32	-	1,020.32
c	Connector Screw Driver 901 Taparia Make	1	66.08	66.08	66.08	-	-	-	66.08	-	66.08
d	200mm Screw Driver 825 Taparia Make	1	108.64	108.64	108.64	-	-	-	108.64	-	108.64
e	300mm Screw Driver 829 Taparia Make	1	200.48	200.48	200.48	-	-	-	200.48	-	200.48
f	400mm Screw Driver 930 Taparia Make	1	292.32	292.32	292.32	-	-	-	292.32	-	292.32
g	200mm Cutting Plier Taparia Make	1	355.04	355.04	355.04	-	-	-	355.04	-	355.04
h	800gm Ball Panne Hammer with Handle Taparia Make	1	448.00	448.00	448.00	-	-	-	448.00	-	448.00
i	Digital Tong Tester CE Make	1	3,961.44	3,961.44	3,961.44	-	-	-	3,961.44	-	3,961.44
j	Digital Multi Meter CE Make	1	2,661.12	2,661.12	2,661.12	-	-	-	2,661.12	-	2,661.12
k	15" Screw Spanner Taparia Make	1	921.76	921.76	921.76	-	-	-	921.76	-	921.76

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
									Rs.	Rs.	
									x	a = x+y	b = Qty x (a+z)
I	12" Bearing Puller	1	915.04	915.04	915.04	-	-	-	915.04	-	915.04
m	Lever Type Grease Gun	1	748.16	748.16	748.16	-	-	-	748.16	-	748.16
n	12" Screw Spanner	1	677.60	677.60	677.60	-	-	-	677.60	-	677.60
o	Crow Bar 5"	1	661.92	661.92	661.92	-	-	-	661.92	-	661.92
p	1" Cold Chisel	1	241.92	241.92	241.92	-	-	-	241.92	-	241.92
q	Hacksaw Frame with Blade	1	150.08	150.08	150.08	-	-	-	150.08	-	150.08
r	Electrical Air Blower	1	3,432.80	3,432.80	3,432.80	-	-	-	3,432.80	-	3,432.80
s	Digital Tachometer	1	2,306.08	2,306.08	2,306.08	-	-	-	2,306.08	-	2,306.08
t	Hand Crimping Tool 8"	1	623.84	623.84	623.84	-	-	-	623.84	-	623.84
w	DE Spanner set 6 to 32 Jhalani Make	1	1,193.92	1,193.92	1,193.92	-	-	-	1,193.92	-	1,193.92
u	Rings spanner set 6 to 32 Jhalani Make	1	2,672.32	2,672.32	2,672.32	-	-	-	2,672.32	-	2,672.32
v	Pipe Wrench 24" Jhalani Make	1	1,528.80	1,528.80	1,528.80	-	-	-	1,528.80	-	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
y	12" Flat rough File Scissors Make	1	376.32	376.32	376.32	-	-	-	376.32	-	376.32
z	12" Flat smooth File Scissors Make	1	566.72	566.72	566.72	-	-	-	566.72	-	566.72
aa	12" Round File Rough Scissors	1	437.92	437.92	437.92	-	-	-	437.92	-	437.92
ab	12" Round File Smooth Scissors Make	1	523.04	523.04	523.04	-	-	-	523.04	-	523.04
ac	12" Half Round File Rough Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
ad	12" Half Round File Smooth Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
G	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	1	116.48	116.48	116.48	-	-	-	116.48	-	116.48
H	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	1	96.32	96.32	96.32	-	-	-	96.32	-	96.32
I	CHLORINATION based on offers recd	1	5000000	5,000,000.00	5,000,000.00	50,000.00	100,000.00	50,000.00	5,200,000.00	250,000.00	5,450,000.00

Mechanical Cost - Clear Water Pumping Station at KK Nagar HW					
Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost
<b>A</b>	<b>Mechanical Equipment (Pump with piping and valves)</b>				
1	SITC of New HSCF Pumps capacity 1227 cum/hour at 36 mwc head with Casing: Cast Iron, CI FG 260, Shaft: AISI SS 410, Impeller: Bronze	2	Nos.	1,714,570.00	3,429,140.00
2	Supply, Installation, Testing of horizontal foot mounted Squirrel Cage Induction motor minimum 180 kW, 415 volt, 3 ph, 50 hz compatible for pumps of item no (1)	2	Nos.	1,048,798.00	2,097,596.00
3	Existing HSCF Pumpsets each capacity 504 cum/hr at 28.6 mwc head	3	Nos.		
4	Existing 55 kw , 1500 rpm, 415 volt, 3ph, 50hz motor	3	Nos.		
5	SITC of MS pipes (Fe-410 grade) conforming to IS 3589-2001				
a	600 mm on discharge common header	120.00	Mtr.	16,859.00	2,023,080.00
b	600 mm discharge side of two pumps	60.00	Mtr.	16,859.00	1,011,540.00
c	600 mm suction line of two pumps	60.00	Mtr.	16,859.00	1,011,540.00
d	500 mm line from common header to 4ml OHT	100.00	Mtr.	12,753.00	1,275,300.00
e	400 mm line from common header to 3.5ml OHT	100.00	Mtr.	9,192.00	919,200.00
6	Manufacturing, providing, transporting, rolling, lowering, laying & Jointing, testing, commissioning of MS specials confirming to IS 1916/ 7322 : 1985	10,000.00	Kgs.	106.00	1,060,000.00
7	<b>SITC of Electrically operated Long Body,DIDF Sluice Valve</b>	VAG OFFER		-	
a	600 mm on discharge common header	1	No.	541,512.00	541,512.00
b	600 mm suction line of two pumps	2	No.	541,512.00	1,083,024.00
c	600 mm discharge line of two pumps	2	No.	541,512.00	1,083,024.00
d	500 mm common header to 4ml OHT	1	No.	280,348.00	280,348.00
e	400 mm common header to 3.5ml OHT	1	No.	235,658.00	235,658.00
8	<b>SITC of DIDF, PN 10, Dual plate Check Valve, PN 10</b>				
a	600 mm discharge line of two pumps	2	No.	403,300.00	806,600.00
b	500 mm common header to 4ml OHT	1	No.	280,348.00	280,348.00
c	400 mm common header to 3.5ml OHT	1	No.	235,658.00	235,658.00
9	<b>SITC of SS 304 Expansion Bellows</b>				
a	600 mm suction line of two pumps	2	No.	65,400.00	130,800.00
b	600 mm discharge line of two pumps	2	No.	65,400.00	130,800.00
c	500 mm common header to 4ml OHT	1	No.	45,453.00	45,453.00
d	400 mm common header to 3.5ml OHT	1	No.	34,880.00	34,880.00
10	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for valve and pump operation & maintenance and other Equipments	2500	Kgs.	112.00	280,000.00
<b>B</b>	<b>Air Conditioning &amp; Ventilation system</b>				
1	Supply, Installation,Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V,50Hz,AC supply to provide 10 air changes per hour	20	Nos.	3,176.32	63,526.40

Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost
2	Supplying, Erecting, Testing, commissioning package type Duct able type split Air-Conditioner ( <b>5.5 TR</b> ) with microprocessor control, fitted with twin scroll Compressor with R22/Latest Refrigerant. The unit shall be pre-wired to operate on 415V, 50Hz AC Supply. The unit shall comprise, Evaporated condenser unit, Indoor-Outdoor Motor Fans, suitable over vent fins made up of Aluminium, Copper Refrigerent coil, Etc.,complete and corded control unit.	1	Nos.	144,704.00	144,704.00
3	<b>S.I.T.C. of Double Girder EOT CRANE - 7.5 T capacity for Pump House</b>	1	Nos.	1,994,999.75	1,994,999.75
4	<b>S.I.T.C. of Double Girder EOT CRANE - 15 T capacity for DG Room</b>	1	Nos.	2,546,594.25	2,546,594.25
C	<b>Dewatering System &amp; Sump drainage drainage arrangement</b>			-	-
1	<b>Supply and delivery of submersible centrifugal sewage non-clog pumps</b>			-	-
a	Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories	2	Nos.	272,500.00	545,000.00
2	<b>Supply and Delivery of CI D/F Gate (sluice) with pressure rating PN 10</b>			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps)	2	Nos.	8,900.00	17,800.00
3	Manufacture, Supply and Delivery of CI D/F Non Return Valve.			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	2	Nos.	4,000.00	8,000.00
4	Supplying, of 100 mm P.N 10 of DI flanged pipe confirming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML) with Portland Slag Cement as per IS 455:1989 and Metallic Zinc Coating as per annex A of IS 8329 with finishing layer of Bituminous Coating as per Annex C of IS 8329 and Flanges: Metallic Zinc rich epoxy paint & Bituminous Coating, laying true to line and hoisting in position and aligning to correct plumb including cost of jointing material, conveying to work spot with all lead and lifts etc.(PN10) Flange joint pipe/mtr (length considered for fittings also).	40	RM	3,513.44	140,537.60
5	Supplying and fixing of DI specials with ISI mark confirming to IS 9523 / 2000 suitable for jointing 100mm to 600 mm dia DI pipe coated with rust prevention coatings of DI K12 Fittings & Dismantling joints (Note: In respect of flanged and spigot, flanged and socketted type specials, the rate applicable for flanged type specials is allowed.)			-	-
a	100mm - 200 mm dia	1000	Kgs.	136.64	136,640.00
D	<b>Service water Pumpset Arrangement</b>			-	-
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side.	2	Nos.	20,600.00	41,200.00

Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,140.00	4,280.00
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,160.00	4,320.00
d	Supplying, Laying, jointing, testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)			-	-
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	80	RM	413.28	33,062.40
ii	50 mm dia Elbow	10	Nos.	174.72	1,747.20
iii	50 mm dia Tee	5	Nos.	258.72	1,293.60
iv	50 mm dia Nipple	10	Nos.	118.72	1,187.20
v	50 mm dia Socket	8	Nos.	177.58	1,420.61
vi	50 mm dia Union	10	Nos.	329.28	3,292.80
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Adminstrative Building)	1	No.	8,853.60	8,853.60
<b>E</b>	<b>Fire fighting equipment</b>			-	-
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	2	Nos.	665.28	1,330.56
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk complete including cost of materials, labour, HOM complete as per specifications.	2	Nos.	726.88	1,453.76
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire extinguisher with initial charges with wall mounting bracket, ready for use (TS 2678)	2	Nos.	2,596.16	5,192.32
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24 SWG 9 ltr. capacity painted inside white and outside red with a word 'fina' on the face of the bucket along with stand to hang the buckets.	2	Nos.	1,037.12	2,074.24
e	Supply of first aid chart and shock treatment chart with lamination.complete	2	Nos.	692.16	1,384.32
f	Supplying of wooden first aid box.complete	2	Nos.	873.60	1,747.20
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	2	Nos.	3,473.12	6,946.24
<b>F</b>	<b>Tool. Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>			-	-

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
a	6" Chain wrench best India make or equivalent	2	Nos.	754.88	1,509.76
b	8"Chain Wrench Best India Make or equivalent	2	Nos.	1,020.32	2,040.64
c	Connector Screw Driver 901 Taparia Make	2	Nos.	66.08	132.16
d	200mm Screw Driver 825 Taparia Make	2	Nos.	108.64	217.28
e	300mm Screw Driver 829 Taparia Make	2	Nos.	200.48	400.96
f	400mm Screw Driver 930 Taparia Make	2	Nos.	292.32	584.64
g	200mm Cutting Plier Taparia Make	2	Nos.	355.04	710.08
h	800gm Ball Pane Hammer with Handle Taparia Make	2	Nos.	448.00	896.00
i	Digital Tong Tester CE Make	2	Nos.	3,961.44	7,922.88
j	Digital Multi Meter CE Make	2	Nos.	2,661.12	5,322.24
k	15" Screw Spanner Taparia Make	2	Nos.	921.76	1,843.52
l	12" Bearing Puller	2	Nos.	915.04	1,830.08
m	Lever Type Grease Gun	2	Nos.	748.16	1,496.32
n	12"Screw Spanner	2	Nos.	677.60	1,355.20
o	Crow Bar 5"	2	Nos.	661.92	1,323.84
p	1" Cold Chisel	2	Nos.	241.92	483.84
q	Hacksaw Frame with Blade	2	Nos.	150.08	300.16
r	Electrical Air Blower	1	Nos.	3,432.80	3,432.80
s	Digital Tachometer	2	Nos.	2,306.08	4,612.16
t	Hand Crimping Tool 8"	2	Nos.	623.84	1,247.68
w	DE Spanner set 6 to 32 Jhalani Make	2	Sets.	1,193.92	2,387.84
u	Rings spanner set 6 to 32 Jhalani Make	2	Sets.	2,672.32	5,344.64
v	Pipe Wrench 24" Jhalani Make	1	Nos.	1,528.80	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	Nos.	754.88	754.88
y	12" Flat rough File Scissors Make	1	Nos.	376.32	376.32
z	12" Flat smooth File Scissors Make	1	Nos.	566.72	566.72
aa	12"Round File Rough Scissors	1	Nos.	437.92	437.92
ab	12" Round File Smooth Scissors Make	1	Nos.	523.04	523.04
ac	12"Half Round File Rough Scissors Make	1	Nos.	764.96	764.96
ad	12"Half Round File Smooth Scissors Make	1	Nos.	764.96	764.96
<b>G</b>	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	500	Kgs.	116.48	58,240.00
<b>H</b>	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	200	Kgs.	96.32	19,264.00
<b>I</b>	<b>CHLORINATION</b>	1	Sets.	5,450,000.00	5,450,000.00
<b>J</b>	<b>VACUMN PUMPSETS -10 HP(1w+1s)</b>	2	Sets.	163,500.00	327,000.00
<b>K</b>	<b>INCIDENTAL &amp; MISC EXPENDITURE</b>	1	Sets.	1,000,000.00	1,000,000.00
	<b>KK Nagar HW Mechanical Equipment Cost with Chlorination</b>				<b>30,619,705.37</b>

Cost Analysis - Clear Water Pumping Station at KK Nagar HW

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	l = f + g
a	Discharge Upto 20 M3/hour @ 15 m head with gi pipe, cable, panel, complete accessories	1	250,000.00	250,000.00	250,000.00	2,500.00	5,000.00	2,500.00	260,000.00	12,500.00	272,500.00
2	Supply and Delivery of DI D/F Gate (sluice) valves (Soft Seated) resilient seated		-								
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps) as per SOR	1	8,900.00	8,900.00	8,900.00	-	-	-	8,900.00	-	8,900.00
3	<b>Manufacture, Supply and Delivery of DI D/F Slanted seat Swing Check Valve.</b>										
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	1	4,000.00	4,000.00	4,000.00	-	-	-	4,000.00	-	4,000.00
4	Supplying, of 100 mm P.N 10 of DI flanged pipe conforming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML) with Portland Slag Cement as per IS 455:1989 and Metallic Zinc Coating as per annex A of IS 8329 with finishing layer of Bituminous Coating as per Annex C of IS 8329 and Flanges: Metallic Zinc rich epoxy paint & Bituminous Coating, laying true to line and hoisting in position and aligning to correct plumb including cost of jointing material, conveying to work spot with all lead and lifts etc.(PN10) Flange joint pipe/mtr (length considered for fittings also).	1	3,513.44	3,513.44	3,513.44	-	-	-	3,513.44	-	3,513.44
5	Supplying and fixing of DI specials with ISI mark confirming to IS 9523 / 2000 suitable for jointing 100mm to 600 mm dia DI pipe coated with rust prevention coatings of DI K12 Fittings & Dismantling joints (Note: In respect of flanged and spigot, flanged and socketted type specials, the rate applicable for flanged type specials is allowed.)										
a	100mm - 200 mm dia	1	136.64	136.64	136.64	-	-	-	136.64	-	136.64
D	<b>Service water Pumpset Arrangement</b>										
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410, Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side.	1	20,600.00	20,600.00	20,600.00	-	-	-	20,600.00	-	20,600.00
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,140.00	2,140.00	2,140.00	-	-	-	2,140.00	-	2,140.00
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,160.00	2,160.00	2,160.00	-	-	-	2,160.00	-	2,160.00
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest ammendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)										
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	1	413.28	413.28	413.28	-	-	-	413.28	-	413.28
ii	50 mm dia Elbow	1	174.72	174.72	174.72	-	-	-	174.72	-	174.72
iii	50 mm dia Tee	1	258.72	258.72	258.72	-	-	-	258.72	-	258.72
iv	50 mm dia Nipple	1	118.72	118.72	118.72	-	-	-	118.72	-	118.72
v	50 mm dia Socket	1	177.58	177.58	177.58	-	-	-	177.58	-	177.58
vi	50 mm dia Union	1	329.28	329.28	329.28	-	-	-	329.28	-	329.28
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Adminstrative Building)	1	8,853.60	8,853.60	8,853.60	-	-	-	8,853.60	-	8,853.60
E	<b>Fire fighting equipment</b>										
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	1	665.28	665.28	665.28	-	-	-	665.28	-	665.28
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk	1	726.88	726.88	726.88	-	-	-	726.88	-	726.88

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	l = f + g
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire	1	2,596.16	2,596.16	2,596.16	-	-	-	2,596.16	-	2,596.16
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets 24 SWG 9	1	1,037.12	1,037.12	1,037.12	-	-	-	1,037.12	-	1,037.12
e	Supply of first aid chart and shock treatment chart with lamination complete	1	692.16	692.16	692.16	-	-	-	692.16	-	692.16
f	Supplying of wooden first aid box complete	1	873.60	873.60	873.60	-	-	-	873.60	-	873.60
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	1	3,473.12	3,473.12	3,473.12	-	-	-	3,473.12	-	3,473.12
F	Tool Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following					-	-	-			
a	6" Chain wrench best India make or equivalent	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
b	8"Chain Wrench Best India Make or equivalent	1	1,020.32	1,020.32	1,020.32	-	-	-	1,020.32	-	1,020.32
c	Connector Screw Driver 901 Taparia Make	1	66.08	66.08	66.08	-	-	-	66.08	-	66.08
d	200mm Screw Driver 825 Taparia Make	1	108.64	108.64	108.64	-	-	-	108.64	-	108.64
e	300mm Screw Driver 829 Taparia Make	1	200.48	200.48	200.48	-	-	-	200.48	-	200.48
f	400mm Screw Driver 930 Taparia Make	1	292.32	292.32	292.32	-	-	-	292.32	-	292.32
g	200mm Cutting Plier Taparia Make	1	355.04	355.04	355.04	-	-	-	355.04	-	355.04
h	800gm Ball Panne Hammer with Handle Taparia Make	1	448.00	448.00	448.00	-	-	-	448.00	-	448.00
i	Digital Tong Tester CE Make	1	3,961.44	3,961.44	3,961.44	-	-	-	3,961.44	-	3,961.44
j	Digital Multi Meter CE Make	1	2,661.12	2,661.12	2,661.12	-	-	-	2,661.12	-	2,661.12
k	15" Screw Spanner Taparia Make	1	921.76	921.76	921.76	-	-	-	921.76	-	921.76
l	12" Bearing Puller	1	915.04	915.04	915.04	-	-	-	915.04	-	915.04
m	Lever Type Grease Gun	1	748.16	748.16	748.16	-	-	-	748.16	-	748.16
n	12"Screw Spanner	1	677.60	677.60	677.60	-	-	-	677.60	-	677.60
o	Crow Bar 5"	1	661.92	661.92	661.92	-	-	-	661.92	-	661.92
p	1" Cold Chisel	1	241.92	241.92	241.92	-	-	-	241.92	-	241.92
q	Hacksaw Frame with Blade	1	150.08	150.08	150.08	-	-	-	150.08	-	150.08
r	Electrical Air Blower	1	3,432.80	3,432.80	3,432.80	-	-	-	3,432.80	-	3,432.80
s	Digital Tachometer	1	2,306.08	2,306.08	2,306.08	-	-	-	2,306.08	-	2,306.08
t	Hand Crimping Tool 8"	1	623.84	623.84	623.84	-	-	-	623.84	-	623.84
w	DE Spanner set 6 to 32 Jhalani Make	1	1,193.92	1,193.92	1,193.92	-	-	-	1,193.92	-	1,193.92
u	Rings spanner set 6 to 32 Jhalani Make	1	2,672.32	2,672.32	2,672.32	-	-	-	2,672.32	-	2,672.32
v	Pipe Wrench 24" Jhalani Make	1	1,528.80	1,528.80	1,528.80	-	-	-	1,528.80	-	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
y	12" Flat rough File Scissors Make	1	376.32	376.32	376.32	-	-	-	376.32	-	376.32
z	12" Flat smooth File Scissors Make	1	566.72	566.72	566.72	-	-	-	566.72	-	566.72
aa	12"Round File Rough Scissors	1	437.92	437.92	437.92	-	-	-	437.92	-	437.92
ab	12" Round File Smooth Scissors Make	1	523.04	523.04	523.04	-	-	-	523.04	-	523.04
ac	12"Half Round File Rough Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
ad	12"Half Round File Smooth Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
G	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	1	116.48	116.48	116.48	-	-	-	116.48	-	116.48
H	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	1	96.32	96.32	96.32	-	-	-	96.32	-	96.32
I	CHLORINATION based on offers recd	1	5000000	5,000,000.00	5,000,000.00	50,000.00	100,000.00	50,000.00	5,200,000.00	250,000.00	5,450,000.00
J	VACUMN PUMPSETS -10 HP-Offer from Jakim Pumps	1	150,000.00	150,000.00	150,000.00	1,500.00	3,000.00	1,500.00	156,000.00	7,500.00	163,500.00

Mechanical Cost - Clear Water Pumping Station at Valluvarkottam					
Item No.	Description of the Item	Quantity	Unit	Unit Cost	Total Cost
A	<b>Mechanical Equipment (Pump with piping and valves)</b>				
1	SITC of New HSCF Pumpsets having 955 cu.m/hr capacity at 30 M Head as per TWAD SOR	2	Nos.	817,500.00	1,635,000.00
2	132 kw Horizontal Foot Mounted Motor, 1500 rpm, 3.3 KV as per ABB EMAIL OFR 27.10.2021	2	Nos.	2,289,000.00	4,578,000.00
3	Existing HSCF Pump@ 2718 cum/hr, 32 mwc head	2	Nos.	-	-
4	Existing 300 kw, 3.3KV Horizontal Foot Mounted Motor, 1500 rpm, 415 v as per TWAD SOR	2	Nos.	-	-
3	<b>SITC of MS Pipes as per IS 3589</b>			-	
a	New Pump Suction line-(500NB)	30.00	Mtr.	12,753.00	382,590.00
b	New Pump discharge line (450NB)	30.00	Mtr.	11,023.00	330,690.00
c	From Discharge Header to 2ml OHT -(450 NB)	100.00	Mtr.	11,023.00	1,102,300.00
4	<b>Manufacturing, providing, transporting, rolling, lowering, laying &amp; Jointing, testing, commissioning of MS specials confirming to IS 1916/ 7322 : 1985</b>	10,000.00	Kgs.	106.00	1,060,000.00
6	<b>SITC of CIDF Electrically operated Sluice valve, PN 10 rating</b>				-
a	New Pump Suction line-(500NB)	2	Nos.	419,759.00	839,518.00
b	New Pump discharge line (450NB)	2	Nos.	309,778.00	619,556.00
c	From Discharge Header to 2ml OHT -(450 NB)	1	Nos.	309,778.00	309,778.00
8	<b>Supply,installation,testing &amp; Commissioning of CIDF Double flanged Dual plate check valve conforming to API 594</b>				
	New Pump discharge line (450NB)	2	Nos.	235,658.00	471,316.00
	New Pump Discharge Header -(450 NB)	1	Nos.	235,658.00	235,658.00
10	<b>Supply,installation,testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges,bolts &amp; Gaskets for Dismantling purpose</b>				
a	New Pump Suction line-(500NB)	2	Nos.	45,780.00	91,560.00
b	New Pump discharge line (450NB)	2	Nos.	39,403.50	78,807.00
c	New Pump Discharge Header -(450 NB)	1	Nos.	39,403.50	39,403.50
13	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for valve and pump operation & maintainence and other Equipments	2500	Kgs.	112.00	280,000.00
B	<b>Air Conditioning &amp; Ventilation system</b>				
1	Supply, Installation,Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V,50Hz,AC supply to provide 10 air changes per hour	20	Nos.	3,176.32	63,526.40
2	Supplying, Erecting, Testing, commissioning package type Duct able type split Air-Conditioner ( <b>5.5 TR</b> ) with microprocessor control, fitted with twin scroll Compressor with R22/Latest Refrigerant. The unit shall be pre-wired to operate on 415V, 50Hz AC Supply. The unit shall comprise, Evaporated condenser unit, Indoor-Outdoor Motor Fans, suitable over vent fins made up of Aluminium, Copper Refrigerent coil, Etc.,complete and corded control unit.	1	Nos.	144,704.00	144,704.00
3	<b>S.I.T.C. of Double Girder type fully electrically operated EOT crane - 5 T capacity for Pump House</b>	1	Nos.	1,635,000.00	1,635,000.00

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
4	<b>S.I.T.C. of Double Girder type fully electrically operated EOT crane - 10 T capacity for DG Room</b>	1	nos	2,282,187.50	2,282,187.50
<b>C</b>	<b>Dewatering System &amp; Sump drainage drainage arrangement</b>				-
1	Supply and delivery of submersible centrifugal sewage non-clog pumps, vertical spindle type pump with panel, cable, GI Piping, accessories				-
a	Discharge Upto 20 M3/hour @ 15 m head	2	Nos.	272,500.00	545,000.00
2	Supply and Delivery of DI D/F Gate (sluice) valves (Soft Seated) resilient seated soft sealing gate valves (sluice valves)			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps and Common header of Pumps)	2	Nos.	13,825.72	27,651.44
3	Manufacture, Supply and Delivery of DI D/F Slanted seat Swing Check Valve.			-	-
a	100 mm Dia for delivery Isolation Valve PN 10 (Individual Delivery Side of pumps)	2	Nos.	13,825.72	27,651.44
4	Supplying, of 100 mm P.N 10 of DI flanged pipe confirming to IS 8329:2000 with latest amendments with Cement Mortar Lining (CML) with Portland Slag Cement as per IS 455:1989 and Metallic Zinc Coating as per annex A of IS 8329 with finishing layer of Bituminous Coating.	40	RM	3,513.44	140,537.60
5	Supplying and fixing of DI specials with ISI mark confirming to IS 9523 / 2000 suitable for jointing 100mm to 600 mm dia DI pipe coated with rust prevention coatings of DI K12 Fittings & Dismantling joints.			-	-
a	100mm - 200 mm dia	1000	Kgs.	136.64	136,640.00
<b>D</b>	<b>Service water Pumpset Arrangement</b>				
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side. Pump shall have common shaft for pump and motor. Motor shall be suitable for working on 3.0 HP, 415 V $\pm$ 10%, 3 Ph, 50Hz A.C. Supply. Motor shall be TEFC type. Pump set shall be suitable for working at various discharge and head requirements. Pump shall be erected on Provided C.C. foundation block with suitable foundation bolts grouted in C.C foundation block.	2	Nos.	20,597.88	41,195.76
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,138.08	4,276.16
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	2	Nos.	2,159.14	4,318.27

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest amendments including fixing collars,elbows, tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)			-	-
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	80	RM	413.28	33,062.40
ii	50 mm dia Elbow	10	Nos.	174.72	1,747.20
iii	50 mm dia Tee	5	Nos.	258.72	1,293.60
iv	50 mm dia Nipple	10	Nos.	118.72	1,187.20
v	50 mm dia Socket	8	Nos.	177.58	1,420.61
vi	50 mm dia Union	10	Nos.	329.28	3,292.80
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Adminstrative Building)	1	No.	8,853.60	8,853.60
<b>E</b>	<b>Fire fighting equipment</b>				
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	2	Nos.	665.28	1,330.56
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm thk complete including cost of materials, labour, HOM complete as per specifications.	2	Nos.	726.88	1,453.76
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire extinguisher with initial charges with wall mounting bracket, ready for use (TS 2678)	2	Nos.	2,596.16	5,192.32
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24 SWG 9 ltr. capacity painted inside white and outside red with a word 'fina' on the face of the bucket along with stand to hang the buckets.	2	Nos.	1,037.12	2,074.24
e	Supply of first aid chart and shock treatment chart with lamination.complete	2	Nos.	692.16	1,384.32
f	Supplying of wooden first aid box.complete	2	Nos.	873.60	1,747.20
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	2	Nos.	3,473.12	6,946.24
<b>F</b>	<b>Tool. Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>				-
a	6" Chain wrench best India make or equivalent	2	Nos.	754.88	1,509.76
b	8"Chain Wrench Best India Make or equivalent	2	Nos.	1,020.32	2,040.64
c	Connector Screw Driver 901 Taparia Make	2	Nos.	66.08	132.16
d	200mm Screw Driver 825 Taparia Make	2	Nos.	108.64	217.28
e	300mm Screw Driver 829 Taparia Make	2	Nos.	200.48	400.96
f	400mm Screw Driver 930 Taparia Make	2	Nos.	292.32	584.64
g	200mm Cutting Plier Taparia Make	2	Nos.	355.04	710.08
h	800gm Ball Pane Hammer with Handle Taparia Make	2	Nos.	448.00	896.00
i	Digital Tong Tester CE Make	2	Nos.	3,961.44	7,922.88
j	Digital Multi Meter CE Make	2	Nos.	2,661.12	5,322.24
k	15" Screw Spanner Taparia Make	2	Nos.	921.76	1,843.52
l	12" Bearing Puller	2	Nos.	915.04	1,830.08
m	Lever Type Grease Gun	2	Nos.	748.16	1,496.32

<b>Item No.</b>	<b>Description of the Item</b>	<b>Quantity</b>	<b>Unit</b>	<b>Unit Cost</b>	<b>Total Cost</b>
n	12"Screw Spanner	2	Nos.	677.60	1,355.20
o	Crow Bar 5"	2	Nos.	661.92	1,323.84
p	1" Cold Chisel	2	Nos.	241.92	483.84
q	Hacksaw Frame with Blade	2	Nos.	150.08	300.16
r	Electrical Air Blower	1	Nos.	3,432.80	3,432.80
s	Digital Tachometer	2	Nos.	2,306.08	4,612.16
t	Hand Crimping Tool 8"	2	Nos.	623.84	1,247.68
w	DE Spanner set 6 to 32 Jhalani Make	2	Sets.	1,193.92	2,387.84
u	Rings spanner set 6 to 32 Jhalani Make	2	Sets.	2,672.32	5,344.64
v	Pipe Wrench 24" Jhalani Make	1	Nos.	1,528.80	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	Nos.	754.88	754.88
y	12" Flat rough File Scissors Make	1	Nos.	376.32	376.32
z	12" Flat smooth File Scissors Make	1	Nos.	566.72	566.72
aa	12"Round File Rough Scissors	1	Nos.	437.92	437.92
ab	12" Round File Smooth Scissors Make	1	Nos.	523.04	523.04
ac	12"Half Round File Rough Scissors Make	1	Nos.	764.96	764.96
ad	12"Half Round File Smooth Scissors Make	1	Nos.	764.96	764.96
<b>G</b>	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	500	Kgs.	116.48	58,240.00
<b>H</b>	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	200	Kgs.	96.32	19,264.00
<b>I</b>	<b>CHLORINATION</b>	1	Sets.	5,450,000.00	5,450,000.00
<b>J</b>	<b>Vacuum Pumps</b>	2	Sets.	163,500.00	327,000.00
<b>K</b>	<b>INCIDENTAL &amp; MISC EXPENDITURE</b>	1	Sets.	1,000,000.00	1,000,000.00
	<b>Valluvarkottam Mechanical Equipment Cost with Chlorination</b>				<b>24,083,467.44</b>

**Cost Analysis - Clear Water Pumping Station at Valluvarkottam**

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
			Rs.	Rs	Rs	Rs	Rs	Rs	Rs	Rs.	Total Price
			x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g	I = f + g
A	<b>Mechanical Equipment (Pump with piping and valves)</b>										
1	SITC of New HSCF Pumpsets having 955 cu.m/hr capacity at 30 M Head as per TWAD SOR	1	750,000.00	750,000.00	750,000.00	7,500.00	15,000.00	7,500.00	780,000.00	37,500.00	817,500.00
2	150 kw Horizontal Foot Mounted Motor, 1500 rpm, 3.3 Kv as per ABB EMAIL OFR 27.10.2021	1	2,100,000.00	2,100,000.00	2,100,000.00	21,000.00	42,000.00	21,000.00	2,184,000.00	105,000.00	2,289,000.00
3	Existing HSCF Pump@ 2718 cum/hr, 32 mwc head	1									
4	Existing 300 kw Horizontal Foot Mounted Motor, 1500 rpm, 3.3 KV	1									
3	<b>SITC of MS Pipes as per IS 3589 AS PER TWAD SOR</b>										
a	New Pump Suction line-(500NB)- 2 NOS	1	12,753.00	12,753.00	12,753.00	-	-	-	12,753.00	-	12,753.00
b	New Pump discharge line (450NB)- 2 NOS	1	11,023.00	11,023.00	11,023.00	-	-	-	11,023.00	-	11,023.00
c	From Discharge Header to 2ml OHT -(450 NB)	1	11,023.00	11,023.00	11,023.00	-	-	-	11,023.00	-	11,023.00
4	Manufacturing, providing, transporting, rolling, lowering, laying & Jointing, testing, commissioning of MS specials confirming to IS 1916/ 7322 : 1985	1	106.00	106.00	106.00	-	-	-	106.00	-	106.00
5	<b>SITC of DIDF Motorized Sluice valve, PN 10 rating AS PER VAG OFR DATED 26.10.2021</b>	VAG OFR									
a	New Pump Suction line-(500NB)	1	385,100.00	385,100.00	385,100.00	3,851.00	7,702.00	3,851.00	400,504.00	19,255.00	419,759.00
b	New Pump discharge line (450NB)	1	284,200.00	284,200.00	284,200.00	2,842.00	5,684.00	2,842.00	295,568.00	14,210.00	309,778.00
c	From Discharge Header to 2ml OHT -(450 NB)	1	284,200.00	284,200.00	284,200.00	2,842.00	5,684.00	2,842.00	295,568.00	14,210.00	309,778.00
7	Supply,installation,testing & Commissioning of DIDF Double flanged Dual plate check valve as per vag offer of 400 mm nrw, Non return valve conforming to IS 5312/2003(part I & II)		VAG OFR FOR 400MM								
a	New Pump discharge line (450NB)	1	216,200.00	216,200.00	216,200.00	2,162.00	4,324.00	2,162.00	224,848.00	10,810.00	235,658.00
b	From Discharge Header to 2ml OHT -(450 NB)	1	216,200.00	216,200.00	216,200.00	2,162.00	4,324.00	2,162.00	224,848.00	10,810.00	235,658.00
9											
10	<b>Supply,installation,testing of SS 304 Expansion Bellows of Flange Ends with necessary mating flanges,bolts &amp; Gaskets for Dismantling purpose - CONSIDERED OFFER FROM PRECISE ENGINEERS DATED 05.10.2021</b>										
a	New Pump Suction line-(500NB)	1	42,000.00	42,000.00	42,000.00	420.00	840.00	420.00	43,680.00	2,100.00	45,780.00
b	New Pump discharge line (450NB)	1	36,150.00	36,150.00	36,150.00	361.50	723.00	361.50	37,596.00	1,807.50	39,403.50
c	From Discharge Header to 2ml OHT -(450 NB)	1	36,150.00	36,150.00	36,150.00	361.50	723.00	361.50	37,596.00	1,807.50	39,403.50
12	Manufacture, Supply and Delivery of Tamper proof DI single chamber air release valves with pressure range from PN 1.0 to 2.5 with body and cover made of Ductile Iron of Grade GGG 40 or equivalent grade conforming to IS 1865 with Food Grade Epoxy Powder coating(EP-P) inside and for outside of colour blue RAL 5005. All internal parts such as float, shell etc., cover bolts, made of Austenitic alloy steel of SS AISI 304/316. The float shall be made of Polytetrafluoroethylene/ Austenitic alloy steel of AISI 304/316. Gaskets and seals of EPDM / Neoprene rubber for TWAD Board works anywhere in Tamil Nadu.(Note:Supply of valves includes 5 year warranty.)										
a	200 mm PN 16 both on Common header for Air release valve arrangement	1	39,784.72	39,784.72	39,784.72	-	-	-	39,784.72	-	39,784.72
13	MS fabricated supports & chequered plates for pipeline,Ladder & platforms for valve and pump operation & maintainenence and other Equipments	1	112.00	112.00	112.00	-	-	-	112.00	-	112.00
B	<b>Air Conditioning &amp; Ventilation system</b>										
1	Supply, Installation,Testing of Heavy Duty Exhaust Fans with bracket blades and Bird cowl arrangement Group "A" Dia = 15" sweep(450 mm) with 1440 RPM 230V,50Hz,AC supply to provide 10 air changes per hour	1	3,176.32	3,176.32	3,176.32	-	-	-	3,176.32	-	3,176.32



Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factory inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
				Rs.	Rs	Rs	Rs	Rs	Rs	Rs.	
				x	a = x+y	b = Qty x (a+z)	c	d	e	f = b + c + d + e	g
a	Providing, erecting and giving test of Centrifugal Monoblock Pump set conforming to IS 9079 operating at 2900 RPM with CI impeller pump casing: Cast Iron IS 210 FG Gr.260, Impeller:Bronze IS 318 LTB2, Shaft:SS 410 , Pump Seal: Mechanical Seal, priming funnel, cock, suitable flanges at suction and delivery side. Pump shall have common shaft for pump and motor. Motor shall be suitable for working on 3.0 HP, 415 V ± 10%, 3 Ph, 50Hz A.C. Supply. Motor shall be TEFC type. Pump set shall be suitable for working at various discharge and head requirements. Pump shall be erected on Provided C.C. foundation block with suitable foundation bolts grouted in C.C foundation block.	1	20,597.88	20,597.88	20,597.88	-	-	-	20,597.88	-	20,597.88
b	Providing and fixing in position G.M GATE VALVES AS PER IS BS 5154 and related IS Specs of approved quality (screwed end) 50 mm nominal bore including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,138.08	2,138.08	2,138.08	-	-	-	2,138.08	-	2,138.08
c	Providing and fixing in position 50 mm nominal bore non-return valve vertical type of approved make including cost of all materials,labour and HOM of equipments with all leads complete as per specifications.	1	2,159.14	2,159.14	2,159.14	-	-	-	2,159.14	-	2,159.14
d	Supplying,Laying,jointing,testing and commissioning of GI pipes conforming to IS 1239:1990 with latest amendments including fixing collars,elbows,tees, gland cocks and other fittings (Including cost of specials) with cuts and threads wherever necessary including conveying the materials to workspot including testing for water tightness with all lead & lift (contractor will make his own arrangements for procuring water for testing)										
i	50 mm dia GI pipe -G I PIPES (MEDIUM) AS PER IS 1239/PART I/2004	1	413.28	413.28	413.28	-	-	-	413.28	-	413.28
ii	50 mm dia Elbow	1	174.72	174.72	174.72	-	-	-	174.72	-	174.72
iii	50 mm dia Tee	1	258.72	258.72	258.72	-	-	-	258.72	-	258.72
iv	50 mm dia Nipple	1	118.72	118.72	118.72	-	-	-	118.72	-	118.72
v	50 mm dia Socket	1	177.58	177.58	177.58	-	-	-	177.58	-	177.58
vi	50 mm dia Union	1	329.28	329.28	329.28	-	-	-	329.28	-	329.28
e	Supply and delivery and fixing of HDPE tank as per IS 12071/1996 including loading, unloading, transportation and labour charges for fixing of the GI pipes and specials for pipe connection works including cutting, threading and fixing charges etc (for 1000 litres capacity) within the CWPS campus (one at Administrative Building)	1	8,853.60	8,853.60	8,853.60	-	-	-	8,853.60	-	8,853.60
<b>E Fire fighting equipment</b>											
a	Supplying of Electrical gloves tested to 11 KV / 22 KV with wooden box dusted with french chalk powder	1	665.28	665.28	665.28	-	-	-	665.28	-	665.28
b	Supplying and installation of Electrical quality rubber mats 1 m x 1 m -6 mm	1	726.88	726.88	726.88	-	-	-	726.88	-	726.88
c	Supply and installation of 5KG capacity ISI marked dry chemical powder fire	1	2,596.16	2,596.16	2,596.16	-	-	-	2,596.16	-	2,596.16
d	Supply one set of buckets (3 nos) with round bottom made of GI sheets24	1	1,037.12	1,037.12	1,037.12	-	-	-	1,037.12	-	1,037.12
e	Supply of first aid chart and shock treatment chart with lamination.complete	1	692.16	692.16	692.16	-	-	-	692.16	-	692.16
f	Supplying of wooden first aid box.complete	1	873.60	873.60	873.60	-	-	-	873.60	-	873.60
g	Rechargeable Emergency Lamp (600 mm fluorescent lamp)	1	3,473.12	3,473.12	3,473.12	-	-	-	3,473.12	-	3,473.12
<b>F Tool Kit : Supply and delivery at site best make or Taparia make and other required make tool sets for operation and maintenance of the above pumpsets comprising of the following</b>											
a	6" Chain wrench best India make or equivalent	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
b	8"Chain Wrench Best India Make or equivalent	1	1,020.32	1,020.32	1,020.32	-	-	-	1,020.32	-	1,020.32
c	Connector Screw Driver 901 Taparia Make	1	66.08	66.08	66.08	-	-	-	66.08	-	66.08
d	200mm Screw Driver 825 Taparia Make	1	108.64	108.64	108.64	-	-	-	108.64	-	108.64
e	300mm Screw Driver 829 Taparia Make	1	200.48	200.48	200.48	-	-	-	200.48	-	200.48
f	400mm Screw Driver 930 Taparia Make	1	292.32	292.32	292.32	-	-	-	292.32	-	292.32
g	200mm Cutting Plier Taparia Make	1	355.04	355.04	355.04	-	-	-	355.04	-	355.04
h	800gm Ball Pane Hammer with Handle Taparia Make	1	448.00	448.00	448.00	-	-	-	448.00	-	448.00
i	Digital Tong Tester CE Make	1	3,961.44	3,961.44	3,961.44	-	-	-	3,961.44	-	3,961.44
j	Digital Multi Meter CE Make	1	2,661.12	2,661.12	2,661.12	-	-	-	2,661.12	-	2,661.12
k	15' Screw Spanner Taparia Make	1	921.76	921.76	921.76	-	-	-	921.76	-	921.76
l	12' Bearing Puller	1	915.04	915.04	915.04	-	-	-	915.04	-	915.04
m	Lever Type Grease Gun	1	748.16	748.16	748.16	-	-	-	748.16	-	748.16

Item No.	Description of the Item	Quantity	Unit Price	Unit Price, Ex-Factoty inclusive of Ex. Duty	Total Ex-factory Price	Packing & Forwarding 1% of (b)	Inland Transportation @ 2% of (b)	Insu., Storage, Custody & other Incid. Costs @ 1% of (b)	Total Supply Price	Incidental Services (5%) i.e Erection and commissioning.	Total Price
				Rs.	Rs	Rs	Rs	Rs		Rs.	
				x	a = x+y	b = Qty x (a+z)	c	d		g	I = f + g
n	12" Screw Spanner	1	677.60	677.60	677.60	-	-	-	677.60	-	677.60
o	Crow Bar 5"	1	661.92	661.92	661.92	-	-	-	661.92	-	661.92
p	1" Cold Chisel	1	241.92	241.92	241.92	-	-	-	241.92	-	241.92
q	Hacksaw Frame with Blade	1	150.08	150.08	150.08	-	-	-	150.08	-	150.08
r	Electrical Air Blower	1	3,432.80	3,432.80	3,432.80	-	-	-	3,432.80	-	3,432.80
s	Digital Tachometer	1	2,306.08	2,306.08	2,306.08	-	-	-	2,306.08	-	2,306.08
t	Hand Crimping Tool 8"	1	623.84	623.84	623.84	-	-	-	623.84	-	623.84
w	DE Spanner set 6 to 32 Jhalani Make	1	1,193.92	1,193.92	1,193.92	-	-	-	1,193.92	-	1,193.92
u	Rings spanner set 6 to 32 Jhalani Make	1	2,672.32	2,672.32	2,672.32	-	-	-	2,672.32	-	2,672.32
v	Pipe Wrench 24" Jhalani Make	1	1,528.80	1,528.80	1,528.80	-	-	-	1,528.80	-	1,528.80
x	Pipe Wrench 14" Jhalani Make	1	754.88	754.88	754.88	-	-	-	754.88	-	754.88
y	12" Flat rough File Scissors Make	1	376.32	376.32	376.32	-	-	-	376.32	-	376.32
z	12" Flat smooth File Scissors Make	1	566.72	566.72	566.72	-	-	-	566.72	-	566.72
aa	12" Round File Rough Scissors	1	437.92	437.92	437.92	-	-	-	437.92	-	437.92
ab	12" Round File Smooth Scissors Make	1	523.04	523.04	523.04	-	-	-	523.04	-	523.04
ac	12" Half Round File Rough Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
ad	12" Half Round File Smooth Scissors Make	1	764.96	764.96	764.96	-	-	-	764.96	-	764.96
G	Supplying of MS Bolts, nuts and Washers for all the Flange joints for all above listed locations	1	116.48	116.48	116.48	-	-	-	116.48	-	116.48
H	Supplying of Champion gaskets (Rubber Insertions) for all the Flange joints for all above listed locations (3 Ply RI Sheet)	1	96.32	96.32	96.32	-	-	-	96.32	-	96.32
I	CHLORINATION based on offers recd	1	5000000	5,000,000.00	5,000,000.00	50,000.00	100,000.00	50,000.00	5,200,000.00	250,000.00	5,450,000.00
J	VACUMN PUMPSETS -10 HP-Offer from Jakim Pumps	1	150,000.00	150,000.00	150,000.00	1,500.00	3,000.00	1,500.00	156,000.00	7,500.00	163,500.00

### **COST SUMMARY OF ELECTRICAL WORKS- CHOOLAIMEDU WDS**

<b>Sr. No.</b>	<b>Description</b>	<b>Total Cost in INR</b>
	<b>Proposed Upgradation Estimate - Choolaimedu</b>	
1	3.3 kV MV Switchgear- FCMA Soft Starter Panel	3,622,546
2	LV Panels and DBs	165,948
3	MV & LV New Cables and Cable Carrier System	653,285
4	Lighting System	1,861,638
5	Earthing system	148,466
6	Safety procedures	240,863
7	Minimum Testing, Maintenance and repair for existing Electrical system.	4,000,000
8	Miscellaneous and Incidental charges	2,138,549
	<b>Total Electrical Cost</b>	<b>12,831,295</b>

## BOQ For Electrical Works- WDS at Choolaimedu, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
1	<b>SITC of 3.3kV (Medium Voltage) FCMA Soft-Starter Panel with necessary accessories with complete.</b>									
1.1	Supply and delivery of suitable KW indoor automatic air cooled dust and vermin proof FCMA Soft Starter for the operation in 3.3 KV three Phase 50 HZ, AC supply termination with phase segregated neutral terminal box of the motor , housed in 14 SWG sheet steel enclosure, painted with epoxy or polyurethane , 230V AC 10 Amps control supply , Class B insulation, 300 mm height fabricated pedestal (to prevent water ingress for starter panel) and condensation heater with switch and thermostat, interlocking with running motor with built in facility for run mode/by pass etc. complete. The starter may be provided with contactors suitable for next standard higher KW rating, Over load relay, instrument panel with frequency meter, Ammeter, Voltmeter, indicating lamp 6 Nos, LED ON/OFF type and Start /Stop push button.- <b>210 kW</b>	2	No.	766,922	10	76,692	843,614	843,614	1,687,228	TWAD SR 2021-22, Item No. 11.5, Sl.No.1, Page No. 113
1.2	3.3 KV, 25KA /31.5KA, 400 A, MV Indoor Single Panel Vacuum Circuit Breaker complete as per specification	2	No.	<b>445,000</b>	<b>10</b>	44,500	489,500	489,500	979,000	TWAD SOR 2021-22, Part M, Item no. 1(a)*, Page 193.
1.3	The cost for fabrication panel, Copper/Al busbars, interconnecting cables, mounting fasteners, terminal box etc.								933,180	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Sub Total-1(a)</b>								<b>3,599,408</b>	
1.4	<b>Supply, Installation, Testing &amp; Commissioning for Local Push Button Station (LPBS) with all accessories complete</b>									
1.4.1	Start-Stop Push Buttons and Mushroom type Lockable Push button and associated accessories.	2	No.	<b>422</b>	<b>10</b>	42	464	464	928	ABB Electrification products Price list with effect from 15th April, 2021, Page no. 135 & 138.
1.4.2	LPBS Box- Industrial type TPMCB DB with IP 54 protection	2	No.	<b>10,095</b>	<b>10</b>	1,010	11,105	11,105	22,209	TWAD SOR 2021-22, Part XVII, Item no.4, Page 213
	<b>Sub Total-1(b)</b>								<b>23,137</b>	
	<b>Sub Total-1</b>								<b>3,622,546</b>	
2	<b>Supply, Erection, Testing and Commissioning of 415V (Low Voltage) Switchgear Panels &amp; DBs with necessary accessories with complete.</b>									
2.1	415V MLDB (Main Lighting Distribution Board) Panel	1	No.	<b>150,862</b>	<b>10</b>	15,086	165,948	165,948	<b>165,948</b>	Refer Item No.1, Appendix-2.
	<b>Sub Total-2</b>								<b>165,948</b>	
3	<b>SITC &amp; Termination of 3.3 kV MV Cable with glands, Termination kits etc. with all required accessories. All complete works.</b>									
3.1	Supplying and erecting Aluminium conductor, XLPE, 3.3kV , 3Core x 240 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	120	Mtr.	<b>2,575</b>	<b>5</b>	129	2,704	2,704	324,450	TWAD SOR 2021-22, Part M, Item no. XIII - 5(c)*, Page 194.
3.2	Indoor Termination Kit for 3.3kV XLPE Screened 3 Core x 240 sq.mm cable	4	Nos.	<b>15,500</b>	<b>5</b>	775	16,275	16,275	65,100	TWAD SOR 2021-22, Part M, Item no. XIII - 6(e), Page 195.
3.3	Laying of cable in trench/ tray	0.25	km	49,214			49,214	12,303	401,853	ESCOM Common sr 2018-19, Cost Data sheet-23, SL No. 11(b)
	<b>Sub Total-3</b>									
4	<b>SITC &amp; Termination of LT Cabling with glands, lugs for 1.1kV Copper Power &amp; Control Cables with all required accessories. All complete works.</b>									
4.1	3C X 6 sq mm , Cu. Conductor (For MOVs)	240	Mtr.	354	<b>10</b>	35	389	389	93,456	
4.2	4C X 2.5 sq mm , Cu. Conductor (For LPBS)	120	Mtr.	<b>289</b>	<b>10</b>	29	318	318	38,148	
4.3	3 core x 2.5 sqmm, Cu. Conductor	120	Mtr.	228	<b>10</b>	23	251	251	30,096	
	<b>Sub Total-4</b>								<b>161,700</b>	

## BOQ For Electrical Works- WDS at Choolaimedu, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
5	SITC of hot dip GI perforated cable tray with cover along with required angle supports, with coupler plates, Anchor bolts and nuts etc complete and the tray should be fitted on the wall / Ceiling etc. complete.									
5.1	300mm x 50mm x 2mm (Power Cables)	100	Mtr.	396	5	20	416	416	41,580	TWAD SoR 2021-22, Part H, Item no. 6, Page 186
5.2	150mm x 50mm x 2mm (Control Cables)	100	Mtr.	325	5	16	341	341	34,125	
5.3	Laying of cable trays in trench	0.3	km	46,755				46,755	14,026	ESCOM Common sr 2018-19, Cost Data sheet-21, SL No.10(b)
	<b>Sub Total-5</b>								<b>89,731</b>	
6	Supply, Installation, Testing and Commissioning of Lighting System/ Luminaires with following major equipment, items as per scope, specification and drawings.									
6.1	Supply and transportation of <b>90W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingress protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	30	No.	10,120	5	506	10,626	10,120	303,600	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (b), Page 481.
6.2	Supply and transportation of <b>150W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingress protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	20	No.	13,340	5	667	14,007	13,340	266,800	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (d), Page 481.
6.3	Supply and fixing of <b>20-24W</b> , not less than 1100mm length LED batten light with extruded aluminium housing and polycarbonate cover, input voltage AC 220 - 260 Volts with PF>0.9, Surge protection: 2KV, THD<15%, with inbuilt driver and frosted cover CCT: 3000K - 5700K, minimum CRI>70, .etc., complete. (For MCC Rooms, Toilets and other indoor rooms)	60	No.	736	5	37	773	736	44,160	AP Building SoR 2021-22, Item no. ELEC-3.8.13, Page 475.
6.4	Supply of Surface/Recess mounted <b>Corrosion Resistant Recess mounted T5 mirror optics luminaires. (2x36W For Battery Rooms)</b>	4	No.	3,332	5	167	3,499	3,332	13,328	PWD Maharashtra sor 2018-19, item 2-3 1, page 34

## BOQ For Electrical Works- WDS at Choolaimedu, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
6.5	Supply and transportation of <b>80W LED Street light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95 lm/W and junction tempreature < 70°C, with Ingress protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	25	No.	11,775	5	589	12,364	11,775	294,375	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (c), Page 174.
6.6	Supply and transportation of <b>150W Flood light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction tempreature < 70°C, with Ingress protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	4	No.	17,350	5	868	18,218	17,350	69,400	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (e), Page 174.
6.7	Supply and transportation of <b>45W LED Peripheral light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction tempreature < 70°C, with Ingress protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	30	No.	4,943	5	247	5,190	4,943	148,290	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (b), Page 174.
6.8	Fixing Charges of Fittings									
6.9	Fixing all types & all capacities LED fittings <b>Indoor</b> on the wall /ceiling/rafters/gridders using 23 / 0.76 " twin twisted PVC insulated wires.	114	No.	253				253	28,853	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.7.2, Page 79.
#	Supply & fixing of 40mm dia. <b>GI Pipe bracket</b> up to 2.7 mtrs long for fixing MV/SV/MH/FTL street light fitting of all capacities on rail/RCC/Wall/tubular pole, using suitable clamps, bolts, nuts and wiring etc complete.	30	No.	1,311				1,311	39,327	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.2.3, Page 79.
6.11	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 10 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	4	No.	16,995				16,995	67,981	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.8, Page 13.
#	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 7.5 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	25	No.	13,260				13,260	331,510	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.6, Page 13.

## BOQ For Electrical Works- WDS at Choolaimedu, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
"	<b>Point Wiring for lighting/fan circuits &amp; sockets</b>									
6.13. 1	Primary Point (for a maximum of 10 meter length)									
a	Point wiring for <b>Lighting &amp; ceiling fan circuits</b> , lighting panel to modular switch box with 4 sq.mm PVC insulated Cu conductor cable of approved make in surface rigid GI conduit of suitable size, including paint etc as required as per specification, including switch, ceiling rose, metal flush box etc; all complete works.	10	No.	2,685	10	269	2,954	2,954	29,537	Refer Item-1 of Appendix-1
b	Point wiring for 3 pin 6/16Amps <b>Socket outlet point</b> on separate board 4 sq.mm PVC insulated Cu conductor cable, 6/16A switch etc of approved make in suitable size of the GI steel conduit including 6 sqmm GI earth continuity conductor in surface wiring system as per specification, including switch and socket ; all complete works	10	No.	3,812	10	381	4,193	4,193	41,927	Refer Item-2 of Appendix-1
6.13. 2	Secondary Point (from primary tapping point to Light and fan points)									
	Secondary point from tapping point to Light and fan points									
a	Short point (not exceeding 3m)	50	No.	610	10	61	671	671	33,551	Refer Item-3 of Appendix-1
b	Medium point above 3m and up to 6m	30	No.	1,220	10	122	1,342	1,342	40,261	Refer Item-4 of Appendix-1
c	Long point above 6m and up to 10m	30	No.	2,033	10	203	2,237	2,237	67,102	Refer Item-5 of Appendix-1
6.13. 3	Plug and Sockets in Sheet Steel Enclosure without MCBs									
a	20A Single Pole	20	No.	903	10	90	993	993	19,866	TWAD SOR 2021-22, Part L, Item no. 8
b	32A Triple Pole	10	No.	1,979	10	198	2,177	2,177	21,769	(b and e), Page 191.
	<b>Sub Total-6</b>								<b>1,861,638</b>	
7	<b>Supplying and running of GI strips for grounding connections, using necessary fixing materials as required.</b>									
7.1	50 x 10 mm GI (PCC, MCC Panels, Main Motors etc.)	200	Mtr.	352	10	35	387	387	77,440	
7.2	50 x 6 mm GI (MCC Panels, Main Motors etc.)	200	Mtr.	176	10	18	194	194	38,720	AP building SOR 2021-22, item ELEC-
7.3	25 x 6 mm GI (Cable Trays, LDBs, street Lighting etc.)	200	Mtr.	83	10	8	91	91	18,260	6.7.6 (a to n), Page 565.
7.4	25 x 3 mm GI (Valve DBs, Fan DBs etc.)	200	Mtr.	46	10	5	51	51	10,120	
7.5	Supplying and running of <b>GI wire</b> for grounding and (along with other wires in conduit system of wiring) using necessary suitable size clamps, nails, guttas.spacers etc.									
7.5.1	12 SWG (Receptacles)	100	Mtr.	15	10	2	17	17	1,666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.1, Page 43.
7.5.2	8 SWG (Small Motors)	100	Mtr.	21	10	2	23	23	2,261	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.3, Page 44.
	<b>Sub Total-7</b>								<b>148,466</b>	
8	<b>Supply, Installation, Testing and commissioning of safety procedures for Electrical Equipments as per scope, specification and drawings.</b>									
8.1	Supply and Fixing of 2m x 1m Rubber Mat suitable for 11 KV installation confirming to IS	20	No..	3,712			3,712	74,232	TNPWD SOR 2021-22, Part M, Item no. 8 (b), Page 142.	
8.2	Supplying and Erecting of Fire Extinguisher Co2, 4.5 kg. confirming to TAC Norms	10	No..	1,432			1,432	14,320	TNPWD SOR 2021-22, Part M, Item no. 8 (h), Page 142.	
8.3	Supplying of Hand Gloves 11KV Grade	10	Pairs	1,908			1,908	19,080	TNPWD SOR 2021-22, Part M, Item no. 8 (f), Page 142.	

## BOQ For Electrical Works- WDS at Choolaimedu, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
8.4	Supplying First Aid Box complete with all First Aid Medicines.	5	No..	1,696			1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (c), Page 142.	
8.5	Supplying and fixing Shock Treatment Chart fixed in glass frame	5	No..	1,696			1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (d), Page 142.	
8.6	Supplying and fixing of Danger Board as required by the Electrical Authorities. (Medium Voltage)	15	No..	1,590			1,590	23,850	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.	
8.7	Supplying and fixing of Danger Board as required by the Electrical Authorities. (High Voltage)	5	No..	1,590			1,590	7,950	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.	
8.8	Teak Wood Ladder- 5Mtr Height	2	No.	1,667			1,667	3,334	TWAD SOR 2021-22, Section 18, Item no. 8, Page 122.	
8.9	Earth Discharge Rod (3Nos. RYB)	2	No.	1,395			1,395	2,790	TWAD SOR 2021-22, Section 18, Item no. 9, Page 122.	
8.10	Tools & Plant Machinaries	1	Job	78,347			78,347	78,347	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25. (Refer Appendix-1 Item No. 6.)	
<b>Sub Total-8</b>								<b>240,863</b>		
9	Existing Old Electrical Equipment and switchgears minimum Testing, Maintenance and repair with spares to run the system.	Job						4,000,000	Tentative Value only	
10	Miscellaneous and Incidental charges (@20%)	Job						2,138,549		
<b>Grand Total</b>								<b>12,831,295</b>		

SITC : Supply, Installation, Testing &amp; Commissioning

ITC : Installation, Testing &amp; Commissioning

GST : Goods Service Tax

## BOQ For Electrical Works - Choolaimedu WDS (Zone-X)

### Appendix-1

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
<b>Item-1</b>	<b>Primary point for Lighting and Fan Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 4-5 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc.	1	No.	111	111	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.2, Page 9.
	Supplying and fixing superior quality 4 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	135	135	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.2, Page 9.
	Supplying and fixing of modular 6A one way switch on existing modular switch plate	4	No.	73	291	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.1, Page 10.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	33	666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,685</b>	
<b>Item-2</b>	<b>Primary Point for socket Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 6-8 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc	1	No.	151	151	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.4, Page 9.
	Supplying and fixing superior quality 8 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	216	216	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.4, Page 9.
	Supplying and fixing of modular 16A one way switch on existing modular switch plate	4	No.	124	498	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Supplying and fixing of modular 6/16A universal socket on existing modular switch plate	2	No.	175	350	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	49	973	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.4, Page 6
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	49	487	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	<b>Grand Total</b>				<b>3,812</b>	
<b>Item-3</b>	<b>Secondary Point for Lighting and Fan (Short point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	3	Mtr.	100	299	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 3 Mtr.s)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	3	Mtr.	35	104	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>610</b>	
<b>Item-4</b>	<b>Secondary Point for Lighting and Fan (Medium point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	6	Mtr.	100	597	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 6 Mtr.s)	12	Mtr.	35	415	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>1,220</b>	
<b>Item-5</b>	<b>Secondary Point for Lighting and Fan (Long point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	100	995	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	35	692	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Wiring for lighting/power circuit using <b>2.5</b> sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,033</b>	
<b>Item-6</b>	<b>Tools and Plant</b>					
	Live Line Tester	5	No.	<b>222</b>	1,110	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25.
	Insulation Tester (Megger) 2.5kV-5kV	1	No.	<b>12,598</b>	12,598	
	Multimeter electronic type	2	No.	<b>7,003</b>	14,006	
	Earth Resistance Tester	2	No.	<b>20,124</b>	40,247	
	Rubber Shoes Knee Height	3	No.	<b>1,530</b>	4,589	
	DC Voltmeter range - 3V to +5V	3	No.	<b>1,932</b>	5,795	
	<b>Grand Total</b>				<b>78,347</b>	

### BOQ For Electrical Works - Choolaimedu WDS

#### Appendix-2

<b>Item-1</b>	<b>Main LDB</b>					
	I/C-63A MCCB (TPN)	2	No.	12,788	25,576	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	O/G: 32A MCCB (TPN)	5	No.	12,788	63,940	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	Multi Functions Meters - Flush type for M V Panel Board LED type, CT/PT, Voltage, Current, Frequency, Kilowatt, Kilo Volt Ampere, KVAR , KVAH, Run Hours, unbalance(V,A),Rpm, Phase angles,Thd - Class 1 With RS 485 Port	1	No.	17,874	17,874	TWAD SR 2021-22, III (C) Rates for Electromechanical Items, Sl.No. 2(a), Page 132.
	Supplying, fixing & wiring of Current Transformer from 63/5 Ratio, 10 VA, class 1 accuracy	3	No.	523	1,569	AP building sor 2021-22, Item ELEC-6.2.5(a), Sl.No. 359, Page 537.
	Supplying and fixing of LED type panel board indicating lamp with required colour suitable for 220V, AC 50 Hz	3	No.	465	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	Supplying and fixing of LED type panel board indicating lamp for Phase indication ndicating lamp with required colour suitable for 220V, AC 50 Hz ( Red, Yellow, Blue).	1	Set	1,395	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	<b>Sub-Total</b>				<b>111,750</b>	
	The cost for fabrication panel, Copper/Al busbars, interconnecting cables,mounting fasteners, terminal box etc. Installation, Commissioning and transportation				39,112	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Grand Total</b>				<b>150,862</b>	

<b>COST SUMMARY OF ELECTRICAL WORKS - KK NAGAR-OLD WDS</b>		
<b>Sr. No.</b>	<b>Description</b>	<b>Total Cost in INR</b>
	<b>Proposed Upgradation Estimate - KK Nagar-Old WDS</b>	
1	630 kVA Distribution Transformers	3,504,600
2	625 kVA DG Set	4,466,000
3	LV Switchgears Panel	2,813,783
4	415 V FCMA Soft Starter Panel	2,564,424
5	LT New Cables and Cable Carrier System	2,972,306
6	Lighting System	2,098,175
7	Earthing system	261,005
8	Safety procedures	240,863
9	Minimum Testing, Maintenance and Repair for existing Electrical system.	3,000,000
10	Miscellaneous and Incidental charges	4,384,231
	<b>Total Electrical Cost</b>	<b>26,305,387</b>

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
1	<b>Supply, Installation, Testing &amp; Commissioning of Distribution Transformers for Pumping Station</b>									
1.1	Providing, erecting and commissioning Out door type, Copper wound 11/0.433kV, <b>630kVA</b> , Transformer continuously rated for 3 Ph, 50 Hz, at full load and temp. rise not exceeding 45°C by thermometer in oil and 50°C by the resistance in winding after continuous run at full load rating, the transformer should have oil immersed winding having vector group Dyn11, HT side connected in Delta and LT side connected in Star with neutral brought out connected to provided separate earthing. The transformer shall have power terminal arrangement, bushing / cable end box on HT side and cable end box on LT side. 2 No.. channels with stoppers shall be provided and fixed on the provided plinth for mounting the transformer. The transformer should have following standard fittings. The OLTC should be suitable for minimum 50 operations per day. Transformer shall be of latest manufacturing standards as per amended IS specifications and the Load & No Load losses shall be limited to the values as per IS and On Load Tap Changer -15% to +5% in steps of 2.5% with RTCC, AVR and marshalling box.	2	No.	1,593,000	10	159,300	1,752,300	1,752,300	3,504,600	AP Building SOR 2021-22, Item ELEC-6.3.5 (B), Page 550 & 551.
	<b>Sub Total-1</b>									
2	<b>Supply, Erection, Testing and Commissioning of DG Set with AMF Panel with necessary accessories with complete.</b>									
2.1	a) <b>DG Set:</b> 625kVA Diesel Generating Set with alternator of 800kVA output continuous rating 3Phase, 415V, 50Hz, 0.8 PF AC totally enclosed air cooled multi cylinder diesel engine developing suitable BHP at 1500rpm with standard accessories, self excited, self regulated screen protected alternator with static excitation system running at 1500rpm as IS-4722 with voltage regulation +/- 5%. Both the engine & alternator direct coupled on a common fabricated steel base frame & mounted on anti vibrating pads with standard control panel comprising of switchgear, meters, indicators, relays, batteries & with necessary stack extension. b) <b>AMF Panel:</b> Microprocessor based AMF panel suitable for 625kVA capacity of 3p hase 415V, 50Hz AC with all standard features, safeties etc as per specification.	1	No.	4,060,000	10	406,000	4,466,000	4,466,000	4,466,000	AP Building SOR 2021-22, Item ELEC-10.1.1(m), ELEC-10.1.2(e), Page 633 & 634.
	<b>Sub Total -2</b>									
3	<b>Supply, Erection, Testing and Commissioning of 415V (Low Voltage) Switchgear with necessary accessories with complete.</b>									
3.1	415V PCC Panel	1	No.	1,789,424	10	178,942	1,968,366	1,968,366	1,968,366	Refer Item No. 1, Appendix-2.
3.2	415V APFC Panel	1	No.	647,114	5	32,356	679,469	679,469	679,469	Refer Item No. 2, Appendix-2.
3.3	415V MLDB (Main Lighting Distribution Board) Panel	1	No.	150,862	10	15,086	165,948	165,948	165,948	Refer Item No. 3, Appendix-2.
	<b>Sub Total-3</b>									
4	<b>Supply, Installation, Testing and Commissioning 415 V (Low Voltage) FCMA Soft-Starter Panel with necessary accessories with complete.</b>									

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
4.1	Supply and delivery of floor mounted type FCMA Air/ Oil Cooled Soft-starter suitable for the LT motor offered for operation in AC three Phase 50 Hz (+/-5%), 415V (+/-10%) including line contactors suitable for next standard higher KW rating, Overload relay, instrument panel with frequency meter, Ammeter, Voltmeter, indicating lamp 6 Nos, LED ON/OFF type and Start/ Stop push button.-180 kW	2	No.	802,603	10	80,260	882,863	882,863	1,765,727	TWAD SR 2021-22, Item No. 11.4, Sl.No.5. Page No. 112
4.2	415 V, 630 A, LV Indoor Single MCCB complete with accessories as per specification	2	No.	53,049	10	5,305	58,354	58,354	116,708	TWAD SR 2021-22, Item No. 14, Sl.No.8, Page No. 120
4.3	The cost for fabrication panel, Copper/AI busbars, interconnecting cables, mounting fasteners, terminal box etc.								658,852	35% of Total-A (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Sub Total-4 (a)</b>								<b>2,541,286</b>	
4.4	<b>Supply, Installation, Testing and Commissioning for Local Push Button Station (LPBS) with all accessories complete</b>									
4.4.1	Start-Stop Push Buttons and Mushroom type Lockable Push button and associated accessories.	2	No.	422	10	42	464	464	928	ABB Electrification products Price list with effect from 15th April, 2021, Page no. 135 & 138.
4.4.2	LPBS Box- Industrial type TPMCB DB with IP 54 protection	2	No.	10,095	10	1,010	11,105	11,105	22,209	TWAD SOR 2021-22, Part XVII, Item no.4, Page 213
	<b>Sub Total-4 (b)</b>								<b>23,137</b>	
	<b>Sub Total-4</b>								<b>2,564,424</b>	
5	<b>SITC &amp; Termination of 1.1 kV LT Cable with glands, Termination kits etc. with all required accessories. All complete works.</b>									
5.1	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3.5Core x 300 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	500	Mtr.	2,171	5	109	2,280	2,280	1,139,775	TWAD SR 2021-22, Item No. 12, Sl.No.14, Page No. 116
5.2	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3.5Core x 240 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	120	Mtr.	1,769	5	88	1,857	1,857	222,894	TWAD SR 2021-22, Item No. 12, Sl.No.13, Page No. 116
5.3	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3.5 Core x 150 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	200	Mtr.	1,144	5	57	1,201	1,201	240,240	TWAD SR 2021-22, Item No. 12, Sl.No.11, Page No. 116
5.4	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3 Core x 150 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	300	Mtr.	616	5	31	647	647	194,040	TWAD SR 2021-22, Item No. 12, Sl.No.11, Page No. 116
5.5	Laying of cable below GL including earth works (240 to 400 Sq.mm.)	600	Mtr.	325				325	195,000	TWAD SR 2021-22, Item No. 12.3, Sl.No.3, Page No. 116
5.6	Laying of cable below GL including earth works (95 to 240 Sq.mm.)	700	Mtr.	225				225	157,500	TWAD SR 2021-22, Item No. 12.3, Sl.No.2, Page No. 116
	<b>Sub Total-5</b>								<b>2,149,449</b>	
6	<b>SITC &amp; Termination of LT Cabling with glands, lugs for 1.1kV Copper Power &amp; Control Cables with all required accessories. All complete works.</b>									
6.1	3C X 6 sq mm , Cu. Conductor (For MOVs)	400	Mtr.	354	10	35	389	389	155,760	TWAD SOR 2021-22, Item no. 1
6.2	4C X 2.5 sq mm , Cu. Conductor (For LPBS)	400	Mtr.	289	10	29	318	318	127,160	
6.3	3 core x 2.5 sqmm, Cu. Conductor	350	Mtr.	228	10	23	251	251	87,780	

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
6.4	8C X 1.5/2.5 sq mm, Cu Conductor, Armoured 2XWY/2XFY	200	Mtr.	528	10	53	581	581	116,160	Polycab Price list W.E.F. 18th Oct. 2021
6.5	12C X 1.5/2.5 sq mm, Cu Conductor, Armoured 2XWY/2XFY	200	Mtr.	706	10	71	777	777	155,320	Polycab Price list W.E.F. 18th Oct. 2021
	<b>Sub Total-6</b>								<b>642,180</b>	
7	<b>SITC of hot dip GI perforated cable tray with cover along with required angle supports, with coupler plates, Anchor bolts and nuts etc complete and the tray should be fitted on the wall / Ceiling etc. complete.</b>									
7.1	300mm x 50mm x 2mm (Power Cables)	200	Mtr.	393	10	39	432	432	86,460	TWAD SOR 2021-22, Part H, Item no. 6, Page 186
7.2	150mm x 50mm x 2mm (Control Cables)	200	Mtr.	322	10	32	354	354	70,840	
7.3	Laying of cable in trench	0.5	km	46,755				46,755	23,377	ESCOM Common sr 2018-19, Cost Data sheet-21, SL No.10(b)
	<b>Sub Total-7</b>								<b>180,677</b>	
8	<b>Supply, Installation, Testing and Commissioning of Lighting System/ Luminaires with following major equipment, items as per scope, specification and drawings.</b>									
8.1	Supply and transportation of <b>90W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingress protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	20	No.	10,120	5	506	10,626	10,626	212,520	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (b), Page 481.
8.2	Supply and transportation of <b>150W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingress protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	10	No.	13,340	5	667	14,007	14,007	140,070	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (d), Page 481.
8.3	Supply and fixing of <b>18W/20W</b> , 1200mm length <b>LED batten light</b> with extruded aluminium housing and polycarbonate cover, input voltage AC 220 - 260 Volts with PF>0.9, Surge protection: 2KV, THD<15%, with inbuilt driver and frosted cover CCT: 3000K - 5700K, minimum CRI>70, .etc., complete. (For MCC Rooms, Toilets and other indoor rooms)	50	No.	736	5	37	773	773	38,640	AP Building SoR 2021-22, Item no. ELEC-3.8.13, Page 475.
8.4	Supply of Surface/Recess mounted <b>Corrosion Resistant Recess mounted T5</b> mirror optics luminaires. (2x36W For Battery Rooms)	4	No.	3,332	5	167	3,499	3,499	13,994	PWD Maharastra sor 2018-19, item 2-3-1, page 34

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
8.5	Supply and transportation of <b>80W LED Street light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95 lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	26	No.	11,775	5	589	12,364	12,364	321,458	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (c), Page 174.
8.6	Supply and transportation of <b>150W Flood light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	4	No.	17,350	5	868	18,218	18,218	72,870	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (e), Page 174.
8.7	Supply and transportation of <b>45W LED Peripheral light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	26	No.	4,943	5	247	5,190	5,190	134,944	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (b), Page 174.
8.8	Fixing Charges of Fittings									
8.9	Fixing all types & all capacities LED fittings <b>Indoor</b> on the wall /ceiling/rafters/gridders using 23 / 0.76 " twin twisted PVC insulated wires.	84	No.	253				253	21,260	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.7.2, Page 79.
# # # #	Supply & fixing of 40mm dia. <b>GI Pipe bracket</b> up to 2.7 mtrs long for fixing MV/SV/MH/FTL street light fitting of all capacities on rail/RCC/Wall/tubular pole, using suitable clamps, bolts, nuts and wiring etc complete.	26	No.	1,311				1,311	34,083	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.2.3, Page 79.
8.11	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 10 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	26	No.	16,995				16,995	441,875	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.8, Page 13.
# # # #	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 7.5 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	26	No.	13,260				13,260	344,771	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.6, Page 13.
8.13	<b>Point Wiring for lighting/fan circuits &amp; sockets</b>									
8.13.1	Primary Point (for a maximum of 10 meter length)									

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
a	Point wiring for <b>Lighting &amp; ceiling fan circuits</b> , lighting panel to modular switch box with 4 sq.mm PVC insulated Cu conductor cable of approved make in surface rigid GI conduit of suitable size, including paint etc as required as per specification, including switch, ceiling rose, metal flush box etc; all complete works.	12	No.	2,685	10	269	2,954	2,954	35,445	Refer Item-1 of Appendix-1
b	Point wiring for 3 pin 6/16Amps <b>Socket outlet point</b> on separate board 4 sq.mm PVC insulated Cu conductor cable, 6/16A switch etc of approved make in suitable size of the GI steel conduit including 6 sqmm GI earth continuity conductor in surface wiring system as per specification, including switch and socket ; all complete works	12	No.	3,812	10	381	4,193	4,193	50,313	Refer Item-2 of Appendix-1
8.13.2	Secondary Point (from primary tapping point to Light and fan points)									
	Secondary point from tapping point to Light and fan points									
a	Short point (not exceeding 3m)	60	No.	610	10	61	671	671	40,261	Refer Item-3 of Appendix-1
b	Medium point above 3m and up to 6m	40	No.	1,220	10	122	1,342	1,342	53,682	Refer Item-4 of Appendix-1
c	Long point above 6m and up to 10m	40	No.	2,033	10	203	2,237	2,237	89,470	Refer Item-5 of Appendix-1
8.13.3	Plug and Sockets in Sheet Steel Enclosure without MCBs									
a	20A Single Pole	20	No.	903	10	90	993	993	19,866	TWAD SOR 2021-22, Part L, Item no. 8 (b and e), Page 191.
b	32A Triple Pole	15	No.	1,979	10	198	2,177	2,177	32,654	
	<b>Sub Total-8</b>								<b>2,098,175</b>	
9	<b>SITC of GI strips for grounding connections, using necessary fixing materials as required.</b>									
9.1	50 x 10 mm GI (PCC, MCC Panels, Main Motors etc.)	350	Mtr.	352	10	35	387	387	135,520	AP building SOR 2021-22, item
9.2	50 x 6 mm GI (MCC Panels, Main Motors etc.)	300	Mtr.	176	10	18	194	194	58,080	
9.3	25 x 6 mm GI (Cable Trays, LDBs, street Lighting etc.)	400	Mtr.	83	10	8	91	91	36,520	
9.4	25 x 3 mm GI (Valve DBs, Fan DBs etc.)	300	Mtr.	46	10	5	51	51	15,180	
9.5	Supplying and running of <b>GI wire</b> for grounding and (along with other wires in conduit system of wiring) using necessary suitable size clamps, nails, guttas.spacers etc.									
9.5.1	12 SWG (Receptacles)	400	Mtr.	15	10	2	17	17	6,663	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.1, Page 43.
9.5.2	8 SWG (Small Motors)	400	Mtr.	21	10	2	23	23	9,042	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.3, Page 44.
	<b>Sub Total-9</b>								<b>261,005</b>	
10	<b>Supply, Installation, Testing and commissioning of safety procedures for Electrical Equipments as per scope, specification and drawings.</b>									
10.1	Supply and Fixing of 2m x 1m Rubber Mat suitable for 11 KV installation confirming to IS	20	No..	3,712				3,712	74,232	TNPWD SOR 2021-22, Part M, Item no. 8 (b), Page 142.

## BOQ For Electrical Works - WDS at KK Nagar-Old, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
10.2	Supplying and Erecting of Fire Extinguisher Co2, 4.5 kg. confirming to TAC Norms	10	No..	1,432				1,432	14,320	TNPWD SOR 2021-22, Part M, Item no. 8 (h), Page 142.
10.3	Supplying of Hand Gloves 11KV Grade	10	Pairs	1,908				1,908	19,080	TNPWD SOR 2021-22, Part M, Item no. 8 (f), Page 142.
10.4	Supplying First Aid Box complete with all First Aid Medicines.	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (c), Page 142.
10.5	Supplying and fixing Shock Treatment Chart fixed in glass frame	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (d), Page 142.
10.6	Supplying and fixing of Danger Board as required by the Electrical Authorities. (Medium Voltage)	15	No..	1,590				1,590	23,850	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.
10.7	Supplying and fixing of Danger Board as required by the Electrical Authorities. (High Voltage)	5	No..	1,590				1,590	7,950	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.
10.8	Teak Wood Ladder- 5Mtr Height	2	No.	1,667				1,667	3,334	TWAD SOR 2021-22, Section 18, Item no. 8, Page 122.
10.9	Earth Discharge Rod (3Nos. RYB)	2	No.	1,395				1,395	2,790	TWAD SOR 2021-22, Section 18, Item no. 9, Page 122.
10.10	Tools & Plant Machinaries	1	Job	78,347				78,347	78,347	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25. (Refer Appendix-1 Item No. 6.)
	<b>Sub Total-10</b>								<b>240,863</b>	
11	Existing Old Electrical Equipment and switchgears minimum Testing, Maintenance and repair with spares to run the system.		Job						<b>3,000,000</b>	Tentative Value only
12	Miscellaneous and Incidental charges (@20%)		Job						<b>4,384,231</b>	
	<b>Grand Total</b>								<b>26,305,387</b>	

SITC : Supply, Installation, Testing &amp; Commissioning

ITC : Installation, Testing &amp; Commissioning

GST : Goods Service Tax

## BOQ For Electrical Works - KK Nagar-Old WDS (Zone-X)

### Appendix-1

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
<b>Item-1</b>	<b>Primary point for Lighting and Fan Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 4-5 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc.	1	No.	111	111	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.2, Page 9.
	Supplying and fixing superior quality 4 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	135	135	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.2, Page 9.
	Supplying and fixing of modular 6A one way switch on existing modular switch plate	4	No.	73	291	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.1, Page 10.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	33	666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,685</b>	
<b>Item-2</b>	<b>Primary Point for socket Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 6-8 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc	1	No.	151	151	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.4, Page 9.
	Supplying and fixing superior quality 8 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	216	216	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.4, Page 9.

<b>Item No.</b>	<b>Description</b>	<b>Qty.</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total Price</b>	<b>Reference</b>
	Supplying and fixing of modular 16A one way switch on existing modular switch plate	4	No.	124	498	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Supplying and fixing of modular 6/16A universal socket on existing modular switch plate	2	No.	175	350	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	49	973	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.4, Page 6
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	49	487	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	<b>Grand Total</b>				<b>3,812</b>	
<b>Item-3</b>	<b>Secondary Point for Lighting and Fan (Short point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	3	Mtr.	100	299	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 3 Mtr.s)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	3	Mtr.	35	104	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>610</b>	
<b>Item-4</b>	<b>Secondary Point for Lighting and Fan (Medium point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	6	Mtr.	100	597	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 6 Mtr.s)	12	Mtr.	35	415	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>1,220</b>	
<b>Item-5</b>	<b>Secondary Point for Lighting and Fan (Long point)</b>					

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	100	995	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using <b>2.5</b> sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	35	692	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using <b>2.5</b> sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,033</b>	
<b>Item-6</b>	<b>Tools and Plant</b>					
	Live Line Tester	5	No.	<b>222</b>	1,110	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25.
	Insulation Tester (Megger) 2.5kV-5kV	1	No.	<b>12,598</b>	12,598	
	Multimeter electronic type	2	No.	<b>7,003</b>	14,006	
	Earth Resistance Tester	2	No.	<b>20,124</b>	40,247	
	Rubber Shoes Knee Height	3	No.	<b>1,530</b>	4,589	
	DC Voltmeter range - 3V to +5V	3	No.	<b>1,932</b>	5,795	
	<b>Grand Total</b>				<b>78,347</b>	

## BOQ For Electrical Works - KK Nagar-Old WDS

### Appendix-2

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
<b>Item-1</b>	<b>415V PCC</b>					
	I/C: 1250A ACB (TPN) for Transformer incomer	2	No.	238,971	477,942	TWAD SR 2021-22, Item 17.1, Sl.No. 4, Page 122.
	I/C: 1250A ACB (TPN) for DG incomer	1	No.	238,971	238,971	TWAD SR 2021-22, Item 17.1, Sl.No. 4, Page 122.
	O/G-630A MCCB (TPN)	4	No.	53,049	212,196	TWAD SR 2021-22, Item 14, Sl.No. 6, Page 120.
	O/G: 400A MCCB (TPN)	4	No.	45,742	182,968	TWAD SR 2021-22, Item 14, Sl.No. 7, Page 120.
	Supplying, fixing & wiring of Current Transformer for 1250/5 Ratio, 15 VA, class 1 accuracy	9	No.	1,045	9,405	AP building sor 2021-22, item ELEC-6.2.5(c), Page 537, sl no. 359
	Supplying, fixing & wiring of Current Transformer for 1250/5 Ratio, 15 VA, class 5P10/ 10P10 accuracy	9	No.	1,045	9,405	AP building sor 2021-22, item ELEC-6.2.5(c), Page 537, sl no. 359
	64R and 51NS relay for Transformer (Restricted earth fault protection) (IRXm)	2	No.	7,740	15,480	ABB Electrification products Price list with effect from 15th April, 2021, Page no. 340
	Single pole 6A to 32A,10 KA, MCB	18	No.	173	3,114	TWAD SR 2021-22, Part L, Item 6, Sl.No. (a), Page 190.
	Supplying multifunction meter digital three line back light LCD type display of voltage, current, frequency power, power factor kVA, kWh, kVAr suitable for 3 Phase 4 wire LT network with IP 54 degree of protection and completely wired as required.	7	No.	17,874	125,118	TWAD SR 2021-22, III (C) Rates for Electromechanical Items, Sl.No. 2(a), Page 132.
	Supplying and fixing of LED type panel board indicating lamp with required colour suitable for 220V, AC 50 Hz	90	No.	465	41,858	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	Supplying and fixing of LED type panel board indicating lamp for Phase indication ndicating lamp with required colour suitable for 220V, AC 50 Hz (Red, Yellow, Blue).	6	Set	1,395	8,372	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	Supply and erecting hooters with CRCA enclosure complete as per specification No. FF-FAAS/HTR	1	No.	670	670	PWD Maharashtra CSR 2018-19 Item no. 13-8-6, Page 229
	<b>Sub-Total</b>				<b>1,325,499</b>	
	The cost for fabrication panel, Copper/Al busbars, interconnecting cables, mounting fasteners, terminal box, Voltmeter, ammeters, lamps, etc. Installation, Commissioning and transportation				463,925	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Grand Total</b>				<b>1,789,424</b>	

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
Item-2	<b>415V APFC Panel</b>					
	Supply and erecting 415V, 250kVAR 3phase, 50HZ. Capacitor duty contactor with delatching mechanism microprocessor APFC controller with MPP/APP type capacitor with 520V and having min. o/c capacity of 1.8In, peak inrush current capacity 300In and min. life 150000 hrs. with consisting of suitable steps with detunned filter, 7% reactors with main incomer breaker and MCCB for branch protection	1	No.	647,114	647,114	Maharashtra PWD CSR 2018-19 Item no. 6-7-22, Page 123
	<b>Grand Total</b>				<b>647,114</b>	
Item-3	<b>Main LDB</b>					
	I/C-63A MCCB (TPN)	2	No.	12,788	25,576	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	O/G: 32A MCCB (TPN)	5	No.	12,788	63,940	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	Multi Functions Meters - Flush type for M V Panel Board LED type, CT/PT, Voltage, Current, Frequency, Kilowatt, Kilo Volt Ampere, KVAR , KVAH, Run Hours, unbalance(V,A),Rpm, Phase angles,Thd - Class 1 With RS 485 Port	1	No.	17,874	17,874	TWAD SR 2021-22, III (C) Rates for Electromechanical Items, Sl.No. 2(a), Page 132.
	Supplying, fixing & wiring of Current Transformer from 63/5 Ratio, 10 VA, class 1 accuracy	3	No.	523	1,569	AP building sor 2021-22, Item ELEC-6.2.5(a), Sl.No. 359, Page 537.
	Supplying and fixing of LED type panel board indicating lamp with required colour suitable for 220V, AC 50 Hz	3	No.	465	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	Supplying and fixing of LED type panel board indicating lamp for Phase indication indicating lamp with required colour suitable for 220V, AC 50 Hz ( Red, Yellow, Blue).	1	Set	1,395	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	<b>Sub-Total</b>				<b>111,750</b>	
	The cost for fabrication panel, Copper/Al busbars, interconnecting cables,mounting fasteners, terminal box etc. Installation, Commissioning and transportation				39,112	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Grand Total</b>				<b>150,862</b>	

<b>COST SUMMARY OF ELECTRICAL WORKS - KK NAGAR-NEW WDS</b>		
<b>Sr. No.</b>	<b>Description</b>	<b>Total Cost in INR</b>
	<b>Proposed Upgradation Estimate - KK Nagar-New WDS</b>	
1	415 V FCMA Soft Starter Panel	1,735,707
2	LT New Cables and Cable Carrier System	1,033,584
3	Lighting System	2,098,175
4	Earthing system (Replacement of corrosive Conductors)	167,826
5	Safety procedures	240,863
6	Minimum Testing, Maintenance and repair for existing Electrical system.	3,000,000
7	Miscellaneous and Incidental charges	1,655,231
	<b>Total Electrical Cost</b>	<b>9,931,386</b>

## BOQ For Electrical Works- WDS at KK Nagar-New, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
1	<b>Supply, Installation, Testing and Commissioning 415 V (Low Voltage) FCMA Soft-Starter Panel with necessary accessories with complete.</b>									
1.1	Supply and delivery of floor mounted type FCMA Air/ Oil Cooled Soft-starter suitable for the LT motor offered for operation in AC three Phase 50 Hz (+/-5%), 415V (+/-10%) including line contactors suitable for next standard higher KW rating, Overload relay, instrument panel with frequency meter, Ammeter, Voltmeter, indicating lamp 6 Nos, LED ON/OFF type and Start/ Stop push button.- <b>132 kW</b>	2	No.	475,006	10	47,501	522,507	522,507	1,045,013	TWAD SR 2021-22, Item No. 11.4, SI.No.3. Page No. 112
1.2	415 V, 400 A, LV Indoor Single MCCB complete with accessories as per specification	2	No.	45,742	10	4,574	50,316	50,316	100,632	TWAD SR 2021-22, Item No. 14, SI.No.7, Page No. 120
1.3	The cost for fabrication panel, Copper/Al busbars, interconnecting cables, mounting fasteners, terminal box etc.								400,976	35% of Total-A (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Sub Total-1(a)</b>								<b>1,546,622</b>	
1.4	<b>Supply, Installation, Testing and Commissioning for Local Push Button Station (LPBS) with all accessories complete</b>									
1.4.1	Start-Stop Push Buttons and Mushroom type Lockable Push button and associated accessories.	2	No.	422	10	42	464	464	928	ABB Electrification products Price list with effect from 15th April, 2021, Page no. 135 & 138.
1.4.2	LPBS Box- Industrial type TPMCB DB with IP 54 protection	2	No.	10,095	10	1,010	11,105	11,105	22,209	TWAD SOR 2021-22, Part XVII, Item no.4. Page 213
	<b>Sub Total-1(b)</b>								<b>23,137</b>	
1.5	<b>Supply, Erection, Testing and Commissioning of 415V (Low Voltage) Lighting Switchgears with necessary accessories with complete.</b>									
1.5.1	415V MLDB (Main Lighting Distribution Board) Panel	1	No.	150,862	10	15,086	165,948	165,948	165,948	Refer Item No.1, Appendix-2.
	<b>Sub Total-1(c)</b>								<b>165,948</b>	
	<b>Sub Total-1</b>								<b>1,735,707</b>	
2	<b>SITC &amp; Termination of 1.1 kV LT Cable with glands, Termination kits etc. with all required accessories. All complete works.</b>									
2.1	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3.5Core x 240 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	200	Mtr.	1,769	5	88	1,857	1,857	371,490	TWAD SR 2021-22, Item No. 12, SI.No.13, Page No. 116
2.2	Supply & Installation Aluminium conductor, XLPE, 1.1kV , 3 Core x 240 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	200	Mtr.	959	5	48	1,007	1,007	201,390	TWAD SR 2021-22, Item No. 12, SI.No.13, Page No. 116
2.3	Laying of cable in trench/ tray	0.5	km	49,214				49,214	24,607	ESCOM Common sr 2018-19, Cost Data sheet-23, SL No. 11(b)
	<b>Sub Total-2</b>								<b>597,487</b>	
3	<b>SITC &amp; Termination of LT Cabling with glands, lugs for 1.1kV Copper Power &amp; Control Cables with all required accessories. All complete works.</b>									
3.1	3C X 6 sq mm , Cu. Conductor (For MOVs)	350	Mtr.	354	10	35	389	389	136,290	TWAD SOR 2021-22, Item no. 12 and
3.2	4C X 2.5 sq mm , Cu. Conductor (For LPBS)	200	Mtr.	289	10	29	318	318	63,580	
3.3	3 core x 2.5 sqmm, Cu. Conductor	250	Mtr.	228	10	23	251	251	62,700	
	<b>Sub Total-3</b>								<b>262,570</b>	

## BOQ For Electrical Works- WDS at KK Nagar-New, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
4	<b>SITC of hot dip GI perforated cable tray with cover along with required angle supports, with coupler plates, Anchor bolts and nuts etc complete and the tray should be fitted on the wall / Ceiling etc. complete.</b>									
4.1	300mm x 50mm x 2mm (Power Cables)	200	Mtr.	393	5	20	413	413	82,530	TWAD SOR 2021-22, Part H, Item no. 6, Page 186
4.2	150mm x 50mm x 2mm (Control Cables)	200	Mtr.	322	5	16	338	338	67,620	
4.3	Laying of cable in trench	0.5	km	46,755				46,755	23,377	ESCOM Common sr 2018-19, Cost Data sheet-21, SL No.10(b)
	<b>Sub Total-4</b>								<b>173,527</b>	
5	<b>Supply, Installation, Testing and Commissioning of Lighting System/ Luminaires with following major equipment, items as per scope, specification and drawings.</b>									
5.1	Supply and transportation of <b>90W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingrees protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	20	No.	10,120	5	506	10,626	10,626	212,520	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (b), Page 481.
5.2	Supply and transportation of <b>150W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temperature < 70°C, with Ingrees protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	10	No.	13,340	5	667	14,007	14,007	140,070	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (d), Page 481.
5.3	Supply and fixing of <b>18W/20W</b> , 1200mm length <b>LED batten light</b> with extruded aluminium housing and polycarbonate cover, input voltage AC 220 - 260 Volts with PF>0.9, Surge protection: 2KV, THD<15%, with inbuilt driver and frosted cover CCT: 3000K - 5700K, minimum CRI>70, .etc., complete. (For MCC Rooms, Toilets and other indoor rooms)	50	No.	736	5	37	773	773	38,640	AP Building SoR 2021-22, Item no. ELEC-3.8.13, Page 475.
5.4	Supply of Surface/Recess mounted <b>Corrosion Resistant Recess mounted T5</b> mirror optics luminaires. ( <b>2x36W</b> For Battery Rooms)	4	No.	3,332	5	167	3,499	3,499	13,994	PWD Maharashtra sor 2018-19, item 2 3-1, page 34
5.5	Supply and transportation of <b>80W LED Street light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95 lm/W and junction temperature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	26	No.	11,775	5	589	12,364	12,364	321,458	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (c), Page 174.

## BOQ For Electrical Works- WDS at KK Nagar-New, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
5.6	Supply and transportation of <b>150W Flood light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	4	No.	17,350	5	868	18,218	18,218	72,870	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (e), Page 174.
5.7	Supply and transportation of <b>45W LED Peripheral light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	26	No.	4,943	5	247	5,190	5,190	134,944	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (b), Page 174.
5.8	Fixing Charges of Fittings									
5.9	Fixing all types & all capacities LED fittings <b>Indoor</b> on the wall /ceiling/rafters/gridders using 23 / 0.76 " twin twisted PVC insulated wires.	84	No.	253				253	21,260	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.7.2, Page 79.
5.10	Supply & fixing of 40mm dia. <b>GI Pipe bracket</b> up to 2.7 mtrs long for fixing MV/SV/MH/FTL street light fitting of all capacities on rail/RCC/Wall/tubular pole, using suitable clamps, bolts, nuts and wiring etc complete.	26	No.	1,311				1,311	34,083	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.2.3, Page 79.
5.11	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 10 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	26	No.	16,995				16,995	441,875	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.8, Page 13.
5.12	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 7.5 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	26	No.	13,260				13,260	344,771	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.6, Page 13.
5.13	<b>Point Wiring for lighting/fan circuits &amp; sockets</b>									
5.13.1	Primary Point (for a maximum of 10 meter length)									
a	Point wiring for <b>Lighting &amp; ceiling fan circuits</b> , lighting panel to modular switch box with 4 sq.mm PVC insulated Cu conductor cable of approved make in surface rigid GI conduit of suitable size, including paint etc as required as per specification, including switch, ceiling rose, metal flush box etc; all complete works.	12	No.	2,685	10	269	2,954	2,954	35,445	Refer Item-1 of Appendix-1
b	Point wiring for 3 pin 6/16Amps <b>Socket outlet point</b> on separate board 4 sq.mm PVC insulated Cu conductor cable, 6/16A switch etc of approved make in suitable size of the GI steel conduit including 6 sqmm GI earth continuity conductor in surface wiring system as per specification, including switch and socket ; all complete works	12	No.	3,812	10	381	4,193	4,193	50,313	Refer Item-2 of Appendix-1
5.13.2	Secondary Point (from primary tapping point to Light and fan points)									

## BOQ For Electrical Works- WDS at KK Nagar-New, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
	Secondary point from tapping point to Light and fan points									
a	Short point (not exceeding 3m)	60	No.	610	10	61	671	671	40,261	Refer Item-3 of Appendix-1
b	Medium point above 3m and up to 6m	40	No.	1,220	10	122	1,342	1,342	53,682	Refer Item-4 of Appendix-1
c	Long point above 6m and up to 10m	40	No.	2,033	10	203	2,237	2,237	89,470	Refer Item-5 of Appendix-1
5.13.3	Plug and Sockets in Sheet Steel Enclosure without MCBs									
a	20A Single Pole	20	No.	903	10	90	993	993	19,866	TWAD SOR 2021-22, Part L, Item no. 8 (b and e), Page 191.
b	32A Triple Pole	15	No.	1,979	10	198	2,177	2,177	32,654	
	<b>Sub Total-5</b>								<b>2,098,175</b>	
<b>6</b>	<b>SITC of GI strips for grounding connections, using necessary fixing materials as required.</b>									
6.1	50 x 10 mm GI (PCC, MCC Panels, Main Motors etc.)	250	Mtr.	352	10	35	387	387	96,800	AP building SOR 2021-22, item ELEC
6.2	50 x 6 mm GI (MCC Panels, Main Motors etc.)	200	Mtr.	176	10	18	194	194	38,720	
6.3	25 x 6 mm GI (Cable Trays, LDBs, street Lighting etc.)	200	Mtr.	83	10	8	91	91	18,260	
6.4	25 x 3 mm GI (Valve DBs, Fan DBs etc.)	200	Mtr.	46	10	5	51	51	10,120	
6.5	Supplying and running of <b>GI wire</b> for grounding and (along with other wires in conduit system of wiring) using necessary suitable size clamps, nails, guttas.spacers etc.									
6.5.1	12 SWG (Receptacles)	100	Mtr.	15	10	2	17	17	1,666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.1, Page 43.
6.5.2	8 SWG (Small Motors)	100	Mtr.	21	10	2	23	23	2,261	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.3, Page 44.
	<b>Sub Total-6</b>								<b>167,826</b>	
<b>7</b>	<b>Supply, Installation, Testing and commissioning of safety procedures for Electrical Equipments as per scope, specification and drawings.</b>									
7.1	Supply and Fixing of 2m x 1m Rubber Mat suitable for 11 KV installation confirming to IS	20	No..	3,712				3,712	74,232	TNPWD SOR 2021-22, Part M, Item no. 8 (b), Page 142.
7.2	Supplying and Erecting of Fire Extinguisher Co2, 4.5 kg. confirming to TAC Norms	10	No..	1,432				1,432	14,320	TNPWD SOR 2021-22, Part M, Item no. 8 (h), Page 142.
7.3	Supplying of Hand Gloves 11KV Grade	10	Pairs	1,908				1,908	19,080	TNPWD SOR 2021-22, Part M, Item no. 8 (f), Page 142.
7.4	Supplying First Aid Box complete with all First Aid Medicines.	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (c), Page 142.
7.5	Supplying and fixing Shock Treatment Chart fixed in glass frame	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (d), Page 142.
7.6	Supplying and fixing of Danger Board as required by the Electrical Authorities. (Medium Voltage)	15	No..	1,590				1,590	23,850	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.
7.7	Supplying and fixing of Danger Board as required by the Electrical Authorities. (High Voltage)	5	No..	1,590				1,590	7,950	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.

## BOQ For Electrical Works- WDS at KK Nagar-New, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
7.8	Teak Wood Ladder- 5Mtr Height	2	No.	1,667				1,667	3,334	TWAD SOR 2021-22, Section 18, Item no. 8, Page 122.
7.9	Earth Discharge Rod (3Nos. RYB)	2	No.	1,395				1,395	2,790	TWAD SOR 2021-22, Section 18, Item no. 9, Page 122.
7.10	Tools & Plant Machinaries	1	Job	78,347				78,347	78,347	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25. (Refer Appendix-1 Item No. 6.)
	<b>Sub Total-7</b>								<b>240,863</b>	
8	Existing Old Electrical Equipment and switchgears minimum Testing, Maintenance and repair with spares to run the system.		Job						3,000,000	Tentative Value only
9	Miscellaneous and Incidental charges (@20%)		Job						1,655,231	
	<b>Grand Total</b>								<b>9,931,386</b>	

SITC : Supply, Installation, Testing &amp; Commissioning

ITC : Installation, Testing &amp; Commissioning

GST : Goods Service Tax

## BOQ For Electrical Works - KK Nagar-New WDS (Zone-X)

### Appendix-1

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
<b>Item-1</b>	<b>Primary point for Lighting and Fan Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 4-5 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc.	1	No.	111	111	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.2, Page 9.
	Supplying and fixing superior quality 4 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	135	135	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.2, Page 9.
	Supplying and fixing of modular 6A one way switch on existing modular switch plate	4	No.	73	291	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.1, Page 10.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	33	666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,685</b>	
<b>Item-2</b>	<b>Primary Point for socket Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 6-8 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc	1	No.	151	151	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.4, Page 9.
	Supplying and fixing superior quality 8 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	216	216	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.4, Page 9.

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Supplying and fixing of modular 16A one way switch on existing modular switch plate	4	No.	124	498	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Supplying and fixing of modular 6/16A universal socket on existing modular switch plate	2	No.	175	350	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	49	973	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.4, Page 6
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	49	487	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	<b>Grand Total</b>				<b>3,812</b>	
<b>Item-3</b>	<b>Secondary Point for Lighting and Fan (Short point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	3	Mtr.	100	299	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 3 Mtr.s)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	3	Mtr.	35	104	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>610</b>	
<b>Item-4</b>	<b>Secondary Point for Lighting and Fan (Medium point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	6	Mtr.	100	597	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 6 Mtr.s)	12	Mtr.	35	415	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>1,220</b>	
<b>Item-5</b>	<b>Secondary Point for Lighting and Fan (Long point)</b>					

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	100	995	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using <b>2.5</b> sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	35	692	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using <b>2.5</b> sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,033</b>	
<b>Item-6</b>	<b>Tools and Plant</b>					
	Live Line Tester	5	No.	<b>222</b>	1,110	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25.
	Insulation Tester (Megger) 2.5kV-5kV	1	No.	<b>12,598</b>	12,598	
	Multimeter electronic type	2	No.	<b>7,003</b>	14,006	
	Earth Resistance Tester	2	No.	<b>20,124</b>	40,247	
	Rubber Shoes Knee Height	3	No.	<b>1,530</b>	4,589	
	DC Voltmeter range - 3V to +5V	3	No.	<b>1,932</b>	5,795	
	<b>Grand Total</b>				<b>78,347</b>	

## BOQ For Electrical Works - KK Nagar-New WDS

### Appendix-2

Item-1	Main LDB					
	I/C-63A MCCB (TPN)	2	No.	12,788	25,576	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	O/G: 32A MCCB (TPN)	5	No.	12,788	63,940	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.
	Multi Functions Meters - Flush type for M V Panel Board LED type, CT/PT, Voltage, Current, Frequency, Kilowatt, Kilo Volt Ampere, KVAR , KVAH, Run Hours, unbalance(V,A),Rpm, Phase angles,Thd - Class 1 With RS 485 Port	1	No.	17,874	17,874	TWAD SR 2021-22, III (C) Rates for Electromechanical Items, Sl.No. 2(a), Page 132.
	Supplying, fixing & wiring of Current Transformer from 63/5 Ratio, 10 VA, class 1 accuracy	3	No.	523	1,569	AP building sor 2021-22, Item ELEC-6.2.5(a), Sl.No. 359, Page 537.
	Supplying and fixing of LED type panel board indicating lamp with required colour suitable for 220V, AC 50 Hz	3	No.	465	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	Supplying and fixing of LED type panel board indicating lamp for Phase indication indicating lamp with required colour suitable for 220V, AC 50 Hz ( Red, Yellow, Blue).	1	Set	1,395	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.
	<b>Sub-Total</b>				<b>111,750</b>	
	The cost for fabrication panel, Copper/Al busbars, interconnecting cables,mounting fasteners, terminal box etc. Installation, Commissioning and transportation				39,112	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Grand Total</b>				<b>150,862</b>	

**COST SUMMARY OF ELECTRICAL WORKS- VALLUVARKOTTAM WDS**

<b>Sr. No.</b>	<b>Description</b>	<b>Total Cost in INR</b>
	<b>Proposed Upgradation Estimate - Valluvarkottam</b>	
1	3.3 kV MV Switchgear- FCMA Soft Starter Panel	3,622,546
	LV Panels and DBs	165,948
2	MV & LV New Cables and Cable Carrier System	638,795
3	Lighting System	2,275,535
4	Earthing system	148,466
5	Safety procedures	240,863
6	Minimum Testing, Maintenance and repair for existing Electrical system.	4,000,000
7	Miscellaneous and Incidental charges	2,218,430
	<b>Total Electrical Cost</b>	<b>13,310,583</b>

## BOQ For Electrical Works- WDS at Valluvarkottam, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
1	<b>Supply, Installation,Testing and Commissioning 3.3kV (Medium Voltage) FCMA Soft-Starter Panel with necessary accessories with complete.</b>									
1.1	Supply and delivery of suitable KW indoor automatic air cooled dust and vermin proof <b>FCMA Soft Starter</b> for the operation in 3.3 KV three Phase 50 HZ, AC supply termination with phase segregated neutral terminal box of the motor , housed in 14 SWG sheet steel enclosure, painted with epoxy or polyurethane , 230V AC 10 Amps control supply , Class B insulation, 300 mm height fabricated pedestal (to prevent water ingress for starter panel) and condensation heater with switch and thermostat, interlocking with running motor with built in facility for run mode/by pass etc. complete. The starter may be provided with contactors suitable for next standard higher KW rating, Over load relay, instrument panel with frequency meter, Ammeter, Voltmeter, indicating lamp 6 Nos, LED ON/OFF type and Start /Stop push button.- <b>120kW</b>	2	No.	766,922	10	76,692	843,614	843,614	1,687,228	TWAD SR 2021-22, Item No. 11.5, SI.No.1. Page No. 113
1.2	3.3 KV, 25 KA, 400 A, MV Indoor Single Panel Vacumm Circuit Breaker complete as per specification	2	No.	445,000	10	44,500	489,500	489,500	979,000	TWAD SOR 2021-22, Part M, Item no. 1(a)*, Page 193.
1.3	The cost for fabrication panel, Copper/Al busbars, interconnecting cables, mounting fasteners, terminal box etc.								933,180	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)
	<b>Sub Total-1(a)</b>								<b>3,599,408</b>	
1.4	<b>Supply, Installation, Testing and Commissioning for Local Push Button Station (LPBS) with all accessories complete</b>									
1.4.1	Start-Stop Push Buttons and Mushroom type Lockable Push button and associated accessories.	2	No.	422	10	42	464	464	928	ABB Electrification products Price list with effect from 15th April, 2021, Page no. 135 & 138.
1.4.2	LPBS Box- Industrial type TPMCB DB with IP 54 protection	2	No.	10,095	10	1,010	11,105	11,105	22,209	TWAD SOR 2021-22, Part XVII, Item no.4, Page 213
	<b>Sub Total-1(b)</b>								<b>23,137</b>	
	<b>Sub Total-1</b>								<b>3,622,546</b>	
2	<b>Supply, Erection, Testing and Commissioning of 415V (Low Voltage) Switchgear Panels &amp; DBs with necessary accessories with complete.</b>									
2.1	415V MLDB (Main Lighting Distribution Board) Panel	1	No.	150,862	10	15,086	165,948	165,948	165,948	Refer Item No.1, Appendix-2.
	<b>Sub Total-2</b>								<b>165,948</b>	
3	<b>SITC &amp; Termination of 3.3 kV MV Cable with glands, Termination kits etc. with all required accessories. All complete works.</b>									
3.1	Supplying and erecting Aluminium conductor, XLPE, 3.3kV , 3Core x 120 sq.mm armoured cable complete installed in trench/ on trays as per direction of Engineer.	200	Mtr.	1,178	5	59	1,237	1,237	247,380	TWAD SR 2021-22, Item No. 12.5, SI.No.4*. Page No. 119
3.2	Indoor Termination Kit for 3.3kV XLPE Screened 3 Core x 120 sq.mm cable	8	Nos.	15,200	5	760	15,960	15,960	127,680	TWAD SOR 2021-22, Part M, Item no. XIII - 6(c), Page 195.
3.3	Laying of cable in trench/ tray	0.25	km	49,214				49,214	12,303	ESCOM Common sr 2018-19, Cost Data sheet-23, SL No. 11(b)
	<b>Sub Total-3</b>								<b>387,363</b>	
4	<b>SITC &amp; Termination of LT Cabling with glands, lugs for 1.1kV Copper Power &amp; Control Cables with all required accessories. All complete works.</b>									

## BOQ For Electrical Works- WDS at Valluvarkottam, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
4.1	3C X 6 sq mm , Cu. Conductor (For MOVs)	240	Mtr.	354	10	35	389	389	93,456	TWAD SOR 2021-22, Item no. 12 and 12.3, Page 116 and 118.
4.2	4C X 2.5 sq mm , Cu. Conductor (For LPBS)	120	Mtr.	289	10	29	318	318	38,148	
4.3	3 core x 2.5 sqmm, Cu. Conductor	120	Mtr.	228	10	23	251	251	30,096	
	<b>Sub Total-4</b>								<b>161,700</b>	
5	<b>SITC of hot dip GI perforated cable tray with cover along with required angle supports, with coupler plates, Anchor bolts and nuts etc complete and the tray should be fitted on the wall / Ceiling etc. complete.</b>									
5.1	300mm x 50mm x 2mm (Power Cables)	100	Mtr.	396	5	20	416	416	41,580	TWAD SOR 2021-22, Part H, Item no. 6, Page 186
5.2	150mm x 50mm x 2mm (Control Cables)	100	Mtr.	325	5	16	341	341	34,125	
5.3	Laying of cable tray in trench	0.3	km	46,755				46,755	14,026	ESCOM Common sr 2018-19, Cost Data sheet-21, SL No.10(b)
	<b>Sub Total-5</b>								<b>89,731</b>	
6	<b>Supply, Installation, Testing and Commissioning of Lighting System/ Luminaires with following major equipment, items as per scope, specification and drawings.</b>									
6.1	Supply and transportation of <b>90W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast alluminium housing with powder coated,Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	30	No.	10,120	5	506	10,626	10,626	318,780	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (b), Page 481.
6.2	Supply and transportation of <b>150W LED High Bay Luminaire</b> with high power COB LED made of pressure diecast aluminium housing with powder coated,Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >100 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP66, IK05, Driver surge protection 4KV, In house additional Surge protection ≥ 5KV with wide/ Narrow beam optics, THD<10% at 110 Volts AC, driver efficiency >90%, , CCT: 3000K - 5700K, minimum CRI>70, etc., complete. (For Pump House Low area).	20	No.	13,340	5	667	14,007	14,007	280,140	AP Building SoR 2021-22, Item no. ELEC-3.8.29 (d), Page 481.
6.3	Supply and fixing of <b>20-24W</b> , not less than 1100mm length LED batten light with extruded alluminium housing and polycarbonate cover, input voltage AC 220 - 260 Volts with PF>0.9, Surge protection: 2KV,THD<15%, with inbuilt driver and frosted cover CCT: 3000K - 5700K, minimum CRI>70, .etc., complete. (For MCC Rooms, Toilets and other indoor rooms)	60	No.	736	5	37	773	773	46,368	AP Building SoR 2021-22, Item no. ELEC-3.8.13, Page 475.
6.4	<b>Supply of Surface/Recess mounted Corrosion Resistant Recess mounted T5 mirror optics luminaires. (2x36W For Battery Rooms)</b>	4	No.	3,332	5	167	3,499	3,499	13,994	PWD Maharastra sor 2018-19, item 2 3-1, page 34

## BOQ For Electrical Works- WDS at Valluvarkottam, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
6.5	Supply and transportation of <b>80W LED Street light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95 lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	25	No.	11,775	5	589	12,364	12,364	309,094	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (c), Page 174.
6.6	Supply and transportation of <b>150W Flood light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	4	No.	17,350	5	868	18,218	18,218	72,870	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (e), Page 174.
6.7	Supply and transportation of <b>45W LED Peripheral light Luminaire</b> made of pressure diecast aluminium body with powder coated, having protective toughned glass, Supply Input voltage 120 - 270 V AC, P.F > 0.90, high power LED's having efficacy >120 lumines/watt, System efficacy >95lm/W and junction temprature < 70°C, with Ingrees protection IP65, Driver surge protection 4KV, external Surge protection ≥ 5KV with optics distribution Type II medium, THD<10% at 110 Volts AC, driver efficiency >90%, CCT: 3000K - 5700K, minimum CRI>70, etc., complete	30	No.	4,943	5	247	5,190	5,190	155,705	TWAD SOR 2021-22, Electrical items of work, Part A, Item no. 17 (b), Page 174.
6.8	Fixing Charges of Fittings									
6.9	Fixing all types & all capacities LED fittings <b>Indoor</b> on the wall /ceiling/rafters/gridders using 23 / 0.76 " twin twisted PVC insulated wires.	114	No.	253				253	28,853	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.7.2, Page 79.
6.10	Supply & fixing of 40mm dia. <b>GI Pipe bracket</b> up to 2.7 mtrs long for fixing MV/SV/MH/FTL street light fitting of all capacities on rail/RCC/Wall/tubular pole, using suitable clamps, bolts, nuts and wiring etc complete.	30	No.	1,311				1,311	39,327	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 14.2.3, Page 79.
6.11	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 10 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	25	No.	16,995				16,995	424,880	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.8, Page 13.
6.12	Fabricating, supplying & erecting Galvanised <b>Octagonal pole</b> of 7.5 mtr height with MS base plate, 40 mm dia gl/flexible PVC pipe of 1 mtr length, polycarbonate control box, MCB/DP switch erected in Cement concrete work(1:2:4) including excavation & refilling.	25	No.	13,260				13,260	331,510	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 4.2.6, Page 13.
6.13	<b>Point Wiring for lighting/fan circuits &amp; sockets</b>									
6.13.1	Primary Point (for a maximum of 10 meter length)									

## BOQ For Electrical Works- WDS at Valluvarkottam, Zone-X

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
a	Point wiring for <b>Lighting &amp; ceiling fan circuits</b> , lighting panel to modular switch box with 4 sq.mm PVC insulated Cu conductor cable of approved make in surface rigid GI conduit of suitable size, including paint etc as required as per specification, including switch, ceiling rose, metal flush box etc; all complete works.	10	No.	2,685	10	269	2,954	2,954	29,537	Refer Item-1 of Appendix-1
b	Point wiring for 3 pin 6/16Amps <b>Socket outlet point</b> on separate board 4 sq.mm PVC insulated Cu conductor cable, 6/16A switch etc of approved make in suitable size of the GI steel conduit including 6 sqmm GI earth continuity conductor in surface wiring system as per specification, including switch and socket ; all complete works	10	No.	3,812	10	381	4,193	4,193	41,927	Refer Item-2 of Appendix-1
6.13.2	Secondary Point (from primary tapping point to Light and fan points)									
	Secondary point from tapping point to Light and fan points									
a	Short point (not exceeding 3m)	50	No.	610	10	61	671	671	33,551	Refer Item-3 of Appendix-1
b	Medium point above 3m and up to 6m	30	No.	1,220	10	122	1,342	1,342	40,261	Refer Item-4 of Appendix-1
c	Long point above 6m and up to 10m	30	No.	2,033	10	203	2,237	2,237	67,102	Refer Item-5 of Appendix-1
6.13.3	Plug and Sockets in Sheet Steel Enclosure without MCBs									
a	20A Single Pole	20	No.	903	10	90	993	993	19,866	TWAD SOR 2021-22, Part L, Item no. 8 (b and e), Page 191.
b	32A Triple Pole	10	No.	1,979	10	198	2,177	2,177	21,769	
	<b>Sub Total-6</b>								<b>2,275,535</b>	
7	<b>SITC of GI strips for grounding connections, using necessary fixing materials as required.</b>									
7.1	50 x 10 mm GI (PCC, MCC Panels, Main Motors etc.)	200	Mtr.	352	10	35	387	387	77,440	AP building SOR 2021-22, item ELEC
7.2	50 x 6 mm GI (MCC Panels, Main Motors etc.)	200	Mtr.	176	10	18	194	194	38,720	
7.3	25 x 6 mm GI (Cable Trays, LDBs, street Lighting etc.)	200	Mtr.	83	10	8	91	91	18,260	
7.4	25 x 3 mm GI (Valve DBs, Fan DBs etc.)	200	Mtr.	46	10	5	51	51	10,120	
7.5	Supplying and running of <b>GI wire</b> for grounding and (along with other wires in conduit system of wiring) using necessary suitable size clamps, nails, guttas, spacers etc.									
7.5.1	12 SWG (Receptacles)	100	Mtr.	15	10	2	17	17	1,666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.1, Page 43.
7.5.2	8 SWG (Small Motors)	100	Mtr.	21	10	2	23	23	2,261	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 6.18.3, Page 44.
	<b>Sub Total-7</b>								<b>148,466</b>	
8	<b>Supply, Installation, Testing and commissioning of safety procedures for Electrical Equipments as per scope, specification and drawings.</b>									
8.1	Supply and Fixing of 2m x 1m Rubber Mat suitable for 11 KV installation confirming to IS	20	No..	3,712				3,712	74,232	TNPWD SOR 2021-22, Part M, Item no. 8 (b), Page 142.
8.2	Supplying and Erecting of Fire Extinguisher Co2, 4.5 kg. confirming to TAC Norms	10	No..	1,432				1,432	14,320	TNPWD SOR 2021-22, Part M, Item no. 8 (h), Page 142.

**BOQ For Electrical Works- WDS at Valluvarkottam, Zone-X**

Sr No.	Description	Qty	Unit	Basic Rate in INR	ITC%	ITC in INR	Unit Price with ITC	Unit Price with GST	Total Amount in INR	Reference
8.3	Supplying of Hand Gloves 11KV Grade	10	Pairs	1,908				1,908	19,080	TNPWD SOR 2021-22, Part M, Item no. 8 (f), Page 142.
8.4	Supplying First Aid Box complete with all First Aid Medicines.	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (c), Page 142.
8.5	Supplying and fixing Shock Treatment Chart fixed in glass frame	5	No..	1,696				1,696	8,480	TNPWD SOR 2021-22, Part M, Item no. 8 (d), Page 142.
8.6	Supplying and fixing of Danger Board as required by the Electrical Authorities. (Medium Voltage)	15	No..	1,590				1,590	23,850	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.
8.7	Supplying and fixing of Danger Board as required by the Electrical Authorities. (High Voltage)	5	No..	1,590				1,590	7,950	TNPWD SOR 2020-21, Part M, Item no. 8 (g), Page 140.
8.8	Teak Wood Ladder- 5Mtr Height	2	No.	1,667				1,667	3,334	TWAD SOR 2021-22, Section 18, Item no. 8, Page 122.
8.9	Earth Discharge Rod (3Nos. RYB)	2	No.	1,395				1,395	2,790	TWAD SOR 2021-22, Section 18, Item no. 9, Page 122.
8.10	Tools & Plant Machinaries	1	Job	78,347				78,347	78,347	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25. (Refer Appendix-1 Item No. 6.)
	<b>Sub Total-8</b>								<b>240,863</b>	
9	Existing Old Electrical Equipment and switchgears minimum Testing, Maintenance and repair with spares to run the system.		Job						4,000,000	Tentative Value only
10	Miscellaneous and Incidental charges (@20%)		Job						2,218,430	
	<b>Grand Total</b>								<b>13,310,583</b>	

SITC : Supply, Installation, Testing &amp; Commissioning

ITC : Installation, Testing &amp; Commissioning

GST : Goods Service Tax

### BOQ For Electrical Works - Valluvarkottam WDS (Zone-X)

#### Appendix-1

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
<b>Item-1</b>	<b>Primary point for Lighting and Fan Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 4-5 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc.	1	No.	111	111	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.2, Page 9.
	Supplying and fixing superior quality 4 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	135	135	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.2, Page 9.
	Supplying and fixing of modular 6A one way switch on existing modular switch plate	4	No.	73	291	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.1, Page 10.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	33	666	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,685</b>	
<b>Item-2</b>	<b>Primary Point for socket Circuits for a maximum of 10 meter length</b>					
	Supplying heavy gauge PVC Open conduit pipe 40mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	114	1,136	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.4, Page 2.
	Supplying and surface / flush mounting 6-8 way unbreakable PVC modular box suitable for mounting modular switch plates. The box should be firmly/surface/flush mounted after due groove cutting in brick / cc wall, fixing including necessary rawl plugs, Machine/NF screws etc	1	No.	151	151	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.3.4, Page 9.
	Supplying and fixing superior quality 8 module modular switch mounting polycarbonate plate with necessary supporting back plate with required No.. of machine screwws, bolts nuts etc., complete on the existing metal / PVC box.	1	No.	216	216	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.5.4, Page 9.

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Supplying and fixing of modular 16A one way switch on existing modular switch plate	4	No.	124	498	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Supplying and fixing of modular 6/16A universal socket on existing modular switch plate	2	No.	175	350	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 3.6.11, Page 10.
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	49	973	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.4, Page 6
	Wiring for lighting/power circuit using 4 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	49	487	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	<b>Grand Total</b>				<b>3,812</b>	
<b>Item-3</b>	<b>Secondary Point for Lighting and Fan (Short point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	3	Mtr.	100	299	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 3 Mtr.s)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	3	Mtr.	35	104	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>610</b>	
<b>Item-4</b>	<b>Secondary Point for Lighting and Fan (Medium point)</b>					
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	6	Mtr.	100	597	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 6 Mtr.s)	12	Mtr.	35	415	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	6	Mtr.	35	208	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>1,220</b>	
<b>Item-5</b>	<b>Secondary Point for Lighting and Fan (Long point)</b>					

Item No.	Description	Qty.	Unit	Unit Price	Total Price	Reference
	Supplying heavy gauge PVC Open conduit pipe 32mm dia and 2.5mm thick confirming to IS 2509 with suitable size bends, junction boxes, adhesive paste etc, and fixing using inverted wood plugs in case of RCC ceiling and RCC wall stone structure or rawl plugs in case of brick walls and cement plastering damaged portion using heavy gauge saddles at an interval of 700mm using WF screws	10	Mtr.	100	995	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 1.1.3, Page 2.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For Phase & Neutral each 10 Mtr.s)	20	Mtr.	35	692	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.3, Page 6.
	Wiring for lighting/power circuit using 2.5 sq.mm PVC insulated 1100V grade, copper conductor single core cable in open system of wiring. (For earthing)	10	Mtr.	35	346	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 2.3.2, Page 5.
	<b>Grand Total</b>				<b>2,033</b>	
<b>Item-6</b>	<b>Tools and Plant</b>					
	Live Line Tester	5	No.	222	1,110	KPTCL SR Dated 01.06.2019, Part-I, Item no. 12.14, 12.28, 12.35, 12.37, 12.41, 12.48, Page 23, 24 & 25.
	Insulation Tester (Megger) 2.5kV-5kV	1	No.	12,598	12,598	
	Multimeter electronic type	2	No.	7,003	14,006	
	Earth Resistance Tester	2	No.	20,124	40,247	
	Rubber Shoes Knee Height	3	No.	1,530	4,589	
	DC Voltmeter range - 3V to +5V	3	No.	1,932	5,795	
	<b>Grand Total</b>				<b>78,347</b>	

**BOQ For Electrical Works - Valluvarkottam WDS****Appendix-2**

<b>Item-1</b>	<b>Main LDB</b>						
	I/C-63A MCCB (TPN)	2	No.	12,788	25,576	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.	
	O/G: 32A MCCB (TPN)	5	No.	12,788	63,940	TWAD SR 2021-22, Item 14, Sl.No. 1, Page 120.	
	Multi Functions Meters - Flush type for M V Panel Board LED type, CT/PT, Voltage, Current, Frequency, Kilowatt, Kilo Volt Ampere, KVAR , KVAH, Run Hours, unbalance(V,A),Rpm, Phase angles,Thd - Class 1 With RS 485 Port	1	No.	17,874	17,874	TWAD SR 2021-22, III (C) Rates for Electromechanical Items, Sl.No. 2(a), Page 132.	
	Supplying, fixing & wiring of Current Transformer from 63/5 Ratio, 10 VA, class 1 accuracy	3	No.	523	1,569	AP building sor 2021-22, Item ELEC-6.2.5(a), Sl.No. 359, Page 537.	
	Supplying and fixing of LED type panel board indicating lamp with required colour suitable for 220V, AC 50 Hz	3	No.	465	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.	
	Supplying and fixing of LED type panel board indicating lamp for Phase indication lamp with required colour suitable for 220V, AC 50 Hz (Red, Yellow, Blue).	1	Set	1,395	1,395	KPWD SOR for Electrical Works 2019 - 2020, Sr.No. 5.38, Page 29.	
	<b>Sub-Total</b>				111,750		
	The cost for fabrication panel, Copper/Al busbars, interconnecting cables,mounting fasteners, terminal box etc. Installation, Commissioning and transportation				39,112	35% of Sub Total (Ref. from TWAD SR 2021-22, Item No. 14, Note-4, Page 120)	
	<b>Grand Total</b>				150,862		