

# REPORT ON

## REVISED WATER SUPPLY SCHEME

### UNDER UIDSSMT PROGRAMME

#### FOR ARAMBAG MUNICIPALITY

*Municipal Engineering Directorate  
Department of Municipal Affairs  
Govt. of West Bengal*

**MAY 2011**

# PREFACE

## PREFACE

Arambag is the sub-divisional head quarters of Hooghly District and is located about 150 kms away of state capital Kolkata and 90 kms from district head quarter Hooghly and is well connected by roads. Nearest rail way station is Tarokeswar and is about 40 kms from the municipal town.

Water supply system of the town is an old one being inadequate both in terms of coverage and per capita supply rate.

Preparation of the design of proposed water supply scheme under the above plan has been taken up as per State Urban strategy plan. It is anticipated that the implementation of the above programme will upgrade the basic urban infrastructure in a big way. It will also help the ULBs to become self reliant.

It is anticipated that the introduction of this programme will go a long way to upgrade and improve the status of this most basic urban infrastructure i.e. water supply in the town. Original project report has been prepared for a tentative outlay of **Rs 1122.21 Lakh** and the physical schemes has been identified in consultation with the municipal authority taking the existing scenario in view.

But the necessity for revision of the original DPR has been felt considering the existing scenario in view. The factors influencing the changes have been incorporated in a table under the column "Reasons for Saving or Excess". While preparing the detailed estimates for tendering purposes, it was noticed that the

cost of different components were increased substantially, chiefly due to the unprecedented escalation of prices of all important construction materials including prices of fuel and labour during the period of implementation. Besides, there are some modifications made in the scope of work due to the requirement as per the actual site condition.

The revised project report is prepared incorporating the detailed estimates of various components as per the prevailing PWD and PHE Schedule of Rates (May, 2008 & August, 2010) and also as per the prevailing market rates for E/M Works. It has been found that the total cost involvement as per the **Revised DPR stands at Rs. 1336.94** whereas the cost of the **Original DPR was Rs. 1122.21 lakh**. Hence an **Excess of Rs. 214.73 lakh** will be needed to complete the entire project in all respects. An abstract in tabular form along with annexure drawing a comparison with the original sanctioned cost is furnished mentioning the reasons / justification for such changes in the original DPR.

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# **PROJECT PROFILE**



## PROJECT PROFILE

01	Name of State	:	WEST BENGAL
02	Name of Town	:	ARAMBAGH
03	Name of District	:	HOOGHLY
04	Population	:	Total Design Population for 5 (Five) Zones = 91,778 Nos.
05	Daily Water Demand	:	8.73 MLD
06	Per Capita Water Supply	:	70 lpcd
07	Source of Water	:	Ground Water
08	Hours of Pumping	:	12 hrs. / day
09	Hours of Supply	:	8 hrs. / day
10	No. of Elevated Reservoir	:	5 (Five) nos. including Existing one.
11	No. of CWR	:	4 (Four) Nos.
12	Length and Dia of the Rising Main		
	a) From TW to CWR		
	Zone - II	:	4020 mtr. 150 mm dia DI (K9) Pipe.
	Zone - III	:	830 mtr. 150 mm dia DI (K9) Pipe.
	Zone - IV	:	1430 mtr. 150 mm dia DI (K9) Pipe.
	b) From CWR to Overhead Reservoir		
	Zone - II to Zone - IV	:	50 mtr. 250 mm dia DI (K9) Pipe. (for each Zone)
	c) From TW to OHR for Zone - V	:	350 m. Long 150 mm dia DI (K9) Pipe.
13	Capital cost of the Scheme	:	Rs. 1122.21 Lakh (plus Rs. 56.11 Lakh incentives)
14	Per capita cost on 2038 AD Population	:	Rs. 1222.74
15	Annual O&M Charges	:	Rs. 78.06 Lakh

- 16 Implementation Period  
i) Date of Commencement : 2007  
ii) Date of Completion : 2009
- 17 Agency responsible for  
a) Implementation : Municipal Engineering Dte,  
Government of West Bengal.  
b) O&M : Arambagh Municipality.
- 18 Funding Pattern  
Govt. of India : Rs. 953.88 Lakh  
(including incentives)  
Govt. of West Bengal : Rs. 112.22 Lakh  
Local Body : Rs. 112.22 Lakh

**Revised Project Cost : Rs. 1336.94 Lakhs**

**Funding Pattern**

**Govt. of India : Rs. 1069.55 Lakh**

**(including incentives)**

**Govt. of West Bengal : Rs. 133.69 Lakh**

**Local Body : Rs. 133.69 Lakh**

# ABSTRACT

# ARAMBAGH MUNICIPALITY

## Water Supply Project under UIDSSMT (Revised)

### ABSTRACT

**Revised Project Cost :- Rs. 1336.94 Lakhs**

**Sanctioned Project Cost :- Rs. 1122.21 Lakhs**

Rs. In Lakhs

Sl. No.	Name of Components	DRP Quantity	DPR Cost	Probable Revised Quantity	Revised Amount	Excess Amount	Saving Amount	Reasons for Saving or Excess
1	Sinking of Deep Tube Wells	5 Nos.	27.66	5 Nos.	13.74		-13.92	Depth of tube wells was reduced based on the field report obtained through Electro logging on account of change of locations of tube wells. Aquifer was explored at a comparative lesser depth. The total cost thus derived is found to be less than the cost considered in the original DPR. Annexure - I
2	Construction of Pump House with chlorine chamber.	3 Nos.	6.12	4 Nos.	8.13	2.01		Prices of building materials were also increased resulting in escalation of price. Ref. Annexure-II
3	E / M Components of (Submersible Pump)	14Nos	21.00	14Nos	14.17		-6.83	Scope of work (inclusion of column pipe etc.) and also specification of various items (pump head, discharge etc.) had to be changed according to field condition with respect to original DPR where in these items were inadvertently overlooked. Detailed description of works for different items of electromechanical works, mostly non-schedule in nature have been prepared to suit site condition and also as per the requirement for completion of the entire scheme. The lowest rate quoted for completion of this scheme has been found substantially more than the total lump sum cost considered in the DPR.
4	Construction of CWR with centrifugal pump house	3 Nos.	21.85	3 Nos.	37.40	15.55		Capacity of all three CWRs (in zone II, III & IV) were increased in accordance to the size of CWRs. In the DPR the sizes of the CWRs were considered less, inadvertently. Moreover price of materials were also increased resulting in a combined effect of increased cost. Ref. Annexure-III
5	E/M of CWR(Supply, delivery and installation pumping machineries (Centrifugal Pump)	6 Nos	21.00	6Nos	21.00			

Sl. No.	Name of Components	DRP Quantity	DPR Cost	Probable Revised Quantity	Revised Amount	Excess Amount	Saving Amount	Reasons for Saving or Excess
6	Construction of OHR	4 Nos. + 1 No renovation. (K-7) 78890 m (D. M.) (K-9)	122.80	4 Nos. + 1 No renovation. (K-7) 78890 m (D. M.) (K-9)	196.77	73.97		The price of materials were increased resulting in a combined effect of increased cost for all the OHR. Ref. Annexure-IV
7	Procurement of pipes and specials	9) 6780 m (R ,M.)	703.82	6780 m (R ,M.)	850.00	146.18		The cost of pipe of materials were increased resulting in a combined effect of price escalation. Annexure - V
8	Laying of Rising Main	(K-9) 4500 m	15.52	3900 m	5.71		-9.81	
9	Laying of Distribution Network	(K-7) 78890 m	112.44	78890 m	89.80		-22.64	
10	Service Connection from WBSEDCL	3 Zones	15.00	3 Zones	19.70	4.70		Cost derived on the basis of Quoted rate of State Electricity Distribution Company i.e. WBSEDCL
11	Electrification	4 Zones	20.00	4 Zones	20.00	0.00		
12	Chlorinator	4 Nos	2.32	5 nos	7.22	4.90		
13	Miscellaneous & other ancillaries work							
	a) Soil test for OHR			4 Nos	1.364	1.364		The soil test done for all the three sites to ensure the soil characteristic mainly bearing capacity of soil for economic design of foundation.
	b) OHR Boundary wall & Land Development			4 Zones	13.00	13.00		To ensure safety and security of the assets created and also for accessibility and visibility of the sites. The matters stated was not considered in the original DPR requiring additional expenditure. Annexure - VI
	Total		1089.53		1298.00	261.67	-53.20	
	Add 3 % Contingency		32.66		38.94	7.85	-1.60	
	<b>Grand Total</b>		<b>1122.21</b>		<b>1336.94</b>	<b>269.52</b>	<b>-54.80</b>	

**Water Supply Project under UIDSSMT component of JNNURM Programme at Arambagh Municipality**

**Abstract cost for five zones (Zone-I, Zone-II, Zone-III, Zone-IV & Zone-V)**

SL/NO	Name of work	Zone-I	Zone-II	Zone-III	Zone-IV	Zone-V	Total amount	
1	Sinking of Deep tube Wells	NIL	NIL	251420.00 Annex-I(i)	611716.00 Annex-I(ii)	510845.00 Annex-I(iii)	1373981.00	Depth of the Well was reduced in consistent with the aquifer explored <b>Ref Annex-I</b>
2	Construction of Pump House including chlorine chamber.	NIL	NIL	216212 Annex-II(i)	216212 Annex-II(ii)	216212 + 163902= 380114 Annex-II(iii)	812538.00	Additional Pump House had to be constructed since one existing pump house considered in DPR was not in good condition <b>Ref Annex-II</b>
3	E/M component of (submersible Pump)	NIL	405000.00	405000.00	405000.00	202000.00	1417000.00	Market rate available was less than the rate considered in DPR
4	Construction of CWR with Pump House for centrifugal pump	NIL	1170560.00 + 268446.00 = 1439006.00 Annex-III(i)	780363.00 + 268446.00 = 1048809.00 Annex-III(ii)	983430.00 + 268446.00 = 1251876.00 Annex-III(iii)	NIL	3739891.00	Capacity of CWR has been increased as approved by SLNA <b>Ref-Annex-III</b>
5	E/M of CWR(Supply, delivery and installation pumping machineries ( Centrifugal Pump)	NIL	700000.00	700000.00	700000.00	NIL	2100000.00	
6	Construction of OHR	542862 Annex-IV(i)	5927205 Annex-IV(ii)	4581543 Annex-IV(iii)	5991450 Annex-IV(iv)	2634182 Annex-IV(v)	19677242.00	OHR of 135 cum has been increased to 200 cum as per approval of SLNA. Though the amount sanctioned by SLNA is Rs 214.54Lakhs, the actual completion cost comes to around approx Rs 197.55 lakhs including the differential costings for material purchase <b>Ref Annex-IV</b>
7	Procurement of pipes and specials	15300000 Annex-V(i)	22900000 Annex-V(ii)	15400000 Annex-V(iii)	23000000 Annex-V(iv)	8400000 Annex-V(v)	85000000.00	Due to escalation of cost of the pipe and replacement of damaged AC Pipe <b>Ref Annex-V</b>
8	Laying of Rising Main		133530.00	109472+ 59596.00= 169068.00	151528.00	116874.00	571000.00	
9	Laying of Distribution Main	575700 + 3,48,000 + 3,48,000= 1271700.00	2098780 + 2,79,270 + 2,79,270 = 2657320.00	1728110 + 462405.00 = 2190515.00	1560450 + 201307 + 219182.00= 1980939.00	38,989+ 2,08120+ 632354.00= 879463.00	8979937.00	
10	Chlorinator	NIL	144400.00	144400.00	144400.00	288800.00	722000.00	One extra chlorinator is needed
11	Service connection	NIL		656670.00	656670.00	656670.00	1970010.00	As per the quotation available from WBSDC'L
12	electrification	NIL	500000.00	500000.00	500000.00	500000.00	2000000.00	
13	Miscellaneous	NIL						
	a) Soil test for OHR	NIL	34100.00	34100.00	34100.00	34100.00	136400.00	
	b) OHR boundary Wall & Land Development	NIL	310005 Annex-VI(i)	336030 Annex-VI(ii)	336030 Annex-VI(iii)	317940 Annex-VI(iv)	1300005.00	To ensure safety & security <b>Ref Annex-VI</b>
	<b>SUB-TOTAL</b>	17114562.00	35150566.00	26633767.00	35979921.00	14920988.00	129799804.00	
	<b>Contingency</b>						3893994.12	
	<b>TOTAL</b>						133693798.12	
						<b>Say, Rs:-</b>	<b>1336.94 Lakh</b>	

(Rupees Thirteen Crores Thirty Six Lakhs Ninty Four Thousand only)

# **ANNEXURE**

## Annexur I(i)

Sinking of Deep tube Well(300 mm x 200 mm SIZE) in Zone-III Arambagh Municipality under UIDSSMT component of JNNURM programme.

SL NO	DESCRIPTION OF ITEM	QTY.	RATE	UNIT	AMOUNT (CIVIL)
1	Mobilisation of all machineries equipments and other accessories belonging to the contractor including loading, unloading, staging, placing in position etc.	1	L.S.	3600.00	3600.00
2	Labour for boring through any type of soil for sinking tube well of required dia. with top enlargement by rig boring system (either by reverse circulation or by direct rotary method) including hire charges and labour for rig machine, tools and plants, staging, force pumping set and making arrangement for water required for boring etc. complete and lowering of pipes, strainers, blind pipes etc. complete.				
	(a) For depth upto 250 metre for 150 mm dia. Tube well with top enlargement of 300 mm dia.(upto 50 metre.)				
	(i) First 50 meter ( 0-50 m)	30.420	Mtr	1091.00	33188.22
	(ii) Next 50 meter ( 50m - 100 m)	25.290	Mtr	917.00	23190.93
	(iii) Bored depth no lowering (100m-102m)	44.290	Mtr	470.40	20834.02
	Note: (i) For item no. 2 measurement will be taken below G.L. taking G.L. as zero for payment. & for bored depth where no lowering of pipe is involved the corresponding rates would be reduced by 30%.				
3	Geophysical investigation of the aquifer by electrical logging system with all tools and plants as necessary including supply of necessary report.	1 Item	L.S.	6000.00	6000.00
4	(A) Supply of E.R.W.M.S. black pipe of approved make(heavy quality) as per standard specification, 5 mm thick.				
a	200 mm dia ( internal )	6.40	Mtr	2039.00	13049.60
b	300 mm dia. (internal)	30.870	Mtr	2851.00	88010.37
5	Supplying, fibre glass reinforced Epoxy resin slotted of 1 mm slot width in 6.1m length of approved make and as per direction of the Engineer - in - Charge				
	200 mm nominal dia				
	6 mm wall thickness	18.89	Mtr	3075.00	58086.75
6	Painting E.R.W.M.S. black pipe with zink chromate anti-corrosive paint 2 coats complete as per direction of the Engineer-in-charge.	33.08	M2	56.00	1852.48
	Labour for jointing and lowering G.I. or E.R.W. M.S. pipes including strainer within the tube well bore vertically with necessary sockets, special fittings and welding as required including cost of all jointing materials, hire charges of tools and plants, cutting pipes to required sizes, making threads, welding pieces together etc. as necessary as per direction of the Engineer-in-charge.				



	(i) Above 100 mm dia. and upto 200 mm dia. Pipe	25 29	Mtr	48.00	1213.92
	(ii) Above 200 mm dia. and upto 300 mm dia. Pipe	30 27	Mtr	65.00	1967.55
8	Sealing the annular space around the pipes by balls of rajasthan Bentonite Powder as per direction of E I C.	3 20	Mtr	1522.00	4870.40
9 a)	Providing and fixing bell plug as required upto 250 mm (internal) dia. ERWMS pipe including cost of materials and labour complete.	1	each	391.00	391.00
b)	Providing 200 mm centre guide.	6	set	138.00	828.00
c)	Supplying fitting and fixing M.S. Heavy type bell mouth reducing socket ( 200mm x 300 mm. dia )	1 no.	Each	1003.00	1003.00
d)	Supplying, fitting and fixing G.I. cap at top with locking arrangement. 300 mm	1	each	360.00	360.00
e)	Supplying, fitting and fixing 300 mm M.S. housing clamp of approved quality.	1	set	1349.00	1349.00
10	Packing the annular space between the outside of the tube well pipes & strainers and the bore with pea size washed gravel of approved quality having size from 2 mm to 5 mm or the size approved by the Engineer-in-charge including cost of all materials labour and equipment complete.	12.2000	cu. m.	1584.00	19324.80
	Note: Initial 6 m. of Annular space between the housing pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with surface water.				
11	Packing annular space between the outside of the housing pipe and the bore with puddled clay balls of approved size as per direction of the Engineer-in-charge with cost of all materials and labour complete.	1.36	cu. m.	120.00	163.20
12	Labour for making arrangement for showing verticality test including the cost for hire charges of tools and plants, scaffolding, labour etc. all complete.	1	L S.	540.00	540.00
13	Washing and developing tube well with air compressor pump and engine for 8 (eight) hours continuous pumping per day with necessary arrangements for testing the yield in gallons per hour with Pitot Tube including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.	3.0	day	4250.00	12750.00
14	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.	1 Item	Item	800.00	800.00
15	Supplying M.S. male / female adopter of approved make and brand for coupling of M.S. pipe and fibre glass strainers, as per direction of the Engineer - in - Charge. 200 mm dia	1 No	Item	2450.00	2450.00
<b>For one no. Deep Tubewell Estimated Cost = Rs.</b>					<b>295823.24</b>
<b>As per agreement @ 15.01% LESS</b>					<b>-44403.07</b>
<b>Rs:-</b>					<b>251420.17</b>
<b>Say Rs:-251420.00</b>					

## Annexur-I(ii)

Sinking of Deep tube Well(300 mm x 200 mm SIZE) in Zone-IV within Arambagh Municipality under  
UIDSSMT component of JNNURM programme.

SL NO	DESCRIPTION OF ITEM	QTY.	RATE	UNIT	AMOUNT (CIVIL)
1	Mobilisation of all machineries equipments and other accessories belonging to the contractor including loading, unloading, staging, placing in position etc.	1	L S	3600.00	3600.00
2	Labour for boring through any type of soil for sinking tube well of required dia. with top enlargement by rig boring system (either by reverse circulation or by direct rotary method) including hire charges and labour for rig machine, tools and plants, staging, force pumping set and making arrangement for water required for boring etc. complete and lowering of pipes, strainers, blind pipes etc. complete.				
	(a) For depth upto 250 metre for 150 mm dia. Tube well with top enlargement of 300 mm dia.(upto 50 metre.)				
	(i) First 50 meter ( 0-50 m)	33.480	Mtr	1091.00	36526.68
	(ii) Next 50 meter ( 50m - 100 m)	37.590	Mtr	917.00	34470.03
	iii) Bored depth no lowering (100m-102m)	28.930	Mtr	470.40	13608.67
	Note: (i) For item no. 2 measurement will be taken below G.L. taking G.L. as zero for payment, & for bored depth where no lowering of pipe is involved the corresponding rates would be reduced by 30%.				
3	Geophysical investigation of the aquifer by electrical logging system with all tools and plants as necessary including supply of necessary report.	1 item	L S.	6000.00	6000.00
4	(A) Supply of E.R.W.M.S. black pipe of approved make(heavy quality) as per standard specification, 5 mm thick.				
a	200 mm dia ( internal )	6.40	Mtr	2039.00	13049.60
b	300 mm dia. (internal)	31.930	Mtr	2851.00	91032.43
5	Supplying, fibre glass reinforced Epoxy resin slotted of 1 mm slot width in 6.1m length of approved make and as per direction of the Engineer - in - Charge				
	200 mm nominal dia				
	6 mm wall thickness	31.19	Mtr	3075.00	95909.25
6	Painting E.R.W.M.S. black pipe with zinc chromate anti-corrosive paint 2 coats complete as per direction of the Engineer-in-charge.	34.09	M2	56.00	1909.04
7	Labour for jointing and lowering G.I. or E.R.W. M.S. pipes including strainer within the tube well bore vertically with necessary sockets, special fittings and welding as required including cost of all jointing materials, hire charges of tools and plants, cutting pipes to required sizes, making threads, welding pieces together etc. as necessary as per direction of the Engineer-in-charge.				
	(i) Above 100 mm dia. and upto 200 mm dia. Pipe	37.59	Mtr	48.00	1804.32
	(ii) Above 200 mm dia. and upto 300 mm dia. Pipe	30.33	Mtr	65.00	1971.45
8	Sealing the annular space around the pipes by balls of rajasthan Bentonite Powder as per direction of E.I.C.	3.20	Mtr	1522.00	4870.40
9.a)	Providing and fixing bell plug as required upto 250 mm (internal) dia. ERWMS pipe including cost of materials and labour complete.	1	each	391.00	391.00
b)	Providing 200 mm centre guide.	6	set	138.00	828.00
c)	Supplying fitting and fixing M.S. Heavy type bell mouth reducing socket- ( 200mm x 300 mm. dia )	1 no.	Each	1003.00	1003.00
d)	Supplying, fitting and fixing G.I. cap at top with locking arrangement.				
	300 mm	1	each	360.00	360.00
e)	Supplying, fitting and fixing 300 mm M.S. housing clamp of approved quality.	1	set	1349.00	1349.00

10	Packing the annular space between the outside of the tube well pipes & strainers and the bore with pea size washed gravel of approved quality having size from 2 mm to 5 mm or the size approved by the Engineer-in-charge including cost of all materials labour and equipment complete.	12 2500	cu. m.	1584.00	19404.00
	Note: Initial 6 m. of Annular space between the housing pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with surface water.				
11	Packing annular space between the outside of the housing pipe and the bore with puddled clay balls of approved size as per direction of the Engineer-in-charge with cost of all materials and labour complete.	1.36	cu. m.	120.00	163.20
12	Labour for making arrangement for showing verticality test including the cost for hire charges of tools and plants, scaffolding, labour etc. all complete.	1	L.S.	540.00	540.00
13	Washing and developing tube well with air compressor pump and engine for 8 (eight) hours continuous pumping per day with necessary arrangements for testing the yield in gallons per hour with Pitot Tube including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.	3.0	day	4250.00	12750.00
14	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.	1 Item	Item	800.00	800.00
15	Supplying M.S. male / female adopter of approved make and brand for coupling of M.S. pipe and fibre glass strainers, as per direction of the Engineer - in - Charge. 200 mm dia	1 No	Item	2450.00	2450.00
<b>For one no. Deep Tubewell Estimated Cost = Rs.</b>					<b>344790.07</b>
<b>As per agreement @ 15.01% LESS</b>					<b>-51752.99</b>
<b>Rs;-</b>					<b>293037.08</b>
<b>Say Rs:-293037.00</b>					

## Annexure I(ii)

Sinking of Deep tube Well(300 mm x 200 mm SIZE) in Zone-IV within Arambagh Municipality under UIDSSMT component of JNNURM programme.

Sl. NO	DESCRIPTION OF ITEM	QTY.	RATE	UNIT	AMOUNT (CIVIL)
1	Mobilisation of all machineries equipments and other accessories belonging to the contractor including loading , unloading , staging , placing in position etc.	1	L.S.	3600.00	3600.00
2	Labour for boring through any type of soil for sinking tube well of required dia. with top enlargement by rig boring system (either by reverse circulation or by direct rotary method) including hire charges and labour for rig machine, tools and plants, staging, force pumping set and making arrangement for water required for boring etc. complete and lowering of pipes, strainers, blind pipes etc. complete.				
	(a) For depth upto 250 metre for 150 mm dia. Tube well with top enlargement of 300 mm dia.(upto 50 metre.)				
	(i) First 50 meter ( 0-50 m)	39.937	Mtr	1091.00	43571.27
	(ii) Next 50 meter ( 50m - 100 m)	36.320	Mtr	917.00	33305.44
	iii) Bored depth no lowering (100m-102m)	23.743	Mtr	470.40	11168.71
	Note: (i) For item no. 2 measurement will be taken below G.L. taking G.L. as zero for payment, & for bored depth where no lowering of pipe is involved the corresponding rates would be reduced by 30%.				
3	Geophysical investigation of the aquifer by electrical logging system with all tools and plants as necessary including supply of necessary report.	1 Item	L.S.	6000.00	6000.00
4	(A) Supply of E.R.W.M.S. black pipe of approved make(heavy quality) as per standard specification, 5 mm thick.				
a	200 mm dia ( internal )	6.32	Mtr	2039.00	12886.48
b	300 mm dia. (internal)	40.787	Mtr	2851.00	116283.74
5	Supplying, fibre glass reinforced Epoxy resin slotted of 1 mm slot width in 6 m length of approved make and as per direction of the Engineer - in - Charge				
	200 mm nominal dia				
	6 mm wall thickness	30	Mtr	3075.00	92250.00
6	Painting E.R.W.M.S. black pipe with zinc chromate anti-corrosive paint 2 coats complete as per direction of the Engineer-in-charge.	42.38	M2	56.00	2373.28
7	Labour for jointing and lowering G.I. or E.R.W. M.S. pipes including strainer within the tube well bore vertically with necessary sockets, special fittings and welding as required including cost of all jointing materials, hire charges of tools and plants, cutting pipes to required sizes, making threads, welding pieces together etc. as necessary as per direction of the Engineer-in-charge.				
	(i) Above 100 mm dia. and upto 200 mm dia. Pipe	36.32	Mtr	48.00	1743.36
	(ii) Above 200 mm dia. and upto 300 mm dia. Pipe	39.787	Mtr	65.00	2586.16
8	Sealing the annular space around the pipes by balls of rajasthan Bentonite Powder as per direction of E.I.C.	3.20	Mtr	1522.00	4870.40
9.a)	Providing and fixing bell plug as required upto 250 mm (internal) dia. ERWMS pipe including cost of materials and labour complete.	1	each	391.00	391.00
b)	Providing 200 mm centre guide.	6	set	138.00	828.00
c)	Supplying fitting and fixing M.S. Heavy type bell mouth reducing socket ( 200mm x 300 mm. dia )	1 no.	Each	1003.00	1003.00
d)	Supplying, fitting and fixing G.I. cap at top with locking arrangement.				
	300 mm	1	each	360.00	360.00

e)	Supplying, fitting and fixing 300 mm M S housing clamp of approved quality.	1	set	1349 00	1349 00
10	Packing the annular space between the outside of the tube well pipes & strainers and the bore with pea size washed gravel of approved quality having size from 2 mm to 5 mm or the size approved by the Engineer-in-charge including cost of all materials labour and equipment complete.	14 9540	cu. m	1584 00	23687 14
	Note: Initial 6 m. of Annular space between the housing pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with surface water.				
11	Packing annular space between the outside of the housing pipe and the bore with puddled clay balls of approved size as per direction of the Engineer-in-charge with cost of all materials and labour complete.	1.36	cu. m.	120.00	163 20
12	Labour for making arrangement for showing verticality test including the cost for hire charges of tools and plants, scaffolding, labour etc. all complete.	1	L.S	540.00	540 00
13	Washing and developing tube well with air compressor pump and engine for 8 (eight) hours continuous pumping per day with necessary arrangements for testing the yield in gallons per hour with Pitot Tube including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.	3.0	day	4250.00	12750.00
14	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.	1 Item	Item	800.00	800 00
15	Supplying M.S. male / female adopter of approved make and brand for coupling of M.S. pipe and fibre glass strainers, as per direction of the Engineer - in - Charge. 200 mm dia	1 No	Item	2450.00	2450 00
<b>For one no. Deep Tubewell Estimated Cost = Rs.</b>					<b>374960.16</b>
<b>As per agreement @ 15.01% LESS</b>					<b>-56281.52</b>
					<b>318678.64</b>
<b>Say Rs.318679.00</b>					

### Annexure I(iii)

Sinking of Deep tube Well (300 mm x 200 mm SIZE) in Zone-V within Arambagh Municipality under UIDSSMT component of JNNURM programme.

SL NO	DESCRIPTION OF ITEM	QTY.	RATE	UNIT	AMOUNT (CIVIL)
1	Mobilisation of all machineries equipments and other accessories belonging to the contractor including loading, unloading, staging, placing in position etc.	1	L.S.	3600.00	3600.00
2	Labour for boring through any type of soil for sinking tube well of required dia. with top enlargement by rig boring system (either by reverse circulation or by direct rotary method) including hire charges and labour for rig machine, tools and plants, staging, force pumping set and making arrangement for water required for boring etc. complete and lowering of pipes, strainers, blind pipes etc. complete.				
	(a) For depth upto 250 metre for 150 mm dia. Tube well with top enlargement of 300 mm dia. (upto 50 metre.)				
	(i) First 50 meter (0-50 m)	29.900	Mtr	1091.00	32620.90
	(ii) Next 50 meter (50m - 100 m)	24.260	Mtr	917.00	22246.42
	iii) Bored depth no lowering (100m-102m)	45.840	Mtr	470.40	21563.14
	Note: (i) For item no. 2 measurement will be taken below G.L. taking G.L. as zero for payment, & for bored depth where no lowering of pipe is involved the corresponding rates would be reduced by 30%.				
3	Geophysical investigation of the aquifer by electrical logging system with all tools and plants as necessary including supply of necessary report.	1 Item	L.S.	6000.00	6000.00
4	(A) Supply of E.R.W.M.S. black pipe of approved make (heavy quality) as per standard specification, 5 mm thick.				
a	200 mm dia ( internal )	6.26	Mtr	2039.00	12764.14
b	300 mm dia. (internal)	31.350	Mtr	2851.00	89378.85
5	Supplying, fibre glass reinforced Epoxy resin slotted of 1 mm slot width in 6.1m length of approved make and as per direction of the Engineer - in - Charge				
	200 mm nominal dia				
	6 mm wall thickness	18	Mtr	3075.00	55350.00
6	Painting E.R.W.M.S. black pipe with zinc chromate anti-corrosive paint 2 coats complete as per direction of the Engineer-in-charge.	33.46	M2	56.00	1873.76
7	Labour for jointing and lowering G.I. or E.R.W. M.S. pipes including strainer within the tube well bore vertically with necessary sockets, special fittings and welding as required including cost of all jointing materials, hire charges of tools and plants, cutting pipes to required sizes, making threads, welding pieces together etc. as necessary as per direction of the Engineer-in-charge.				
	(i) Above 100 mm dia. and upto 200 mm dia. Pipe	24.26	Mtr	48.00	1164.48
	(ii) Above 200 mm dia. and upto 300 mm dia. Pipe	29.75	Mtr	65.00	1933.75
8	Sealing the annular space around the pipes by balls of rajasthan Bentonite Powder as per direction of E.I.C.	3.20	Mtr	1522.00	4870.40
9.a)	Providing and fixing bell plug as required upto 250 mm (internal) dia. ERWMS pipe including cost of materials and labour complete.	1	each	391.00	391.00
b)	Providing 200 mm centre guide.	6	set	138.00	828.00
c)	Supplying fitting and fixing M.S. Heavy type bell mouth reducing socket ( 200mm x 300 mm. dia )	1 no.	Each	1003.00	1003.00
d)	Supplying, fitting and fixing G.I. cap at top with locking arrangement.				
	300 mm	1	each	360.00	360.00
e)	Supplying, fitting and fixing 300 mm M.S. housing clamp of approved quality.	1	set	1349.00	1349.00

10	Packing the annular space between the outside of the tube well pipes & strainers and the bore with pea size washed gravel of approved quality having size from 2 mm to 5 mm or the size approved by the Engineer-in-charge including cost of all materials labour and equipment complete	11 5200	cu. m.	1584.00	18247.68
	Note: Initial 6 m. of Annular space between the housing pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with surface water.				
11	Packing annular space between the outside of the housing pipe and the bore with puddled clay balls of approved size as per direction of the Engineer-in-charge with cost of all materials and labour complete.	1.36	cu. m.	120.00	163.20
12	Labour for making arrangement for showing verticality test including the cost for hire charges of tools and plants, scaffolding, labour etc. all complete.	1	L.S.	540.00	540.00
13	Washing and developing tube well with air compressor pump and engine for 8 (eight) hours continuous pumping per day with necessary arrangements for testing the yield in gallons per hour with Pitot Tube including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.	3.0	day	4250.00	12750.00
14	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.	1 Item	Item	800.00	800.00
15	Supplying M.S. male / female adopter of approved make and brand for coupling of M.S. pipe and fibre glass strainers, as per direction of the Engineer - in - Charge. 200 mm dia	1 No	Item	2450.00	2450.00
<b>For one no. Deep Tubewell Estimated Cost = Rs.</b>					<b>292247.72</b>
<b>As per agreement @ 15.01% LESS</b>					<b>-43866.38</b>
					<b>248381.33</b>
<b>Say Rs.248381.00</b>					

**Annexure-I(iii)**

**Sinking of Deep tube Well(300 mm x 200 mm SIZE) in Zone-V within Arambagh Municipality under UIDSSMT component of JNNURM programme.**

SL NO	DESCRIPTION OF ITEM	QTY.	RATE	UNIT	AMOUNT (CIVIL)
1	Mobilisation of all machineries equipments and other accessories belonging to the contractor including loading , unloading , staging , placing in position etc.	1	L.S.	3600.00	3600.00
2	Labour for boring through any type of soil for sinking tube well of required dia. with top enlargement by rig boring system (either by reverse circulation or by direct rotary method) including hire charges and labour for rig machine, tools and plants, staging, force pumping set and making arrangement for water required for boring etc. complete and lowering of pipes, strainers, blind pipes etc. complete.				
	(a) For depth upto 250 metre for 150 mm dia. Tube well with top enlargement of 300 mm dia.(upto 50 metre.)				
	(i) First 50 meter ( 0-50 m)	33.780	Mtr	1091.00	36853.98
	(ii) Next 50 meter ( 50m - 100 m)	24.940	Mtr	917.00	22869.98
	iii) Bored depth no lowering (100m-102m)	41.280	Mtr	470.40	19418.11
	Note: (i) For item no. 2 measurement will be taken below G.L. taking G.L. as zero for payment , & for bored depth where no lowering of pipe is involved the corresponding rates would be reduced by 30%.				
3	Geophysical investigation of the aquifer by electrical logging system with all tools and plants as necessary including supply of necessary report.	1 Item	L.S.	6000.00	6000.00
4	(A) Supply of E.R.W.M.S. black pipe of approved make(heavy quality) as per standard specification, 5 mm thick.				
a	200 mm dia ( internal )	6.25	Mtr	2039.00	12743.75
b	300 mm dia. (internal)	35.230	Mtr	2851.00	100440.73
5	Supplying, fibre glass reinforced Epoxy resin slotted of 1 mm slot width in 6.1m length of approved make and as per direction of the Engineer - in - Charge				
	200 mm nominal dia				
	6 mm wall thickness	18.69	Mtr	3075.00	57471.75
6	Painting E.R.W.M.S. black pipe with zinc chromate anti-corrosive paint 2 coats complete as per direction of the Engineer-in-charge.	37.1	M2	56.00	2077.60
7	Labour for jointing and lowering G.I. or E.R.W. M.S. pipes including strainer within the tube well bore vertically with necessary sockets, special fittings and welding as required including cost of all jointing materials, hire charges of tools and plants, cutting pipes to required sizes, making threads, welding pieces together etc. as necessary as per direction of the Engineer-in-charge.				
	(i) Above 100 mm dia. and upto 200 mm dia. Pipe	24.94	Mtr	48.00	1197.12
	(ii) Above 200 mm dia. and upto 300 mm dia. Pipe	33.63	Mtr	65.00	2185.95
8	Sealing the annular space around the pipes by balls of rajasthan Bentonite Powder as per direction of E.I.C.	3.20	Mtr	1522.00	4870.40
9.a)	Providing and fixing bell plug as required upto 250 mm (internal) dia. ERWMS pipe including cost of materials and labour complete.	1	each	391.00	391.00
b)	Providing 200 mm centre guide.	6	set	138.00	828.00
c)	Supplying fitting and fixing M.S. Heavy type bell mouth reducing socket ( 200mm x 300 mm. dia )	1	Each	1003.00	1003.00
d)	Supplying, fitting and fixing G.I. cap at top with locking arrangement.				
	300 mm	1	each	360.00	360.00
e)	Supplying, fitting and fixing 300 mm M.S. housing clamp of approved quality.	1	set	1349.00	1349.00



10	Packing the annular space between the outside of the tube well pipes & strainers and the bore with pea size washed gravel of approved quality having size from 2 mm to 5 mm or the size approved by the Engineer-in-charge including cost of all materials labour and equipment complete.	11 6500	cu. m.	1584.00	18453.60
	Note: Initial 6 m. of Annular space between the housing pipe and the bore should not be shrouded with Pea size gravel to avoid contamination with surface water				
11	Packing annular space between the outside of the housing pipe and the bore with puddled clay balls of approved size as per direction of the Engineer-in-charge with cost of all materials and labour complete.	1.36	cu. m.	120.00	163.20
12	Labour for making arrangement for showing verticality test including the cost for hire charges of tools and plants, scaffolding, labour etc. all complete.	1	L.S.	540.00	540.00
13	Washing and developing tube well with air compressor pump and engine for 8 (eight) hours continuous pumping per day with necessary arrangements for testing the yield in gallons per hour with Pitot Tube including hire and labour charges for all tools and plants and scaffolding as required complete in all respect.	3.0	day	4250.00	12750.00
14	Collecting sample of water for bacteriological and chemical test from any depth at any time during execution of work including hire and labour charges for tools and plants and sterilising the equipments, paying all charges and fees, testing etc. complete in all respect as per direction.	1 Item	Item	800.00	800.00
15	Supplying M.S. male / female adopter of approved make and brand for coupling of M.S. pipe and fibre glass strainers, as per direction of the Engineer - in - Charge. 200 mm dia	1 No	Item	2450.00	2450.00
<b>For one no. Deep Tubewell Estimated Cost = Rs.</b>					<b>308817.17</b>
<b>As per agreement @ 15.01% LESS</b>					<b>-46353.46</b>
					<b>262463.71</b>
<b>Say Rs.262464.00</b>					

## ANNEXURE-II(i)

**Estimate for the Construction of Pump Room ( Single Unit ) under UIDSSMT Programme at Arambagh Municipality.**

**ZONE-III**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 Page =68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	13	Cum	41.87	Rs. 544.31
2 Page-68 item=2 a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	13	Cum	26.00	Rs. 338.00
3 P-70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	13	Cum	329.76	Rs. 4,286.88
4 P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	20	Sq.m	153.90	Rs. 3,078.00
5 p-136, I-11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	5	Sq.m	163.35	Rs. 816.75
6 P-80	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	123.00	Rs. 369.00
7 P-70, I-4, iii, (b)	<b>Earth work in filling in compound, tank, low land, ditches et.</b> With good earth in layers not exceeding 150 mm. including breaking clods and consolidating the same by ramming and dressing complete. iii) With carried earth arranged by the contractor within a radius exceeding 5 km. but not exceeding 10 km. including cost of carried earth.	20	Cum.	181.59	Rs. 3,631.80
8 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast (40mm size) excluding shuttering .</b> (A) 6:3:1 proportion I) Ground floor.	2.5	Cum.	2731.05	Rs. 6,827.63
9 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor . (a) Pakur variety. A) Gr Floor.	5.00	Cum.	3974.40	Rs. 19,872.00

10 P-100 I-19 a i	Reinforcement of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	0.6	M.T.	56819.00	Rs. 34,091.40
11 P-124 I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate). In 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	4.00	Cum	105.00	Rs. 420.00
12 P-98 I-16, (a),(c) ,(f)	Hire and labour charges for shuttering with centring and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.				
	A) Ground Floor.	15	Sq.M	157.30	Rs. 2,359.50
13 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	14	Cum	2662.80	Rs. 37,279.20
	b) In superstructure :- 1) Ground Floor.	18	Cum	2719.80	Rs. 48,956.40
14 P-108, I-33	125mm thick brick work with 1 <sup>st</sup> class bricks in cement mortar (4:1)in ground floor.(with HB neeting in every third layer.)				
	1) Ground Floor.	18	Sq.M	399.00	Rs. 7,182.00
15 P-342 I-1	Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)				
	(a) With 6:1 cement mortar , 20 mm thick plaster-				
	1) Gr Floor.	70	Sq.m	68.85	Rs. 4,819.50
	(b) with 6:1 cement mortar, 15 mm. thick plaster -				
	1) Gr Floor.	70	Sq.m	60.75	Rs. 4,252.50
15 P-342 I-1	(c) with 4:1 cement mortar, 10 mm.thick plaster-				
	1) Gr Floor.	20	Sq.m	66.15	Rs. 1,323.00
16 P-500, I-22 (b).	Supplying, fitting approved type ventilator in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	2	Sq.M	18.00	Rs. 36.00
17 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	30	Sq.M	22.40	Rs. 672.00

18 P-126, I-3 (ii),(iii)	Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary )and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour .				
	3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement				
	(i) 25 mm thick 1) Ground Floor.	17	Sq.M	160.65	Rs. 2,731.05
19 P-190, I-10, a, i	<b>M.S or W.I. ornamental grill</b> of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	45	Kg	56.00	Rs. 2,520.00
22 P-214, (b)	<b>Wood work in door and window frame</b> fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.20	Cum	40518.00	Rs. 8,103.60
23 P-261, I-93, (iii),c	<b>Panel shutters of door and window</b> as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings				
	35mm thick shutters with 19 mm thick panel Gamari i) ground floor.	7	Sq.m	1576.00	Rs. 11,032.00
26 P-224, I-18,b	<b>M.S. clamp</b> for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar with stone chips (4:2:1) fitted and fixed complete as per drawing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	20	Each	22.00	Rs. 440.00
27 P-224 I-20,	<b>Iron butt hinges</b> of approved quality fitted and fixed with steel screws with steel screws with ISI mark a) 100 mm x 58 mm x 1.90 mm	20	Each	27.00	Rs. 540.00
28 P-230, I-27,	<b>Iron hasp bolt</b> of approved quality fitted and fixed complete (oxidized) with 16 mm dia rod with centre bolt and round fitting . 300 mm long	2	Each	82.00	Rs. 164.00
29 P-230 I-25, c,	<b>Iron socket bolt</b> of approved quality fitted and fixed complete. c) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs. 328.00
30 P-248 I-73, a, v,	<b>Anodised aluminium D-type handle</b> of approved quality manufactured from extruded section conforming to IS specification (IS 230/72) fitted and fixed complete. With continuous plate base (hexagonal /round rod)				
	a) 125 mm grip x 12mm dia rod	8	Each	56.00	Rs. 448.00
33 P-352, I-3,b	<b>White washing</b> including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : b) Two coats.	60	Sq.m	4.50	Rs. 270.00

34 p- 354, I-5, i, a,b	Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly.	60	Sq.m	10.00	Rs.	600.00
	i) Internal , (all floors). Two coats of colour wash .					
	ii) External surface , Two coats of colour wash					
	Ground floor	70	Sq.m	10.00	Rs.	700.00
35 p- 366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	15	Sq.m	20.00	Rs.	300.00
36 p- 366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary					
	A) On timber or plastered surface					
	With super gloss (hi- gloss)					
	Two coats (with any shade except white )	10	Sq.m	46.00	Rs.	460.00
	B) On steel or other metal surface					
	With super gloss-( hi- gloss)					
	Two coats (With any; shade except white)	5	Sq.m	38.00	Rs.	190.00
37 p- 382, I-8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.					
	b)100 mm dia	7	Mtr.	399.00	Rs.	2,793.00
38 p- 384, I- 9,d,ii	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete.	2	Each	211.00	Rs.	422.00
	(a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 100 mm. dia					
	(b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 100 mm. dia	2	Each	337.00	Rs.	674.00
	(d) C.I. shoe of down pipe , 100 mm. dia	2	Each	100.00	Rs.	200.00
				Total	Rs.	214,071.52
				Add CESS @ 1.00%	Rs.	2,140.72
				Total	Rs.	216,212.23
				Say	Rs.	216,212.00

ANNEXURE-II(ii)

**Estimate for the Construction of Pump Room ( Single Unit ) under UIDSSMT Programme at Arambagh Municipality.**

**ZONE-IV**

SI.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 Page =68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	13	Cum	<b>41.87</b>	Rs. 544.31
2 Page-68 item=2 a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	13	Cum	<b>26.00</b>	Rs. 338.00
3 P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	13	Cum	<b>329.76</b>	Rs. 4,286.88
4 P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	20	Sq.m	<b>153.90</b>	Rs. 3,078.00
5 P- 136, I- 11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	5	Sq.m	<b>163.35</b>	Rs. 816.75
6 P-80	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	<b>123.00</b>	Rs. 369.00
7 P-70, I- 4, iii, (b)	<b>Earth work in filling in compound, tank, low land, ditches et.</b> With good earth in layers not exceeding 150 mm. including breaking clods and consolidating the same by ramming and dressing complete. iii) With carried earth arranged by the contractor within a radius exceeding 5 km. but not exceeding 10 km. including cost of carried earth.	20	Cum.	<b>181.59</b>	Rs. 3,631.80
8 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering .				
	(A) 6:3:1 proportion I) Ground floor.	2.5	Cum.	<b>2731.05</b>	Rs. 6,827.63
9 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor .				
	(a) Pakur variety. A) Gr Floor.	5.00	Cum.	<b>3974.40</b>	Rs. 19,872.00

10 P-100 I-19 a	Reinforcement of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	0.6	M.T.	56819.00	Rs. 34,091.40
11 P-124 I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate). In 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	4.00	Cum	105.00	Rs. 420.00
12 P-98 I-16, (a),(c) (f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.				
	A) Ground Floor.	15	Sq.M	157.30	Rs. 2,359.50
13 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	14	Cum	2662.80	Rs. 37,279.20
	b) In superstructure :- 1) Ground Floor.	18	Cum	2719.80	Rs. 48,956.40
14 P-108, I-33	125mm thick brick work with 1 <sup>st</sup> class.bricks in cement mortar (4:1)in ground floor.(with HB neeting in every third layer.)				
	1) Ground Floor.	18	Sq.M	399.00	Rs. 7,182.00
15 P-342 I-1	Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)				
	(a) With 6:1 cement mortar , 20 mm thick plaster-				
	1) Gr Floor.	70	Sq.m	68.85	Rs. 4,819.50
	(b) with 6:1 cement mortar, 15 mm. thick plaster -				
	1) Gr Floor.	70	Sq.m	60.75	Rs. 4,252.50
	(c) with 4:1 cement mortar, 10 mm.thick plaster-				
	1) Gr Floor.	20	Sq.m	66.15	Rs. 1,323.00
16 P-500, I-22 (b).	Supplying, fitting approved type ventilator in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	2	Sq.M	18.00	Rs. 36.00
17 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	30	Sq.M	22.40	Rs. 672.00

18 P-126, I-3 (ii),(iii)	Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary )and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour .				
	3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement				
	(i) 25 mm thick 1) Ground Floor.	17	Sq.M	160.65	Rs. 2,731.05
19 P-190, I-10, a, i	M.S or W.I. ornamental grill of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	45	Kg	56.00	Rs. 2,520.00
22 P-214, I (b)	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.20	Cum	40518.00	Rs. 8,103.60
23 P-261, I-93, (iii),c	Panel shutters of door and window as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings				
	35mm thick shutters with 19 mm thick panel Gamari i) ground floor.	7	Sq.m	1576.00	Rs. 11,032.00
26 P-224, I-18,b	M.S. clamp for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar with stone chips (4:2:1) fitted and fixed complete as per drawing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	20	Each	22.00	Rs. 440.00
27 P-224 I-20, )	Iron butt hinges of approved quality fitted and fixed with steel screws with steel screws with ISI mark a) 100 mm x 58 mm x 1.90 mm	20	Each	27.00	Rs. 540.00
28 P-230, I-27 ,	Iron hasp bolt of approved quality fitted and fixed complete (oxidized) with 16 mm dia rod with centre bolt and round fitting . 300 mm long	2	Each	82.00	Rs. 164.00
29 P-230 I-25, c	Iron socket bolt of approved quality fitted and fixed complete. c) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs. 328.00
30 P-248 I-73, a, v.	Anodised aluminium D-type handle of approved quality manufactured from extruded section conforming to IS specification (IS 230/72) fitted and fixed complete. With continuous plate base (hexagonal /round rod)				
	a) 125 mm grip x 12mm dia rod	8	Each	56.00	Rs. 448.00
33 P-352, I-3,b	White washing including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : b) Two coats.	60	Sq.m	4.50	Rs. 270.00



34 P- 354, I- 5, i, a,b	Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly i) Internal , (all floors). Two coats of colour wash ii) External surface , Two coats of colour wash	60	Sq.m	10.00	Rs.	600.00
	Ground floor	70	Sq.m	10.00	Rs.	700.00
35 P- 366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	15	Sq.m	20.00	Rs.	300.00
36 P- 366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary					
	A) On timber or plastered surface With super gloss (hi- gloss) Two coats (with any shade except white )	10	Sq.m	46.00	Rs.	460.00
	B) On steel or other metal surface With super gloss-( hi- gloss) Two coats (With any; shade except white)	5	Sq.m	38.00	Rs.	190.00
37 P- 382, I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.					
	b)100 mm dia	7	Mtr.	399.00	Rs.	2,793.00
38 P- 384, I- 9,d,ii,	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete. (a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 100 mm. dia (b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 100 mm. dia (d) C.I. shoe of down pipe , 100 mm. dia	2	Each	211.00	Rs.	422.00
		2	Each	337.00	Rs.	674.00
		2	Each	100.00	Rs.	200.00
				Total	Rs.	214,071.52
				Add CESS @ 1.00%	Rs.	2,140.72
				Total	Rs.	216,212.23
				Say	Rs.	216,212.00

**Estimate for the Construction of Pump Room ( Single Unit ) under UIDSSMT Programme at Arambagh Municipality.**

**ZONE-V**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
Page =68 Item-1, a	a) Depth of excavation not exceeding 1.5m	13	Cum	41.87	Rs. 544.31
2	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
Page-68 item=2 a	a) With earth obtained from excavation of foundation .	13	Cum	26.00	Rs. 338.00
3	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	13	Cum	329.76	Rs. 4,286.88
P-70, I-3a					
4	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	20	Sq.m	153.90	Rs. 3,078.00
P -84 I-1					
5	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	5	Sq.m	163.35	Rs. 816.75
P-136, I-11					
6	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	123.00	Rs. 369.00
P-80 }					
7	<b>Earth work in filling in compound, tank, low land, ditches et.</b> With good earth in layers not exceeding 150 mm. including breaking clods and consolidating the same by ramming and dressing complete. iii) With carried earth arranged by the contractor within a radius exceeding 5 km. but not exceeding 10 km. including cost of carried earth.	20	Cum.	181.59	Rs. 3,631.80
P-70, I-4, iii, (b)					
8	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering . (A) 6:3:1 proportion				
P-94 I-14 (A)a	l) Ground floor.	2.5	Cum.	2731.05	Rs. 6,827.63
9	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor . (a) Pakur variety.				
P-86 I-7 (a)	A) Gr Floor.	5.00	Cum.	3974.40	Rs. 19,872.00

10 P-100 I-19 a i	Reinforcement of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	0.6	M.T.	56819.00	Rs. 34,091.40
11 P-124 I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate). In 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	4.00	Cum	105.00	Rs. 420.00
12 P-98 I-16, (a),(c) (f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.				
	A) Ground Floor.	15	Sq.M	157.30	Rs. 2,359.50
13 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	14	Cum	2662.80	Rs. 37,279.20
	b) In superstructure :- 1) Ground Floor.	18	Cum	2719.80	Rs. 48,956.40
14 P-108, I-33	125mm thick brick work with 1 <sup>st</sup> class bricks in cement mortar (4:1) in ground floor. (with HB neeting in every third layer )				
	1) Ground Floor.	18	Sq.M	399.00	Rs. 7,182.00
15 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)				
	(a) With 6:1 cement mortar , 20 mm thick plaster-				
	1) Gr Floor.	70	Sq.m	68.85	Rs. 4,819.50
	(b) with 6:1 cement mortar, 15 mm. thick plaster -				
	1) Gr Floor.	70	Sq.m	60.75	Rs. 4,252.50
	(c) with 4:1 cement mortar, 10 mm. thick plaster-				
	1) Gr Floor.	20	Sq.m	66.15	Rs. 1,323.00
16 P-500, I-22 (b).	Supplying, fitting approved type ventilator in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	2	Sq.M	18.00	Rs. 36.00
17 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	30	Sq.M	22.40	Rs. 672.00

18 P-126, I-3 (ii),(iii)	Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary )and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour .					
	3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement					
	(i) 25 mm thick 1) Ground Floor.	17	Sq.M	160.65	Rs.	2,731.05
19 P-190, I-10, a, i	M.S or W.I. ornamental grill of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	45	Kg	56.00	Rs.	2,520.00
22 P-214, I-1 (b)	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.20	Cum	40518.00	Rs.	8,103.60
23 P-261, I-93, (iii),c	Panel shutters of door and window as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings					
	35mm thick shutters with 19 mm thick panel Gamari					
	i) ground floor.	7	Sq.m	1576.00	Rs.	11,032.00
26 P-224, I-18,b	M.S. clamp for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar with stone chips (4:2:1) fitted and fixed complete as per drawing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	20	Each	22.00	Rs.	440.00
27 P-224 I-20, )	Iron butt hinges of approved quality fitted and fixed with steel screws with steel screws with ISI mark a) 100 mm x 58 mm x 1.90 mm	20	Each	27.00	Rs.	540.00
28 P-230, I-27 ,	Iron hasp bolt of approved quality fitted and fixed complete (oxidized) with 16 mm dia rod with centre bolt and round fitting . 300 mm long	2	Each	82.00	Rs.	164.00
29 P-230 I-25, c,	Iron socket bolt of approved quality fitted and fixed complete. c) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs.	328.00
30 P-248 I-73, a, v.	Anodised aluminium D-type handle of approved quality manufactured from extruded section conforming to IS specification (IS 230/72) fitted and fixed complete.					
	With continuous plate base (hexagonal /round rod)					
	a) 125 mm grip x 12mm dia rod	8	Each	56.00	Rs.	448.00
33 P-352, I-3,b	White washing including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : b) Two coats.	60	Sq.m	4.50	Rs.	270.00

34 P- 354, I- 5, i, a,b	Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly.	60	Sq.m	10.00	Rs.	600.00
	i) Internal , (all floors). Two coats of colour wash .					
	ii) External surface , Two coats of colour wash					
	Ground floor	70	Sq.m	10.00	Rs.	700.00
35 P- 366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	15	Sq.m	20.00	Rs.	300.00
36 P- 366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary					
	A) On timber or plastered surface					
	With super gloss (hi- gloss)					
	Two coats (with any shade except white )	10	Sq.m	46.00	Rs.	460.00
	B) On steel or other metal surface					
	With super gloss-( hi- gloss)					
	Two coats (With any; shade except white)	5	Sq.m	38.00	Rs.	190.00
37 P- 382, I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.					
	b)100 mm dia	7	Mtr.	399.00	Rs.	2,793.00
38 P- 384, I- 9,d,ii	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete.	2	Each	211.00	Rs.	422.00
	(a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 100 mm. dia					
	(b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 100 mm. dia	2	Each	337.00	Rs.	674.00
	(d) C.I. shoe of down pipe , 100 mm. dia	2	Each	100.00	Rs.	200.00
				Total	Rs.	214,071.52
				Add CESS @ 1.00%	Rs.	2,140.72
				Total	Rs.	216,212.23
				Say	Rs.	216,212.00

ANNEXURE-II (iii) (b)

Estimate for the Construction of Pump house at Kalipur Zone-V under UIDSSMT Programme at Arambagh Municipality. Size 3.00 m x 3.60m.					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	10.00	Cum	41.87	Rs. 418.70
2 P-68 item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	7.00	Cum	26.00	Rs. 182.00
3 P- 70,	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by	7.00	Cum	224.76	Rs. 1,573.32
4 P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	20.00	Sq.m	114.00	Rs. 2,280.00
5 P- 136, I- 11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	4.00	Sq.m	94.00	Rs. 376.00
6 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering . (A) <b>6:3:1 proportion</b>				
	I) Ground floor.	2.00	Cum.	2023.00	Rs. 4,046.00
7 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor .				
	(a) Pakur variety. A) Gr Floor.	6.50	Cum.	2944.00	Rs. 19,136.00
8 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	0.80	M.T.	32000.00	Rs. 25,600.00

9 P-98 I-16, (a),(c),(f)	Hire and labour charges for shuttering with centring and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	60.00	Sq.M	143.00	Rs.	8,580.00
	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	15.00	Sq.M	101.00	Rs.	1,515.00
10 P-106, I-26, & 31(a)	<b>Brick work with 1<sup>st</sup> class bricks in cement mortar (6:1)</b>					
	a) In foundation and plinth	3.50	Cum	1902.00	Rs.	6,657.00
	b) In superstructure :- 1) Ground Floor.	7.00	Cum	1959.00	Rs.	13,713.00
11 P-108, I-33	<b>125mm thick brick work with 1<sup>st</sup> class bricks in cement mortar (4:1) in ground floor. (with HB neeting in every third layer.)</b>					
	1) Ground Floor.	15.00	Sq.M	285.00	Rs.	4,275.00
12 P-342 I-1	<b>Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)</b>					
	(a) <b>With 6:1 cement mortar , 20 mm thick plaster-</b>					
	1) Gr Floor.	60.00	Sq.m	53.00	Rs.	3,180.00
	(b) <b>with 6:1 cement mortar, 15 mm. thick plaster -</b>					
	1) Gr Floor.	75.00	Sq.m	45.00	Rs.	3,375.00
	(c) <b>with 4:1 cement mortar, 10 mm.thick plaster-</b>					
	1) Gr Floor.	15.00	Sq.m	47.00	Rs.	705.00
13 P-500, I-22 (b),	<b>Supplying, fitting approved type ventilator</b> in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	2.00	Each	18.00	Rs.	36.00
14 P-346 I-7	<b>Neat cement punning</b> about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	25.00	Sq.M	16.00	Rs.	400.00
15 P-126, I=3 (ii),(iii)	<b>Artificial stone in floor dado staircase etc with cement concrete (4:2:1) with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary ) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour .</b>					
	3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement					
	(i) <b>25 mm thick</b> 1) Ground Floor.	20.00	Sq.M	119.00	Rs.	2,380.00

16 P-190, I- 10, a, i	<b>M.S or W.I. ornamental grill</b> of approved design joints continuously welded with M S W I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	45	Kg	40.00	Rs.	1,800.00
17 P-214, I-1 (b)	<b>Wood work in door and window frame</b> fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.14	Cum	39147.00	Rs.	5,480.58
18 P-261, I-93, (iii),c	<b>Panel shutters of door and window</b> as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings 35mm thick shutters with 19 mm thick panel <b>Gamari</b> i) ground floor.	7.00	Sq.m	1584.00	Rs.	11,088.00
19 P-224,	<b>M.S. clamp</b> for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar wiith stone	20.00	Each	22.00	Rs.	440.00
20 P-224 I-20, (vii)	<b>Iron butt hinges</b> of approved quality fitted and fixed with steel screws with steel screws with ISI mark a) 100 mm x 58 mm x 1.90 mm b) 75 mm x 40 mm x 1.12 mm	6.00	Each	27.00	Rs.	162.00
		24.00	Each	12.00	Rs.	288.00
21 P-230, I-27 , b,c	<b>Iron hasp bolt</b> of approved quality fitted and fixed complete (oxidized) with 16 mm dia rod with centre bolt and round fitting . 250 mm long	2	Each	80.00	Rs.	160.00
22 P-230 I-25, c,	<b>Iron socket bolt</b> of approved quality fitted and fixed complete. a) 150 mm long x 10 mm dia bolt	8.00	Each	41.00	Rs.	328.00
23 P-248 I-73, a, v.	<b>Anodised aluminium D-type handle</b> of approved quality manufactured from extruded section conforming to IS specification (IS 230/72) fitted and fixed complete. With continuous plate base (hexagonal /round rod) a) 125 mm grip x 12mm dia rod	8.00	Each	56.00	Rs.	448.00
24 P-352, I-3,b	<b>White washing</b> including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : b) Two coats.	60.00	Sq.m	4.40	Rs.	264.00
25 P- 354, I- 5, i, a,b	<b>Colour washing</b> with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly. i) External surface , Two coats of colour wash Ground floor	75.00	Sq.m	10.00	Rs.	750.00
26 P-366, I-7	<b>Priming one coat</b> on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	15.00	Sq.m	20.00	Rs.	300.00



27 P-366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary				
	A) On timber or plastered surface				
	With super gloss (hi- gloss)				
	Two coats (with any shade except white )	10.00	Sq.m	46.00	Rs. 460.00
	B) On steel or other metal surface				
	With super gloss-( hi- gloss)				
	Two coats (With any; shade except white)	5.00	Sq.m	38.00	Rs. 190.00
28 P-382, I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.				
	a)75 mm dia	7.00	Mtr.	342.00	Rs. 2,394.00
29 P-384, I-9,d,ii.	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete.				
	(a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 75 mm. dia	2.00	Each	163.00	Rs. 326.00
	(b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 75 mm. dia	2.00	Each	271.00	Rs. 542.00
	(d) C.I. shoe of down pipe , 75 mm. dia	2.00	Each	84.00	Rs. 168.00
30 P- 136 / Sl. No. 9,i	Construction of circular soak well 2.5 metre deep in all types of sandy soils with dry brick work upto 1.6 metre from the bottom having 150 mm intermediate cement brick work (6:1) band all round and cement brick work (6:1) upto 0.90 metre from top with 19 mm thick cement plastering (4:1) to inside face upto the depth of cement brick work, 12 mm thick cement plaster (4:1) on outer face from top of the well upto G.L. and 6 mm thick cement plaster (4:1) on top of the R.C.C. cover slab including filling bottom 1.00 metre of inside of the well with brick metal (50 mm to 63 mm size) including R.C.C. cover slab of designed thickness with cement concrete (4:2:1) with stone chips with necessary reinforcement and shuttering including one 560 mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the cover slab with necessary fittings, making necessary arrangements for pipe connections, excavation of well including shoring, dewatering and removing the excess earth from the premises as per direction complete in all respect with all costs of labour and materials.				
	(a) With 250 mm thick dry brick work and 250 mm thick cement brick work (6:1) and 1.00 m.inside dia	1	each	7195.00	Rs. 7,195.00

31. P-176, It- 3,i	Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar(4:1) including 560mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the top slab with necessary fittings, 19 mm thick cement plaster (4:1) with neat cement finish to the internal surfaces and 12 mm thick cement plaster (4:1) to outside wall upto 200 mm below G.L. , floor finished with 25 mm thick grey artificial stone including supplying,fitting and fixing all necessary specials, fittings,S.W. tees, C.I. foot rest etc. including excavating earth in all sorts of soil,shoring,bailing and pumping out water as necessary,ramming,dressing the bed and refilling the sides of the tank with earth,removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes,joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 5% by weight of cement, complete in all respect as per direction of Engineer - in charge .				
	(i) For 10 users	1	each	18705.00	Rs. 18,705.00
32 P-160/ Sl. No 5,i	Orissa pattern water closet in white glazed vitreous chinaware of approved make supplied, fitted and fixed in position complete excluding 'P' or 'S' trap (excluding cost of concrete for fixing).				
	(i) 580 mm X 440 mm	1	each	1460.00	Rs. 1,460.00
33 P-138, It- 14,A,a,iii	Supplying,fitting and fixing cast iron 'P' or 'S' trap conforming to I.S. 3989 / 1970 and 1729 / 1964 including lead caulked joints and painting two coats to the exposed surface.	1	each	365.00	Rs. 365.00
34 P-128, It- 1,a,ii	Cast iron soil pipe only conforming to I.S. 3989 / 1970 and I.S. 1729/1964 with bobbins, nails etc. including making holes in the wall, floor etc. and cutting trenches etc. in any floor through masonry concrete, if necessary, and mending good damages with necessary jointing materials and painting two coats to the exposed surface with approved paint complete. 100mm dia internal.				
	(a) With valamoid joints including sealing with sand cement mortar (4:1) upto quarter depth.	6	Mtr.	399.00	Rs. 2,394.00
35 P- 74 / Sl. No. 18	Supplying fitting & fixing approved quality FRP Water storage tanks conforming to IS 12701 in dfferent capacities complete with top lid cover.				
	(a) 500 Litre capacity	1	each	2970.00	Rs. 2,970.00
36. P- 72 / Sl. No.	Labour for hoisting plastic water storage tank.				
	(i) Upto 1500 litre capacity.	1	each	40.00	Rs. 40.00

37 P- 72 / Sl. No. 10	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats of painting to bracket etc.	1	each	1217.00	Rs. 1,217.00
38 P- 12 / Sl. No. 2	Supplying, fitting and fixing in position G.I pipes of TATA make for underground works with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, short piece etc. including cost of all materials, jointing materials, cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and refilling the same as directed with two coats of painting on G.I. pipes and specials with bituminous paint complete in all respect. (Payment will be made on the centre line measurement of the total pipe line including all specials No separate payment will be made for accessories, specials.)				
	(i) 15 mm dia. medium quality	15	Mtr.	124.00	Rs. 1,860.00
	ii) 20 mm dia Medium	10	Mtr.	138.00	Rs. 1,380.00
39 P- 14 / Sl. No. 5	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only). 20 mm	1	each	369.00	Rs. 369.00
40 Page- 16 / Sl. No. 7,i	Supplying, fitting and fixing gunmetal stop cock/ bib cock of approved make and brand tested to 21 kg per sq. cm.				
	(i) 15 mm	1	each	153.00	Rs. 153.00
41 P- 136 / Sl. No. 9,i	Approved patent vent cowl I.C.I. conforming to I.S.S.				
	(i) 100 mm dia.	1	each	155.00	Rs. 155.00
				Total	Rs. 162,279.60
				Add CESS @ 1%	Rs. 1,622.80
				Total	Rs. 163,902.40

**Say Rs. 163,902.00**

**ANNEXURE-III(i) (a)**

**Estimate for the construction of CWR (150 cum) under UDDISSMT programme at Brindabanpur ,  
Zone-II under Arambagh Municipality**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 Page=68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	110.00	Cum	<b>43.90</b>	Rs. 4,829.00
	b) Depth of excavation for additional depth beyond 1500 mm and up to 3000 mm but not required shoring.	1.00	Cum	<b>81.17</b>	Rs. 81.17
2 Page-68 item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	30.00	Cum	<b>27.26</b>	Rs. 817.80
3 P- 70, 3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	26.00	Cum	<b>345.70</b>	Rs. 8,988.20
4 P-84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	90.00	Sq.m	<b>161.36</b>	Rs. 14,522.40
5 P- 136, I- 13	<b>Supplying and laying Polythene Sheet</b> ( 150 gm / sq.m) over damp proof course or bellow flooring or roof terracing or in foundation or in foundation trenches.	20.35	Sq.m	<b>9.43</b>	Rs. 191.90
6 P-80 I-13	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	20.00	Cum	<b>128.96</b>	Rs. 2,579.20
7 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering .				
	(A) <b>6:3:1 proportion</b> I) Ground floor.	10.00	Cum.	<b>2863.50</b>	Rs. 28,635.00
8 P- 86 I-7 (a)	<b>Ordinary Cement concrete M20</b> ( mix 3:1.5:1 ) with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor as per IS 456-2000				
	(a) Pakur variety. A) Gr Floor.	97.00	Cum.	<b>4169.15</b>	Rs. 404,407.55
9 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m. (i) Tor steel/ Mild steel A) Ground Floor.	9.00	MT	<b>59574.72</b>	Rs. 536,172.48

10 P-124, I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate) in 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	97.00	Cum	110.09	Rs. 10,678.73
11 P-98 I-16, (a),(c),(f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge. (c) <b>Steel shuttering</b> or 9 to 12 mm. thick approved quality Ply board shuttering in any concrete work.				
	A) Ground Floor	350.00	Sq.M	<b>251.95</b>	Rs. 88,182.50
	(f) 25 mm. to 30 mm. <b>shuttering without staging in foundation</b> etc.	25.00	Sq.M	<b>111.10</b>	Rs. 2,777.50
12 P-106, I-26, & 31(a)	<b>Brick work with 1<sup>st</sup> class bricks in cement mortar (6:1)</b> b) In superstructure :- 1) Ground Floor.	4.00	Cum	<b>2851.71</b>	Rs. 11,406.84
13 P-126, It-3,iii	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works,using cement @1.75 kg./sq.m. all complete including all materials and labour. In ground floor. 3 mm. thick topping (High polishing grinding on this (i) 35 mm. thick.	80.00	Sqm	<b>188.25</b>	Rs. 15,060.00
14 P-342, It-1,iii,b	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or rougening of concrete surface, including throating, nosing and drip course where necessary (ground floor). (iii) With 3:1 cement mortar (b) 15 mm. thick plaster	338.00	Sqm	<b>74.43</b>	Rs. 25,157.34
15 P-346, It-7	Neat cement punning about 1.5 mm. thick in wall, dado, window, sills, floor, drain etc.				
	NOTE : Cement 0.152 cu.m. per 100 sq.m.	198.00	Sqm	<b>22.64</b>	Rs. 4,482.72
<b>Total</b>					Rs. 1,158,970.33
1 % CESS					Rs. 11,589.70
Total Estimated Amount including Cess					Rs. 1,170,560.03
Say					<b>Rs. 1170560.00</b>

**Estimate for the Construction of Centrifugal Pump Room at Zone- II under UIDSSMT  
Programme at Arambagh Municipality**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	20	Cum	<b>41.87</b>	Rs. 837.40
2 P-68 Item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	15	Cum	<b>26.00</b>	Rs. 390.00
3 P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	15	Cum	<b>224.76</b>	Rs. 3,371.40
4 P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	50	Sq.m	<b>114.00</b>	Rs. 5,700.00
5 P- 136, I- 11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	7	Sq.m	<b>94.00</b>	Rs. 658.00
6 P-80 I-13	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	<b>123.00</b>	Rs. 369.00
7 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering .				
	(A) <b>6:3:1 proportion</b> I) Ground floor.	5	Cum.	<b>2023.00</b>	Rs. 10,115.00
8 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor .		6.5		
	(a) Pakur variety. A) Gr Floor.	16.00	Cum.	<b>2944.00</b>	Rs. 47,104.00
9 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m. (i) Tor steel/ Mild steel A) Ground Floor.	18	M.T.	<b>32000.00</b>	Rs. 57,600.00

10 P-98 I-16. (a),(c),(f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or straight including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	60	Sq.M	143.00	Rs.	8,580.00
	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	10	Sq.M	101.00	Rs.	1,010.00
11 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)					
	a) In foundation and plinth	3.5	Cum	1902.00	Rs.	6,657.00
	b) In superstructure :- 1) Ground Floor.	22	Cum	1959.00	Rs.	43,098.00
12 P-342 I-1	Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)					
	(a) With 6:1 cement mortar , 20 mm thick plaster- 1) Gr Floor.	87	Sq.m	53.00	Rs.	4,611.00
	(b) with 6:1 cement mortar, 15 mm. thick plaster - 1) Gr Floor.	110	Sq.m	45.00	Rs.	4,950.00
	(c) with 4:1 cement mortar, 10 mm.thick plaster- 1) Gr Floor.	30	Sq.m	47.00	Rs.	1,410.00
	13 P-500, I-22 (b),	Supplying, fitting approved type ventilator in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	12	Each	18.00	Rs.
14 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	35	Sq.M	16.00	Rs.	560.00
15 P-126, I=3 (ii),(iii)	Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary )and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour . 3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement					
	(i) 25 mm thick 1) Ground Floor.	35	Sq.M	119.00	Rs.	4,165.00
16 P-190, I- 10, a, i	M.S or W.I. ornamental grill of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	50	Kg	40.00	Rs.	2,000.00

17 P-214, I-1 (b)	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.05	Cum	39147.00	Rs.	1,957.35
18 P-262, I-93, (iii),c	Panel shutters of door and window as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings 35mm thick shutters with 19 mm thick panel Gamari i) ground floor.	4	Sq.m	1584.00	Rs.	6,336.00
19 P-224, I-18,b	M.S. clamp for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar wiith stone chips (4:2:1) fitted and fixed complete as per drawwing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	16	Each	22.00	Rs.	352.00
20 P-224	Iron butt hinges of approved quality fitted and fixed with steel screws with steel screws with ISI mark 75 mm x 40 mm x 1.12 mm	32	Each	12.00	Rs.	384.00
21 Page- 196 / SI. No. 16a	a) Supplying fitting and fixing steel rolling shutter profile type with 18 B.G . Of approved type steel latche section 75mm wide, fitted with coil wire spring to necessiate the fitting of required Nos. of C.I. Pulleys on heavy type solid drawn seamless steel tube complete with locking arrangements both inside and outside specially builtup side guide channels including providing a hood for the steel rolling shutter in the room, painting two coats of approved aluminium paint over a coat of red lead primer complete. (Measurement will be made on the area of opening covered by the rolling shutter corrected upto 2 decimal.)	3.6	m2	1910.00	Rs.	6,876.00
22 P-230 I-25, c.	Iron socket bolt of approved quality fitted and fixed complete. a) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs.	328.00
23 P-352, I-3,c	White washing including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : Two coats. ( on new works only)	75	Sq.m	6.80	Rs.	510.00
24 Page- 358 / SI. No. 14	Applying decorative cement based paint of approved quality after preparing the surface including scraping the same thoroughly (plastered or concrete surface) as per manufacturer's specification. Two coats.	100	Sq.m	24.00	Rs.	2,400.00
25 P-366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	19	Sq.m	20.00	Rs.	380.00
26 P-366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary A) On timber or plastered surface With super gloss (hi- gloss) Two coats (with any shade except white ) B) On steel or other metal surface With super gloss-( hi- gloss) Two coats (With any; shade except white)	12	Sq.m	45.00	Rs.	552.00
		7	Sq.m	38.00	Rs.	266.00



27 P-382, I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.				
		a)75 mm dia	8	Mtr.	342.00
28 P-384, I-9 d,ii.	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete. mending good damages complete. (a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 75 mm. dia (b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 75 mm. dia (d) C.I. shoe of down pipe , 75 mm. dia	2	Each	163.00	Rs. 326.00
		2	Each	271.00	Rs. 542.00
		2	Each	84.00	Rs. 168.00
29 P- 136 / Sl. No. 9.i	Construction of circular soak well 2.5 metre deep in all types of sandy soils with dry brick work upto 1.6 metre from the bottom having 150 mm intermediate cement brick work (6:1) band all round and cement brick work (6:1) upto 0.90 metre from top with 19 mm thick cement plastering (4:1) to inside face upto the depth of cement brick work, 12 mm thick cement plaster (4:1) on outer face from top of the well upto G.L. and 6 mm thick cement plaster (4:1) on top of the R.C.C. cover slab including filling bottom 1.00 metre of inside of the well with brick metal (50 mm to 63 mm size) including R.C.C. cover slab of designed thickness with cement concrete (4:2:1) with stone chips with necessary reinforcement and shuttering including one 560 mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the cover slab with necessary fittings, making necessary arrangements for pipe connections, excavation of well including shoring, dewatering and removing the excess earth from the premises as per direction complete in all respect with all costs of labour and materials.				
		(a) With 250 mm thick dry brick work and 250 mm thick cement brick work (6:1) and 1.00 m. inside dia	1	each	7195.00

30. P-176, It- 3.i	Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar(4:1) including 560mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the top slab with necessary fittings, 19 mm thick cement plaster (4:1) with neat cement finish to the internal surfaces and 12 mm thick cement plaster (4:1) to outside wall upto 200 mm below G.L. , floor finished with 25 mm thick grey artificial stone including supplying, fitting and fixing all necessary specials, fittings, S.W. tees, C.I. foot rest etc. including excavating earth in all sorts of soil, shoring, bailing and pumping out water as necessary, ramming, dressing the bed and refilling the sides of the tank with earth, removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes, joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 5% by weight of cement, complete in all respect as per direction of Engineer - in charge .				
	(i) For 10 users	1	each	18705.00	Rs. 18,705.00
31 .P-160/ Sl. No 5,i	Orissa pattern water closet in white glazed vitreous chinaware of approved make supplied, fitted and fixed in position complete excluding 'P' or 'S' trap (excluding cost of concrete for fixing).				
	(i) 580 mm X 440 mm	1	each	1460.00	Rs. 1,460.00
32 P-138, It- 14,A,a,iii	Supplying, fitting and fixing cast iron 'P' or 'S' trap conforming to I.S. 3989 / 1970 and 1729 / 1964 including lead caulked joints and painting two coats to the exposed surface. Without AS Horn, 100 mm	1	each	365.00	Rs. 365.00
33 P-128, It- 1,a,ii	Cast iron soil pipe only conforming to I.S. 3989 / 1970 and I.S. 1729/1964 with bobbins, nails etc. including making holes in the wall, floor etc. and cutting trenches etc. in any floor through masonry concrete, if necessary, and mending good damages with necessary jointing materials and painting two coats to the exposed surface with approved paint complete. 100mm dia internal.				
	(a) With valamoid joints including sealing with sand cement mortar (4:1) upto quarter depth.	6	Mtr.	399.00	Rs. 2,394.00
34 P- 74 / Sl. No. 18	Supplying fitting & fixing approved quality FRP Water storage tanks conforming to IS 12701 in different capacities complete with top lid cover.				
	(a) 500 Litre capacity	1	each	2970.00	Rs. 2,970.00
35. P- 72 / Sl. No.	Labour for hoisting plastic water storage tank.				
	(i) Upto 1500 litre capacity.	1	each	40.00	Rs. 40.00
36 P- 72 / Sl. No. 10	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats of painting to bracket etc.	1	each	1217.00	Rs. 1,217.00

37 P-12 / Sl. No. 2	Supplying, fitting and fixing in position G.I. pipes of TATA make for underground works with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, short piece etc. including cost of all materials, jointing materials, cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and refilling the same as directed with two coats of painting on G.I. pipes and specials with bituminous paint complete in all respect. (Payment will be made on the centre line measurement of the total pipe line including all specials. No separate payment will be made for accessories, specials.)				
	(i) 15 mm dia. medium quality	15	Mtr.	124.00	Rs. 1,860.00
	(ii) 20 mm dia Medium	10	Mtr.	139.00	Rs. 1,390.00
38 P-14 / Sl. No. 5	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only). 20 mm	1	each	369.00	Rs. 369.00
39 Page-16 / Sl. No. 7.i	Supplying, fitting and fixing gunmetal stop cock/ bib cock of approved make and brand tested to 21 kg per sq. cm.				
	(i) 15 mm	1	each	153.00	Rs. 153.00
40 P-136 / Sl. No. 9.i	Approved patent vent cow I.C.I. conforming to I.S.S.				
	(i) 100 mm dia.	1	each	155.00	Rs. 155.00
				<b>TOTAL</b>	<b>Rs. 265,788.15</b>
				<b>Add CESS @ 1%</b>	<b>Rs. 2,657.88</b>
				<b>Total</b>	<b>Rs. 265,943.15</b>
				<b>SAY Rs.</b>	<b>Rs. 265,943.00</b>

**ANNEXURE-III (ii) (a)**

**Estimate for the construction of CWR(100 cum) under UDDISSMT programme at Noapara , Zone-III under Arambagh Municipality**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 Page=68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	80	Cum	<b>43.90</b>	Rs. 3,512.00
	b) Depth of excavation for additional depth beyond 1500 mm and up to 3000 mm but not required shoring.	1.00	Cum	<b>81.17</b>	Rs. 81.17
2 Page-68 item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	10	Cum	<b>27.26</b>	Rs. 272.60
3 P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	20	Cum	<b>345.70</b>	Rs. 6,914.00
4 P-84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	42	Sq.m	<b>161.36</b>	Rs. 6,777.12
5 P- 136, I- 13	<b>Supplying and laying Polythene Sheet</b> ( 150 gm / sq.m) over damp proof course or bellow flooring or roof terracing or in foundation or in foundation trenches.	1.4	Sq.m	<b>9.43</b>	Rs. 13.20
6 P-80 I-13	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	1.00	Cum	<b>128.96</b>	Rs. 128.96
7 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering .				
	(A) <b>6:3:1 proportion</b> I) Ground floor.	5	Cum.	<b>2863.50</b>	Rs. 14,317.50
8 P-86 I-7 (a)	<b>Ordinary Cement concrete M20</b> ( mix 3:1.5:1 ) with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor as per IS 456-2000				
	(a) Pakur variety. A) Gr Floor.	64	Cum.	<b>4169.15</b>	Rs. 266,825.60
9 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel A) Ground Floor.	6.5	MT	<b>59574.72</b>	Rs. 387,235.68

10 P-124 I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate) in 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	64	Cum	110.09	Rs.	7,045.76
11 P-98 I-16, (a),(c),(f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge  (c) <b>Steel shuttering</b> or 9 to 12 mm. thick approved quality Ply board shuttering in any concrete work.  A) Ground Floor	200	Sq.M	251.95	Rs.	50,390.00
	(f) 25 mm. to 30 mm. <b>shuttering without staging in foundation</b> etc.	20	Sq.M	142.96	Rs.	2,859.20
12 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1) b) In superstructure :- 1) Ground Floor.	0.50	Cum	2851.71	Rs.	1,425.86
13 P-126, It-3,iii	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works,using cement @1.75 kg./sq.m. all complete including all materials and labour. In ground floor.  3 mm. thick topping (High polishing grinding on this item is not permitted) with ordinary cement.  (i) 35 mm. thick.	40	Sqm	188.25	Rs.	7,530.00
14 P-342, It-1,iii,b	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or rougening of concrete surface, including throating, nosing and drip course where necessary (ground floor).  (iii) With 3:1 cement mortar  (b) 15 mm. thick plaster	200	Sqm	74.43	Rs.	14,886.00
15 P-346, It-7	Neat cement punning about 1.5 mm. thick in wall, dado, window, sills, floor, drain etc.					
	NOTE : Cement 0.152 cu.m. per 100 sq.m.	107	Sqm	22.64	Rs.	2,422.48
<b>Total</b>					<b>Rs.</b>	<b>772,637.13</b>
1 % CESS					<b>Rs.</b>	<b>7,726.37</b>
Total Estimated Amount including Cess					<b>Rs.</b>	<b>780,363.50</b>
<b>SAY</b>					<b>Rs.</b>	<b>780,363.00</b>

**Estimate for the Construction of Centrifugal Pump Room at Zone- III under UIDSSMT Programme at Arambagh Municipality**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
<b>1</b> P-68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	20	Cum	<b>41.87</b>	Rs. 837.40
<b>2</b> P-68 Item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	15	Cum	<b>26.00</b>	Rs. 390.00
<b>3</b> P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	15	Cum	<b>224.76</b>	Rs. 3,371.40
<b>4</b> P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	50	Sq.m	<b>114.00</b>	Rs. 5,700.00
<b>5</b> P- 136, I- 11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed .	7	Sq.m	<b>94.00</b>	Rs. 658.00
<b>6</b> P-80 I-13	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	<b>123.00</b>	Rs. 369.00
<b>7</b> P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering . <b>(A) 6:3:1 proportion</b>				
	I) Ground floor.	5	Cum.	<b>2023.00</b>	Rs. 10,115.00
<b>8</b> P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor .		6.5		
	(a) Pakur variety.				
	A) Gr Floor.	16.00	Cum.	<b>2944.00</b>	Rs. 47,104.00
<b>9</b> P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	1.8	M.T.	<b>32000.00</b>	Rs. 57,600.00

10 P-98 I-16, (a),(c),(f)	Hire and labour charges for shuttering with centring and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	60	Sq.M	143.00	Rs.	8,580.00
	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	10	Sq.M	101.00	Rs.	1,010.00
11 P-106, I-26, & 31(a)	<b>Brick work with 1<sup>st</sup> class bricks in cement mortar (6:1)</b>					
	a) In foundation and plinth	3.5	Cum	1902.00	Rs.	6,657.00
	b) In superstructure :- 1) Ground Floor.	22	Cum	1958.00	Rs.	43,098.00
12 P-342 I-1	<b>Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)</b>					
	(a) With 6:1 cement mortar , 20 mm thick plaster- 1) Gr Floor.	87	Sq.m	53.00	Rs.	4,611.00
	(b) with 6:1 cement mortar, 15 mm. thick plaster - 1) Gr Floor.	110	Sq.m	45.00	Rs.	4,950.00
	(c) with 4:1 cement mortar, 10 mm.thick plaster- 1) Gr Floor.	30	Sq.m	47.00	Rs.	1,410.00
13 P-500, I-22 (b),	<b>Supplying, fitting approved type ventilator</b> in position after cutting holes, setting in cement mortar , mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick , upto 0.10 sq.m. area.	12	Each	18.00	Rs.	216.00
14 P-346 I-7	<b>Neat cement punning</b> about 1.5 mm thick in wall dado window sills floor drain etc.  (NOTE: Cement 0.152 cu.m. per 100.sq.m )	35	Sq.M	16.00	Rs.	560.00
15 P-126, I=3 (ii),(iii)	<b>Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary )and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour .</b> 3mm thick topping (High polishing grinding on this item is not permitted ) with ordinary cement					
	(i) 25 mm thick 1) Ground Floor.	35	Sq.M	119.00	Rs.	4,165.00
16 P-190, I- 10, a, i	<b>M.S or W.I. ornamental grill</b> of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	50	Kg	40.00	Rs.	2,000.00

17 P-214, I-1 (b)	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame Sal : Silihuri	0.05	Cum	39147.00	Rs.	1,957.35
18 P-262, I-93, (iii),c	Panel shutters of door and window as per design (each panel consisting of single plank without joint) including fitting and fixing the same in position but excluding the cost of hinge and other fittings 35mm thick shutters with 19 mm thick panel Gamari i) ground floor.	4	Sq.m	1584.00	Rs.	6,336.00
19 P-224, I-18,b	M.S. clamp for fixing door and window frame made of flat bent bar and bifurcated, fixed in cement mortar with stone chips (4:2:1) fitted and fixed complete as per drawing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	16	Each	22.00	Rs.	352.00
20 P-224	Iron butt hinges of approved quality fitted and fixed with steel screws with steel screws with ISI mark 75 mm x 40 mm x 1.12 mm	32	Each	12.00	Rs.	384.00
21 Page- 196 / Sl. No. 16a	a) Supplying fitting and fixing steel rolling shutter profile type with 18 B.G. Of approved type steel latch section 75mm wide, fitted with coil wire spring to necessitate the fitting of required Nos. of C.I. Pulleys on heavy type solid drawn seamless steel tube complete with locking arrangements both inside and outside specially built up side guide channels including providing a hood for the steel rolling shutter in the room, painting two coats of approved aluminium paint over a coat of red lead primer complete. (Measurement will be made on the area of opening covered by the rolling shutter corrected upto 2 decimal.)	3.6	m2	1910.00	Rs.	6,876.00
22 P-230 I-25, c,	Iron socket bolt of approved quality fitted and fixed complete. a) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs.	328.00
23 P-352, I-3,c	White washing including cleaning and smoothening surface thoroughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors : Two coats. ( on new works only)	75	Sq.m	6.80	Rs.	510.00
24 Page- 358 / Sl. No. 14	Applying decorative cement based paint of approved quality after preparing the surface including scraping the same thoroughly (plastered or concrete surface) as per manufacturer's specification. Two coats.	100	Sq.m	24.00	Rs.	2,400.00
25 P-366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	19	Sq.m	20.00	Rs.	380.00
26 P-366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary A) On timber or plastered surface With super gloss (hi- gloss) Two coats (with any shade except white ) B) On steel or other metal surface With super gloss-( hi- gloss) Two coats (With any; shade except white)	12	Sq.m	46.00	Rs.	552.00
		7	Sq.m	38.00	Rs.	266.00



27 P-382, I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.				
	a)75 mm dia	8	Mtr.	342.00	Rs. 2,736.00
28 P-384, I-9,d,ii.	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete. (a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 75 mm. dia (b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 75 mm. dia (d) C.I. shoe of down pipe . 75 mm. dia	2	Each	163.00	Rs. 326.00
	(b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 75 mm. dia	2	Each	271.00	Rs. 542.00
	(d) C.I. shoe of down pipe . 75 mm. dia	2	Each	84.00	Rs. 168.00
29 P- 136 / Sl. No. 9.i	Construction of circular soak well 2.5 metre deep in all types of sandy soils with dry brick work upto 1.6 metre from the bottom having 150 mm intermediate cement brick work (6:1) band all round and cement brick work (6:1) upto 0.90 metre from top with 19 mm thick cement plastering (4:1) to inside face upto the depth of cement brick work, 12 mm thick cement plaster (4:1) on outer face from top of the well upto G.L. and 6 mm thick cement plaster (4:1) on top of the R.C.C. cover slab including filling bottom 1.00 metre of inside of the well with brick metal (50 mm to 63 mm size) including R.C.C. cover slab of designed thickness with cement concrete (4:2:1) with stone chips with necessary reinforcement and shuttering including one 560 mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the cover slab with necessary fittings, making necessary arrangements for pipe connections, excavation of well including shoring, dewatering and removing the excess earth from the premises as per direction complete in all respect with all costs of labour and materials.				
	(a) With 250 mm thick dry brick work and 250 mm thick cement brick work (6:1) and 1.00 m.inside dia	1	each	7195.00	Rs. 7,195.00

30. P-176. It- 3.i	Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar(4:1) including 560mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the top slab with necessary fittings, 19 mm thick cement plaster (4:1) with neat cement finish to the internal surfaces and 12 mm thick cement plaster (4:1) to outside wall upto 200 mm below G.L. , floor finished with 25 mm thick grey artificial stone including supplying,fitting and fixing all necessary specials, fittings,S.W. tees, C.I. foot rest etc. including excavating earth in all sorts of soil,shoring,bailing and pumping out water as necessary,ramming,dressing the bed and refilling the sides of the tank with earth,removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes,joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 5% by weight of cement, complete in all respect as per direction of Engineer - in charge .					
	(i) For 10 users	1	each	18705.00	Rs.	18,705.00
31 P-160/ Sl. No 5.i	Orissa pattern water closet in white glazed vitreous chinaware of approved make supplied, fitted and fixed in position complete excluding 'P' or 'S' trap (excluding cost of concrete for fixing).					
	(i) 580 mm X 440 mm	1	each	1460.00	Rs.	1,460.00
32 P-138, It- 14.A.a.iii	Supplying,fitting and fixing cast iron 'P' or 'S' trap conforming to I.S. 3989 / 1970 and 1729 / 1964 including lead caulked joints and painting two coats to the exposed surface. Without AS Horn, 100 mm	1	each	365.00	Rs.	365.00
33 P-128, It- 1.a.ii	Cast iron soil pipe only conforming to I.S. 3989 / 1970 and I.S. 1729/1964 with bobbins, nails etc. including making holes in the wall, floor etc. and cutting trenches etc. in any floor through masonry concrete, if necessary, and mending good damages with necessary jointing materials and painting two coats to the exposed surface with approved paint complete. 100mm dia internal.					
	(a) With valamoid joints including sealing with sand cement mortar (4:1) upto quarter depth.	6	Mtr.	399.00	Rs.	2,394.00
34 P- 74 / Sl. No. 18	Supplying fitting & fixing approved quality FRP Water storage tanks conforming to IS 12701 in dfferent capacities complete with top lid cover.					
	(a) 500 Litre capacity	1	each	2970.00	Rs.	2,970.00
35. P- 72 / Sl. No.	Labour for hoisting plastic water storage tank.					
	(i) Upto 1500 litre capacity.	1	each	40.00	Rs.	40.00
36 P- 72 / Sl. No. 10	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete,C.I. brackets including two coats of painting to bracket etc.	1	each	1217.00	Rs.	1,217.00

37 P-12 / Sl. No. 2	Supplying, fitting and fixing in position G I pipes of TATA make for underground works with all necessary accessories, specials viz. socket, bend, tee, union, cross, elbow, nipple, short piece etc. including cost of all materials, jointing materials, cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and refilling the same as directed with two coats of painting on G I pipes and specials with bituminous paint complete in all respect. (Payment will be made on the centre line measurement of the total pipe line including all specials No separate payment will be made for accessories, specials.)				
	(i) 15 mm dia. medium quality	15	Mtr.	124.00	Rs. 1,860.00
	ii) 20 mm dia Medium	10	Mtr.	139.00	Rs. 1,390.00
38 P-14 / Sl. No. 5	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only). 20 mm	1	each	369.00	Rs. 369.00
39 Page-16 / Sl. No. 7,i	Supplying, fitting and fixing gunmetal stop cock/ bib cock of approved make and brand tested to 21 kg per sq. cm.				
	(i) 15 mm	1	each	153.00	Rs. 153.00
40 P-136 / Sl. No. 9,i	Approved patent vent cowl I.C.I. conforming to I.S.S.				
	(i) 100 mm dia.	1	each	155.00	Rs. 155.00
				<b>TOTAL</b>	<b>Rs. 265,788.15</b>
				<b>Add CESS @ 1%</b>	<b>Rs. 2,657.88</b>
				<b>Total</b>	<b>Rs. 265,943.15</b>
				<b>SAY Rs.</b>	<b>Rs. 265,943.00</b>

## ANNEXURE-III(iii)

## Estimate for the construction of CWR (150 cum) at Zone- IV under UDDISSMT programme at Chandur under Arambagh Municipality

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 Page=6 8 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	110.00	Cum	<b>43.90</b>	Rs. 4,829.00
	b) Depth of excavation for additional depth beyond 1500 mm and up to 3000 mm but not required shoring.	1.00	Cum	<b>81.17</b>	Rs. 81.17
2 Page-68 item=2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation.	16.00	Cum	<b>27.26</b>	Rs. 436.16
3 P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	26.00	Cum	<b>345.70</b>	Rs. 8,988.20
4 P-84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	75.00	Sq.m	<b>161.36</b>	Rs. 12,102.00
5 P- 136, I- 13	<b>Supplying and laying Polythene Sheet</b> ( 150 gm / sq.m) over damp proof course or below flooring or roof terracing or in foundation or in foundation trenches.	2.00	Sq.m	<b>9.43</b>	Rs. 18.86
6 P-80 I-13	<b>Removal of rubbish, earth etc.</b> from the working site and disposal of the same beyond the compound, in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	1.00	Cum	<b>128.96</b>	Rs. 128.96
7 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast</b> (40mm size) excluding shuttering.				
	(A) 6:3:1 proportion I) Ground floor.	7.50	Cum.	<b>2863.50</b>	Rs. 21,476.25
8 P-86 I-7 (a)	<b>Ordinary Cement concrete M20 ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor as per IS 456-2000				
	(a) Pakur variety.				
	A) Gr Floor.	87.65	Cum.	<b>4169.15</b>	Rs. 365,426.00
9 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction.				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	7.40	MT	<b>59574.72</b>	Rs. 440,852.93

10 P-124 I-65	Extra rate for using water proffing and plasticising admixture @ 0.2 % weight of cement ( or at manufacture's specified rate) In 3:1.5:1 concrete. (Payment on volume of 3:1.5:1 concrete )	88.00	Cum	110.09	Rs. 9,687.92
11 P-98 I-16, (a),(c),(f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab , beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.  (c) Steel shuttering or 9 to 12 mm. thick approved quality Ply board shuttering in any concrete work.				
	A) Ground Floor	300.00	Sq.M	251.95	Rs. 75,585.00
	(f) 25 mm. to 30 mm. shuttering without staging in foundation etc.	20	Sq.M	142.96	Rs. 2,859.20
12 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1) b) In superstructure :- 1) Ground Floor.	0.50	Cum	2851.71	Rs. 1,425.86
13 P-126, It-3,iii	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works,using cement @1.75 kg./sq.m. all complete including all materials and labour.  In ground floor. 3 mm. thick topping (High polishing grinding on this item is not permitted) with ordinary cement. (i) 35 mm. thick.	45.00	Sqm	188.25	Rs. 8,471.25
14 P-342, It-1,iii,b	Plaster (to wall, floor, ceiling etc.) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or rougening of concrete surface, including throating, nosing and drip course where necessary (ground floor).  (iii) With 3:1 cement mortar (b) 15 mm. thick plaster	250.00	Sqm	74.43	Rs. 18,607.50
15 P-346, It-7	Neat cement punning about 1.5 mm. thick in wall, dado, window, sills, floor, drain etc.				
	NOTE : Cement 0.152 cu.m. per 100 sq.m.	120.00	Sqm	22.64	Rs. 2,716.80
<b>Sub-total</b>					Rs. 973,693.05
1 % CESS					Rs. 9,736.93
Total Estimated Amount including Cess					Rs. 983,429.98
<b>SAY</b>					Rs: 983430.00

**Estimate for the Construction of Centrifugal Pump Room at Zone- IV under UIDSSMT Programme at Arambagh Municipality**

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains , in all sorts of soil (including mixed soil but excluding laterites or sandstone ) including removing spreading or stacking the spoils within a lead of 75m as directed . The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete .				
	a) Depth of excavation not exceeding 1.5m	20	Cum	41.87	Rs. 837.40
2 P-68 item-2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete .				
	a) With earth obtained from excavation of foundation .	15	Cum	26.00	Rs. 390.00
3 P- 70, I-3a	<b>Filling in foundation of plinth by fine sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	15	Cum	224.76	Rs. 3,371.40
4 P -84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand .	50	Sq.m	114.00	Rs. 5,700.00
5 P- 136, I- 11	<b>25 mm thick damp proof course</b> with cement concrete with stone chips (4:2:1) and admixture of water proofing compound as per manufacture 's specification over a coat of polymer based paint, double chequered complete as directed	7	Sq.m	94.00	Rs. 658.00
6 P-80 I-13	<b>Removal of rubbish, earth etc</b> from the working site and disposal of the same beyond the compound , in conformity with the Municipal/ Corporation Rules for such disposal, loading into truck and cleaning the site in all respect as per direction of the E.I.C.	3	Cum	123.00	Rs. 369.00
7 P-94 I-14 (A)a	<b>Cement concrete with graded stone ballast (40mm size)</b> excluding shuttering .				
	(A) 6:3:1 proportion I) Ground floor.	5	Cum.	2023.00	Rs. 10,115.00
8 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor .		6.5		
	(a) Pakur variety.				
	A) Gr Floor.	16.00	Cum.	2944.00	Rs. 47,104.00
9 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary )cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction .				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel A) Ground Floor.	1.8	M.T.	32000.00	Rs. 57,600.00

10 P-98 I-16. (a),(c),(f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	60	Sq.M	143.00	Rs.	8,580.00
	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	10	Sq.M	101.00	Rs.	1,010.00
11 P-106, I-26. & 31(a)	<b>Brick work with 1<sup>st</sup> class bricks in cement mortar (6:1)</b>					
	a) In foundation and plinth	3.5	Cum	1902.00	Rs.	6,657.00
	b) In superstructure :- 1) Ground Floor.	22	Cum	1959.00	Rs.	43,098.00
12 P-342 I-1	<b>Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)</b>					
	(a) <b>With 6:1 cement mortar, 20 mm thick plaster-</b> 1) Gr Floor.	87	Sq.m	53.00	Rs.	4,611.00
	(b) <b>with 6:1 cement mortar, 15 mm. thick plaster -</b> 1) Gr Floor.	110	Sq.m	45.00	Rs.	4,950.00
	(c) <b>with 4:1 cement mortar, 10 mm.thick plaster-</b> 1) Gr Floor.	30	Sq.m	47.00	Rs.	1,410.00
13 P-500, I-22 (b).	<b>Supplying, fitting approved type ventilator</b> in position after cutting holes, setting in cement mortar, mending damages to wall and plaster and two coats of paint of approved brand and shade. (b) R.C.C. ventilator of 20 mm. thick, upto 0.10 sq.m. area.	12	Each	18.00	Rs.	216.00
14 P-346 I-7	<b>Neat cement punning</b> about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m)	35	Sq.M	16.00	Rs.	560.00
15 P-126, I=3 (ii),(iii)	<b>Artificial stone in floor dado staircase etc with cement concrete (4:2:1)with stone chips laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1)including smooth finishing and rounding off corners and including application of cement slurry before flooring works using cement @1.75 kg/sq.m all complete including all materials and labour.</b> 3mm thick topping (High polishing grinding on this item is not permitted) with ordinary cement					
	(i) <b>25 mm thick</b> 1) Ground Floor.	35	Sq.M	119.00	Rs.	4,165.00
16 P-190, I-10, a, i	<b>M.S or W.I. ornamental grill</b> of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.	50	Kg	40.00	Rs.	2,000.00

17 P-214 I-1 (b)	Wood work in door and window frame fitted and fixed complete including a protective coat of painting at the contact surface of the frame . Sal : Silihuri	0.05	Cum	39147.00	Rs.	1,957.35
18 P-262, I-93, (iii),c	Panel shutters of door and window as per design (each panel consisting of single plank without joint ) including fitting and fixing the same in position but excluding the cost of hinge and other fittings 35mm thick shutters with 19 mm thick panel Gamari i) ground floor.	4	Sq.m	1584.00	Rs.	6,336.00
19 P-224, I-18,b	M.S. clamp for fixing dor and window frame made of flat bent bar and bifucated, fixed in cement mortar with stone chips (4:2:1) fitted and fixed complete as per drawing. 40 mm x 6 mm above 170 mm. upto 250 mm length.	16	Each	22.00	Rs.	352.00
20 P-224	Iron butt hinges of approved quality fitted and fixed with steel screws with steel screws with ISI mark 75 mm x 40 mm x 1.12 mm	32	Each	12.00	Rs.	384.00
21 Page- 196 / Sl. No. 16a	a) Supplying fitting and fixing steel rolling shutter profile type with 18 B.G . Of approved type steel latch section 75mm wide, fitted with coil wire spring to necessitate the fitting of required Nos. of C.I. Pulleys on heavy type solid drawn seamless steel tube complete with locking arrangements both inside and outside specially builtup side guide channels including providing a hood for the steel rolling shutter in the room, painting two coats of approved aluminium paint over a coat of red lead primer complete.(Measurement will be made on the area of opening covered by the rolling shutter corrected upto 2 decimal.)	3.6	m2	1910.00	Rs.	6,876.00
22 P-230 I-25, c.	Iron socket bolt of approved quality fitted and fixed complete. a) 150 mm long x 10 mm dia bolt	8	Each	41.00	Rs.	328.00
23 P-352, I-3,c	White washing including cleaning and smoothening surface throughly ( 5 parts of stone lime and 1 part of shell lime should be used in the finishing coat ) All floors Two coats.( on new works only)	75	Sq.m	6.80	Rs.	510.00
24 Page- 358 / Sl. No. 14	Applying decorative cement based paint of approved quality after preparing the surface including scraping the same thoroughly (plastered or concrete surface) as per manufacturer's specification. Two coats.	100	Sq.m	24.00	Rs.	2,400.00
25 P-366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	19	Sq.m	20.00	Rs.	380.00
26 P-366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary A) On timber or plastered surface With super gloss (hi- gloss) Two coats (with any shade except white ) B) On steel or other metal surface With super gloss-( hi- gloss) Two coats (With any; shade except white)	12	Sq.m	46.00	Rs.	552.00
		7	Sq.m	38.00	Rs.	266.00



27 P-382 I- 8	Supply fitting, fixing cast iron down pipes of approved quality in position with necessary clamps, nails including making hole in wall, floor etc. and cutting trenches in any soil through masonry concrete structure etc. if necessary and mending good damages including joining with jointing materials complete.				
	a)75 mm dia	8	Mtr.	342.00	Rs. 2,736.00
28 P-384, I-9,d,ii.	Supplying fitting, fixing C.I.specials of down pipes in position with clamps nails etc. with jointing materials including cutting holes in masonry or concrete, mending good damages complete.	2	Each	163.00	Rs. 326.00
	(a) C.I. head or 'Y' or 'T' junction (Single) of down pipe. 75 mm. dia				
	(b) C.I. head or 'Y' or 'T' junction (Double) of down pipe. 75 mm. dia	2	Each	271.00	Rs. 542.00
	(d) C.I. shoe of down pipe . 75 mm. dia	2	Each	84.00	Rs. 168.00
29 P- 136 / Sl. No. 9,i	Construction of circular soak well 2.5 metre deep in all types of sandy soils with dry brick work upto 1.6 metre from the bottom having 150 mm intermediate cement brick work (6:1) band all round and cement brick work (6:1) upto 0.90 metre from top with 19 mm thick cement plastering (4:1) to inside face upto the depth of cement brick work, 12 mm thick cement plaster (4:1) on outer face from top of the well upto G.L. and 6 mm thick cement plaster (4:1) on top of the R.C.C. cover slab including filling bottom 1.00 metre of inside of the well with brick metal (50 mm to 63 mm size) including R.C.C. cover slab of designed thickness with cement concrete (4:2:1) with stone chips with necessary reinforcement and shuttering including one 560 mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the cover slab with necessary fittings, making necessary arrangements for pipe connections, excavation of well including shoring, dewatering and removing the excess earth from the premises as per direction complete in all respect with all costs of labour and materials.				
	(a) With 250 mm thick dry brick work and 250 mm thick cement brick work (6:1) and 1.00 m.inside dia	1	each	7195.00	Rs. 7,195.00

30. P-176, It- 3.i	Construction of septic tank of different capacities as per approved drawing with 1st class brick work in cement mortar(4:1) including 560mm dia. R.C.C. manhole cover of approved make supplied, fitted and fixed in the top slab with necessary fittings, 19 mm thick cement plaster (4:1) with neat cement finish to the internal surfaces and 12 mm thick cement plaster (4:1) to outside wall upto 200 mm below G.L. floor finished with 25 mm thick grey artificial stone including supplying, fitting and fixing all necessary specials, fittings, S.W. tees, C.I. foot rest etc. including excavating earth in all sorts of soil, shoring, bailing and pumping out water as necessary, ramming, dressing the bed and refilling the sides of the tank with earth, removing spoils, filling up the chamber with clear water, removing foreign materials from the chamber and including constructing attached inspection pit as per approved drawing and connecting all necessary pipes, joints etc. with internal plaster work and artificial stone flooring is to be done with admixture of water proofing compound @ 5% by weight of cement, complete in all respect as per direction of Engineer - in charge.					
	(i) For 10 users	1	each	18705.00	Rs.	18,705.00
31 P-160/ Sl. No 5.i	Orissa pattern water closet in white glazed vitreous chinaware of approved make supplied, fitted and fixed in position complete excluding 'P' or 'S' trap (excluding cost of concrete for fixing).					
	(i) 580 mm X 440 mm	1	each	1460.00	Rs.	1,460.00
32 P-138, It- 14.A.a.iii	Supplying, fitting and fixing cast iron 'P' or 'S' trap conforming to I.S. 3989 / 1970 and 1729 / 1964 including lead caulked joints and painting two coats to the exposed surface. Without AS Horn, 100 mm	1	each	365.00	Rs.	365.00
33 P-128, It- 1.a.ii	Cast iron soil pipe only conforming to I.S. 3989 / 1970 and I.S. 1729/1964 with bobbins, nails etc. including making holes in the wall, floor etc. and cutting trenches etc. in any floor through masonry concrete, if necessary, and mending good damages with necessary jointing materials and painting two coats to the exposed surface with approved paint complete. 100mm dia internal.					
	(a) With valamoid joints including sealing with sand cement mortar (4:1) upto quarter depth.	6	Mtr.	399.00	Rs.	2,394.00
34 P-74 / Sl. No. 18	Supplying fitting & fixing approved quality FRP Water storage tanks conforming to IS 12701 in different capacities complete with top lid cover.					
	(a) 500 Litre capacity	1	each	2970.00	Rs.	2,970.00
35. P-72 / Sl. No.	Labour for hoisting plastic water storage tank.					
	(i) Upto 1500 litre capacity.	1	each	40.00	Rs.	40.00
36 P-72 / Sl. No. 10	Supplying, fitting and fixing 10 litre P.V.C. low-down cistern conforming to I.S. specification with P.V.C. fittings complete, C.I. brackets including two coats of painting to bracket etc.	1	each	1217.00	Rs.	1,217.00

37 P-12 / SI No 2	Supplying, fitting and fixing in position G I pipes of TATA make for underground works with all necessary accessories, specials viz socket, bend, tee, union, cross, elbow, nipple, short piece etc including cost of all materials, jointing materials, cutting pipes, making threads, cutting trenches upto 1.5 metre below surface in all sorts of soil and refilling the same as directed with two coats of painting on G. I. pipes and specials with bituminous paint complete in all respect. (Payment will be made on the centre line measurement of the total pipe line including all specials No separate payment will be made for accessories, specials)				
	(i) 15 mm dia. medium quality	15	Mtr.	124.00	Rs. 1,860.00
	ii) 20 mm dia Medium	10	Mtr.	139.00	Rs. 1,390.00
38 P-14 / SI No. 5	Supplying, fitting and fixing gunmetal wheel valve of approved brand and make tested to 21 kg per sq. cm. (for water lines only). 20 mm	1	each	369.00	Rs. 369.00
39 Page-16 / SI No. 7,i	Supplying, fitting and fixing gunmetal stop cock/ bib cock of approved make and brand tested to 21 kg per sq. cm.				
	(i) 15 mm	1	each	153.00	Rs. 153.00
40 P-136 / SI No. 9,i	Approved patent vent cowl I.C.I. conforming to I.S.S.				
	(i) 100 mm dia	1	each	155.00	Rs. 155.00
				<b>TOTAL</b>	<b>Rs. 265,788.15</b>
				<b>Add CESS @ 1%</b>	<b>Rs. 2,657.88</b>
				<b>Total</b>	<b>Rs. 265,943.15</b>
				<b>SAY Rs.</b>	<b>Rs. 265,943.00</b>

## ANNEXURE-IV (i)

Estimate for Repairing & renovation of 100000 gallons capacity Over Head Reservoir at  
Arambagh  
Zone-I under Arambag Municipality under UIDSSMT Scheme

Sl No	Description of Item	Quantity	Rate	Unit	Amount
1	Cleaning the concrete surface by removeing dirt and debris, marking defective locations and removeing loose conc by careful stripping untill hard surface is exposed, cutting the conc. By regular shape, wire brushing the exposed surface and removing debris from site complete as per direction of EIC.	400.00	35.70	/ Sqm	14280.00
2	Cleaning the exposed reinforcement perferably up to full dia by wire brush and applying cement bound polymer modified protective creating formulated to inhibit the corrosion of reinforcement as per manufacture's specification.	80.00	588.00	/ Sqm	47040.00
3	Applying epoxy based reactive jointing agent for jointing old concrete with fresh conc. To be applied within manufacture's specification[0.40 Kg/Sqm of conc. Surface]	100.00	289.80	/ Sqm	28980.00
4	Extra rate for using water proofing and plasticiting admixture @ 0.2% weight of cement (or at manufacture's specification) in (3:1:5:1) concrete (Payment of Vol. Of (3:1:5:1) concrete)	11.00	110.25	/Cum	1212.75
5	Removing corroded worn out position of reinforcement (When the area of bar is damaged by more than 25%) by cutting and replacing the same by a new plain round bar, of requisite dia by binding with required lap / welding with old bar including cost of reinforcement, complete in all respect including removing unservicable materials form site as per direction of EIC (Payment on weight (Kg) of new reinforcement)	120.00	94.08	Kg	11289.60
6	Ordinary Cement Concrete (3:1:5:1) M - 20 with graded stone chips (20mm size) excluding shuttering and reinforcement if any in ground floor as per IS 456:2000	3.00	4149.02	/Cum	12447.06
b)	Ordinary Cement Concrete (3:1:5:1) M - 20 with graded stone chips (20mm size) excluding shuttering and reinforcement if any (Up to height 20 Mtr.)	8.00	4185.87	/Cum	33486.96
7	Making cement grouting by drilling holes in the column and shell wall of OHR & where necessary fixed nozzle through which injecting CICA - 3 Cico, NSD compound, CICO composite admixture with cement through the nozzle under pressure by pump compressor as per expert opinion & instruction of EIC complete in all respect with supply of all materials tools & plats etc. (only cement will be supplied by departmentally free of cost)	10.00	420.00	Each	4200.00
8	Plaster to wall, floor, ceiling with sand & cement mortar including rounding off or chamfering corners as directed, racking out joints or roughening of surface including throating, nosing & drip course where necessary. A) 4:1 cement mortar 20 mm thick plaster (Ground Floor)	150.00	104.90	/Sqm	15735.00
a)	Add extra for each additional floor the rate for ground floor.				
i)	04 Mtr. to 08 Mtr.	150.00	105.74	/Sqm	15861.00
ii)	08 Mtr. to 12 Mtr.	150.00	106.58	/Sqm	15987.00
iii)	12 Mtr. or 16 Mtr.	150.00	107.42	/Sqm	16113.00
iv)	16 Mtr. to 20 Mtr.	150.00	108.26	/Sqm	16239.00
v)	20 Mtr. to 24 Mtr.	300.00	110.26	/Sqm	33078.00

Sl No	Description of Item	Quantity	Rate	Unit	Amount
9	Applying decorative Cement based paint of approved quality after preparing the surface including scraping the same thoroughly (plastered or conc. Surface) as per manufactures specification in ground floor a) 2(two) coats				
i)	0 Mtr. to 04 Mtr.	150.00	25.20	/Sqm	3780.00
ii)	04 Mtr. to 08 Mtr.	150.00	25.73	/Sqm	3859.50
iii)	08 Mtr. to 12 Mtr.	150.00	26.36	/Sqm	3954.00
iv)	12 Mtr. or 16 Mtr.	150.00	26.79	/Sqm	4018.50
v)	16 Mtr. to 20 Mtr.	150.00	27.37	/Sqm	4105.50
vi)	20 Mtr. to 24 Mtr.	300.00	27.95	/Sqm	4192.50
10	Painting with ready mixed black Japan of approved make and brand including smoothing surface.	900.00	31.50	/Sqm	9450.00
11	Supplying and installation of lighting solid conductor rod of phosphoras bronze size 2M x 12 mm dia on the topdome of the reservoir structure & runs of the lighting conductor of galvanised iron wire 8mm dia runs from the roof along shell wall column upto G.L.and from G.L. to bottom of the earthing main pipe there should be 10 mm dia P.V.C. pipe with main earthing G.I. pipe of 50 mm dia Class - C heavy type to be used area as earthing electrode of 3.5 Mtr. In length driven down to at least 3.5 mtr.G.L. and filling up with charcoal should be installed as per I.E.E. Rule.	0.00	2500.00	Each Item	0.00
12	Supplying fitting fixing approved type water level indicator with copper float, guide pully wire board etc. as per spec. & direction of EIC.	0.00	4123.00	Each Item	0.00
13	Stripping of worm out plaster and racking out joint of walls ceiling etc up to any floor including removing rubbish and stacking any where within a compound as directed.	200.00	7.88	/Sqm	1576.00
14	Neat cement pumping about 1.5mm thick in wall, dado, windows sill floor, drain etc.	200.00	22.68	/Sqm	4536.00
15	M.S. work in brackets made from flats, angles, tees etc to size specifically bent, twisted forged, making holes drilled and fitted to refere to trses with necessary nuts and bolts washers for screw (length of staight not less than 23 mm)	140.00	66.89	/Kg	9364.60
16	Staging height to be considered for 4 mtr. above G.L. to main height of Soff it and plan area in between outside of ring beamminous hollow shaft and annular ring beam of staging above initial 4 mtr.	1250.00	101.00	Cum	126250.00
17	Supply mosquito proof wire netting of polythene wire of approved quality fitted over M.S. frame 25 mm X 6 mm X 6 mm including 1.30 m X 0.75 m door all fitted & fixed with necessary fixture (all fixtures to be best quality & rust proof) including painting two coats etc. complete in all respect as per drawing, specification & instruction.	25.00	428.00	/Sqm	10700.00
18	Supplying mosquito proof wire netting of polythine (NETLON) size 75 cm X 75 cm. For ventilator including fitting fixing in best sal wood frame 8 cm X 5 cm section with side and cross wooden button with RCC wall painted with two coats of synthetic enamel paint over a cost of Primer as per direction of EIC and complete with Necy fixture as shown in the drawing (all exposed fixture to be of rust proof quality)	4.00	580.00	Each	2320.00

Sl No	Description of Item	Quantity	Rate	Unit	Amount
19	Re-inforcement for reinforced concrete work in all sorts of structure inc. distribution bar stirrups, binders etc. including supply of Rod initial straightening and removal of loose rust ( if necy)cutting to requisite length hooking & bending to correct shape placing in proper position and binding with 1.6 mm gauge black annealed wire at every inter section complete like foundation, raft and beam, column bracing, heel beam, ring beam, conical floor, shell wall, roof ringeam, roof dome, cantilever portion, architecural top dome etc. as per drawing & instruction of EIC. Tor Steel(H.Y.S.D.)	0.5 MT.	40000.00	MT	20000.00
20	Hire and labour charges for shuttering for concrete work in overhead RC Reservoir on separate RC frame inc. fitting fixing and sulking off after completion of work From panel beam top of Reservoir).	50Sq mtr.	559.90	m <sup>2</sup>	27995.00
21	Making 6 mm th bituminus expansion joint between shell wall & roof as per drawing and specification.	30 mtr.	31.20	mtr	936.00
22	Painting of bituminus paint of approved type and quality on tank roof as per drawing and specification inc thorough cleaning of surface and sanding complete (inc cost of sand)	110Sq mtr.	30.00	m <sup>2</sup>	3300.00
23	Disinfection and washing the tank and pipes connection inc cleaning the inside of the tank etc complete.	1 item	900.00	L.S.	900.00
24	Provision for embossing the name and capacity of the Reservoir with 18 mm thick (3:1) raised sand cement plaster with letter size 30 cm X20 cm on the outside of shell wall of the reservoir painted complete as per direction of EIC	0 Nos.	23.50	each	0.00
25	Supplying, fitting and fixing cast iron heavy type spiral staircase of approve design with 50 mm dia. Stem and C.I. Steps 150 mm. As per design 900 mm. High C.I, railing including necessary M.S. tie of suitable section embaded ti wall with cement concrete (4:2:1) including cost of intermediate C.I. platform secured with necessary tie to stem and wall with cement concrete ( 6: 3:1) complete in all respect with all labour and materials. With 900 mm.dia. well Page- 206 / Sl. No. 50	5 mtr.	2700.00	mtr	13500.00
26	20 mm th artificial stone in floor, dado, stair case etc. with cement concrete (4:2:1) with 6 mm stone chips with water proofing compound of approved quality at the rate of 1 Kg/Bag of cement directed with 3 mm the topping made with ordinary cement (as necy.) and mabel dust in proportion (2:1) inc. application of cement slurry before flooring works using cemnt 1.75 Kg/Sq. Mtr.all complete inc. all materials and labour.overhead beam. 3 mm thick topping high polishing grinding, on this item is not permitted with ordinary cement.	150Sq mtr.	112.00	m <sup>2</sup>	16800.00
				Total :-	537486.97
				Add 1% Cess :-	5374.87
				Total:	542861.84

## ANNEXURE-IV(ii)

Estimate of Over Head Reservoir 500 Cum. Capacity and 20 Mtr. Height. At Zone-II ( Ward-1,2,13 ) Brindavanpur, Arambagh under UIDSSMT Programme at Arambagh

## Zone-II

Amount in Rupees					
Sl. No	Description of item	Quantity	Unit	Rate	Amount
1	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterite or sand stone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, leveling, dressing and ramming the bottom bailing out water as required complete.				
	a).Depth of excavation not exceeding 1500 mm.	247.70	M3	41.87	Rs. 10,371.20
	b).Depth of excavation for additional depth beyond 1500 mm and upto 3000 mm but not required shoring.	280.72	M3	77.42	Rs. 21,733.34
2	Filling in foundation or plinth by soils or sand in layers not exceeding 150 mm as directed and consolidation by through saturation with water and ramming complete including cost of supply of sand (payment to be made on the basis of measurement of finished quantity of work)				
	By fine sand	504.814	M3	329.71	Rs. 166,442.22
3 P-84, I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling joints with powder earth or local sand.	159.26	M2	159.60	Rs. 25,417.90
4 P-106, I-	Brick work with 1st class bricks in cement mortar ( 6:1)				
	a) in foundation & plinth	1.41	M3	2662.80	Rs. 3,741.23
5 P-94, I=14,A, a	Cement concrete with graded stone ballast (40 mm size)excluding shuttering.				
	a) (6:3:1) proportion.	14.84	M3	2731.05	Rs. 40,528.78
6 P-26, I-6,a	Nominal Mix M - 20 Cement concrete with graded stone chips(20 mm size) excluding shuttering and reinforcement, if any, in ground floor Pakur / Chandil Variety				
	a) In foundation & Upto 4 mtr. Height , (For Pedestal, Bracing & Coloumn )	92.53	M3	3974.40	Rs. 367,751.23
	b) For Coloumn, Bracing and Stairs From 4m above G.L. upto bottom of heel beam.	84.22	M3	3974.40	Rs. 334,704.10
	c) For roof/bottom dome, top ring beam , lantern, heel beam, shell wall, conical wall etc.	127.05	M3	4032.40	Rs. 512,312.39
7 P-100, I-19	Reinforcement for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc. including supply of rods, initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape , placing in proper position and binding with 16 swg black annealed wair at every intersection , complete as per drawing and direction.				
	a) In foundation & Upto 4 mtr. height	7.70	MT	56819.00	Rs. 437,341.52
	b) From 4 m above G.L. to top of reservoir.	32.1691	MT	56999.00	Rs. 1,833,606.53

8 P-98. I-16	Hire and labour charges for shuttering with centering and necessary staging up to 4 m. using approved stout props ballah/steel post and steel plate/ply board of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of work.				
	a) Steel shuttering or 9 to 12 mm thick approved quality ply board shuttering including necessary frame work fitting fixing all complete required in any RCC work and striking out the same after completion of that portion of work as per instruction and satisfaction of EIC.(Payment will be made on the basis of area of actual contact with concrete surface.)				
	i) From foundation level to 4m above finished GL.	132.945	M2	195.80	Rs. 26,030.63
9 P-98. I-16	a) Hire and labour charges for shuttering for concrete work in overhead R.C. Reservoir on separate R.C. frame including fitting, fixing and striking off after completion of work including staging up to 4meter.				
	(Not applicable for resting on roof top.)	#####	M2	559.90	Rs. 687,557.76
	b) Hire and labour charges for staging and scaffolding made of strong and stout bamboo or salbullah props with necessary cross bracing of bamboo salbullah including that for unsupported horizontal projection out side lower ring with necessary fixtures making proper platform /stair with wooden, planks etc for the entire construction works and to maintain it till complete of work and removing the same as per direction and instruction of E.I.C (Mode Of measurement will be volumetric basic and quantity is to be arrived by multiplying plan area considering outside diameter of lowering beam. with height taken from finished G,L to bottom of lower ring beam.)				
	Extra for staging beyond 4m	#####	M3	111.10	Rs. 331,576.62
	(Mode of measurement: Area of unsupported horizontal projection {where staging beyond 4m is practically un-avoidable} X mean height of staging) above initial 4m.)				
10 P- I-	Supplying super plasticizer of Sika/Cico conforming to IS 2645 1975 & IS 9130 1979 to be need in mortar admixture @ 0.20% by Wt. Or cement (i.e., 100 ml per 50 kg. Of cement) for improving workability, reducing shrinkage & improvement of water tightness of the concrete.	109.243	Kg	175.00	Rs. 19,117.53
11	20 mm thick sand cement plaster(3:1) inside the reservoir floor, walls with admixture of necessary water proofing compound Sika/ Cico @ 20% by weight of cement of approved quality as per direction of E.I.C. to make the tank perfectly water tight, surface rendered perfectly smooth with neat cement finish 1.5 mm thick including shaping, sloping rounding off or chamfering corners where necessary, including cost of water proofing compound, chipping, curing etc. ( note: This item of work shall be done only after completion of water tightness test satisfactorily.)	171.17	Sqm	109.20	Rs. 18,691.76



12	<p>M.S. structural works in columns, beams etc. with simple rolled structural members (e.g. joists angle, channel sections conforming to IS: 226, IS: 808 &amp; SP (6)- 1964 connected to one another with bracket, gussets as per design, direction of Engineer-in- charge complete including cutting to requisite shape and length, fabrication with necessary bolting, metal arc welding conforming to IS: 816- 1956 &amp; IS: 9595 using electrodes of approved make and brand conforming to IS:814- 1957, haulage, hoisting and erection all complete. The rate includes the cost of rolled steel section, consumables such as electrodes, gas and hire charge of all tools and plants and labour required for the work including all incidental chages such as electricity charges, labour insurance charges etc.</p> <p>( payment to be made on the basis of calculated weight of structural members only in finished work as per IS specified weight. Payment for gusset, bracket, cleat rivets, bolts and nuts may be make by adding the actual weight of such items with the weight of finished structural members or 7% of weight for finished tructural members weighing not less than 22.5 Kg. / m. or 15 % of weight for finished structal members weighing less than 22.5 Kg. / m. may be increased allow for bracket, cleat, rivet, bolts and nuts etc. and no seperate payment being made for these items, as per direction of Engineer In Charge. The rates are considered for a hight of erection 8m. / 2nd floor level from the ground. Add 1.5% extra over the rate for each additional floor or 4m. beyond initial 8m. or part thereof.</p>	0.2135	M.T.	65354.80	Rs. 13,953.25
<p>For strctural works in roof Trussesetc. Using joists, chnnels and angles of specified section weighing less than 22.5KG./m P-200, Item-I,ii, P.W.D. Building Schedule.w.e.f. 01.9.2007 , with corrigenda e.f. 15.5.2008</p>					
13	<p>Providing G.I. railing integrated with G.I. post placed @ 400mm c/c and stiffened top and centrally with G.I. pipe all made of 32mm dia G.I. pipe ( medium quality of TATA make) in R.C.C. stair, landing, top of roof &amp; walkway including cost of G.I. pipe , tee &amp; cross where necessary cutting pipes, welding at every junction and intersection of pipes, embedding the post in the concrete floor upto a minimum depth of 80mm etc. all complete as per drawing &amp; finished with two coats of synthetic enamel painting to all exposed surface of G.I. pipes as per direction &amp; satisfaction of E.I.C.</p>	83.20	sqm	1234.00	Rs. 102,668.80
14 (vetted rate)	<p>Supplying mosquito proof wire netting of polythene wire of approved quality fitted over M.S frame 25 mm x 6 mm including 1.30m x 0.75m door all door all fitted &amp; fixed with necessary fixtures(all fixtures to be best quality &amp; rust proof) including painting two coats etc. complete in all respect as per drawing, specification &amp; instruction</p>	2.70	sqm	428.00	Rs. 1,155.60
15 (vetted rate)	<p>Supplying and installation of lightning solid conductor rod of phosphorus bronze size 2 m x 12 mm dia. On the top dome of the reservoir structure &amp; lightning conductor of galvanized iron wire 8mm dia from the roof along shell wall column up to G. L. to bottom of the earthing main pipe there should be 10 mm dia galvanized conductor wire fitted and fixed through 12 mm dia. P.V.C pipe connecting with main earthing GI pipe of 50 mm. dia class-c heavy type to be used as earthing electrodes of 3.5 mtrs. in length driven down to at least 3.5 mtr. in length driven down to at least 5.5 mtr . below G.L and filling up with charcoal (making necessary arrangements for testing the same )should be installed as per I.E .E rule and direction of E.I.C.</p>	1.00	item	4123.00	Rs. 4,123.00
16 (vetted rate, 35 % enhanced)	<p>Provision for embossing the name and capacity of the Reservoir with 16 mm. thick(3;1) raised sand cement plaster with letter size 30 cm x 20 cm on the outside-of shell wall of the reservoir painted complete as per direction of E.I.C.</p>	1.00	item	2000.00	Rs. 2,000.00

17 PHE Sch.	Construction of masonry valve chamber, wash out chamber as per deptt. drawing with 1st class brick work in cement mortar(1:6) including earthwork in excavation with jhamakhoa(1:4:9) in foundation, 100 mm thick precast RCC slab(1:2:4) shuttering on bottom and sides, reinforcement work and other materials as per departmental drawing with supply of 150 mm x 150 mm CI surface box embedded into the precast slab including fitting, fixing over the chamber and overhauling the valve(if any)all complete including cost of all labour and				
	a)300 mm dia Sluice Valve	1.00	Each	4940.00	<b>Rs. 4,940.00</b>
	b)100 mm dia sluice valve	1.00	Each	4062.00	<b>Rs. 4,062.00</b>
18 PHE Sch.	20 mm thick cement plaster(3:1) to all exposed surface for column, beam, bracing wall and slab of the tank with admixture of necessary water proofing compound of approved quality as per direction of E.I.C.etc. including rounding off or chamfering corners including cost of chipping surface as required and necessary staging curing etc. all complete in all respect.(The payment of this item shall be done only after complrtion of water tightness test satisfactorily.)	1259.75	sqm	103.58	<b>Rs. 130,484.91</b>
19 PHE Sch.	Hoisting,erecting placing and connecting CIDF pipes and specials including carriage from local store, securing with built in specials,providing stays,clamps as required including repairing the pipes and specials with two coats of synthetic enamel paints staging platform and necessary equipments for doing the work etc. complete in all respect as per drawing specification and direction of E.I.C				
	a)300 mm dia	21.70	Mtr	170.40	<b>Rs. 3,697.68</b>
	b)200 mm dia.	52.50	Mtr	91.35	<b>Rs. 4,795.88</b>
	c)100 mm dia	21.40	Mtr	70.45	<b>Rs. 1,507.63</b>
20 PHE Sch.	Fitting, fixing duckfoot bend including construction of cement concrete (4:2:1) base with stone chips of approved grade & quality including excavation of earth etc.complete in all respect.				
	a)300 mm dia (base size 450 x 450 x600 mm deep)	1.00	Each	368.80	<b>Rs. 368.80</b>
	b) 200 mm dia.(base size 450x450x550 mm deep)	2.00	Each	306.60	<b>Rs. 613.20</b>
	c) 100mm dia ( base size 250x250x500mm deep )	1.00	Each	93.40	<b>Rs. 93.40</b>
21 PHE Sch.	Hoisting,fitting,fixing of bell mouth with puddle collar in RCCwork as per drawing & specification and direction of EIC				
	a)300 mm dia	1.00	Each	350.00	<b>Rs. 350.00</b>
	b) 200 mm dia.	2.00	Each	200.00	<b>Rs. 400.00</b>
	c)100 mm dia.	1.00	Each	100.00	<b>Rs. 100.00</b>
22 PHE Sch.	Making arrangement of water tightness test conforming to the provision laid down in IS-3370 (part-1) 1956,by filling with water upto top water level(TWL) as shown in the drawing and as per direction of EIC for the tank proper including the arragement of water,its carriage & lifting by necessary,pipes,ittings and pumping machinery etc. all required for the purpose( in case the water be arranged by deppt,the payment will be made at a reduced of Rs. 12/-per cum.	500.00	cum	30.00	<b>Rs. 15,000.00</b>

23 PHE Sch.	Making flange joint where necessary with supply necessary rubber insertion bolts, nut, washers etc. of approved quality and type and painting complete as per specification and direction of E.I.C.				
	a) 300 mm dia.	15.00	Each	384.00	Rs. 5,760.00
	b) 200 mm dia.	37.00	Each	264.00	Rs. 9,768.00
	c) 100 mm dia.	16.00	Each	189.20	Rs. 3,027.20
24 PHE Sch.	Disinfection & Washing the tank and pipe connections including cleaning the inside of the tank etc. complete.	1.00	L.S	900.00	Rs. 900.00
25 PHE Sch.	Laying of C.I./ D.I pipes ,specials & valves in the trenches including lifting from the road side and carrying the same within a lead of 75 mtr for lowering into trenches and placing laying carefully in proper alignment ,gradient etc. by mobile crane and other necessary devices maintaining a minimum cover of 1.00 mtr. below ground level etc. all complete as per specification & direction of E.I.C				
	a) 300 mm dia.	2.75	Mtr	55.00	Rs. 151.25
	b) 200 mm dia.	11.00	mtr	38.00	Rs. 418.00
	c) 100 mm dia	3.55	mtr	12.30	Rs. 43.67
26 PHE Sch.	Refelling Resorver ( after disinfection and washing the tank etc as per item 34 above) with fresh water up to top water level (twl) as shown in the drawing nd as per direction of EIC including the arrangement of water its carriage and lifting by the necessary pipes fittings and pumping machinery etc required for the purpose ( in case the water be Department the payment will be made at a reduce rate of Rs 12/- per	500.00	cum	12.00	Rs. 6,000.00
27 PHE Sch.	Providing water thinable Non -Toxic Epoxy coating ( Techoxy or equivalent brand of approved quality ) 2 (two) finished coats over 2(two) coats of primer of same brand , to the ceiling of roof dome including supply of requisite coating materials , cleaning of the substrate poperty to make it free from dirt , paints oil and greese sludge , blister loose plasters , fungal , moss, and other undesirable particuler using wire brush sand paper etc including mending good all damages all complete as per direction of EIC.	118.12	sqm	150.00	Rs. 17,718.00
28	Supplying, fitting, fixing in position C.I. Manhole Cover with rim Round 450 mm x100mm x 21 Kg ( approx)	1.00	no	840.00	Rs. 840.00
29 PHE Sch.	Supply at site C.I.D.F Pipe (K-9) as per relevent I.S Specification with latest ammendments including cost of two coats of painting , loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)				
	a) 300 mm dia	2880.58	Kg	65.00	Rs. 187,237.70
	b) 200 mm dia	4547.25	Kg	65.00	Rs. 295,571.25
	c) 100 mm dia	705.72	Kg	65.00	Rs. 45,871.80
30 PHE Sch.	Supply at site C.I.D.F Specials ( class -B) as per relevent I.S Specification with latest ammendments including cost of two coats of painting , loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)				
	a) 300 mm	201.00	Kg	65.00	Rs. 13,065.00
	b) 200 mm	243.00	Kg	65.00	Rs. 15,795.00
	c) 100 mm	35.00	Kg	65.00	Rs. 2,275.00

31	Hire and labour charges for shoring work (including necessary close plank walling, framing, salbulla piling, strutting etc.) complete as per direction of the Engineer-in-charge for foundation excavation. (vertical surface area in contact with supported earth is to be measured.) (This item should be executed on specific direction of the Engineer-in-charge.)(b) For additional depth beyond 1.5 m. and upto 3.00 m	77.44	sqm	115.00	Rs.	8,905.60
32 PHE Sch	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works, using cement @1.75 kg./sq.m. all complete including all materials and labour. 3 mm. thick topping (High polishing grinding on this item is not permitted) with ordinary cement. 20 mm. thick. (P-126, Item-3,i, PWD Building Schedule.)	156.764	sqm	129.60	Rs.	20,316.61
33 PHE Sch	Cement washing including cleaning and smoothening surface thoroughly (cement to be used @15 kg./100 sq.m. of surface for one coat and @25 kg./100 sq.m of surface for two coats) : External surface One coat P-356, Item-7,a, P.W.D. Building Schedule.w.e.f. 01.9.2007, with corrigenda e.f. 15.5.2008	1259.75	sqm	3.81	Rs.	4,799.65
45 P-80 I-13	Supply of G.I. pipes of TATA make including necessary sockets. 32 mm dia Medium Quality	15.30	Mtr	238.95	Rs.	3,655.94
34	Applying Weather Coat Exterior primer white of Berger brand on plastered or concrete surface old or new surface to receive said paint including scraping and preparing the surface throughly, complete as per direction of the Engg-in-charge. (manufacturer's specification to be followed) Analyzed Rate approved by S,E,WC,MED I Coat on new surface	1259.75	sqm	16.87	Rs.	21,251.98
35	Applying Weather Coat All Guard Exterior Paint of Berger brand on plastered or concrete surface old or new surface to receive said paint including scraping and preparing the surface throughly, complete as per direction of the Engg-in-charge. (manufacturer's specification to be followed) Analyzed Rate approved by SE,WC,MED i) 2 Coats on new surface with Bone White Shed ( CB017)	1233.33	sqm	61.78	Rs.	76,195.13
	ii) 2 Coats on new surface with Wedge Wood ( Grey ) Shed	26.42	sqm	64.86	Rs.	1,713.60
					<b>TOTAL</b>	Rs. 5,868,519.26
					Add 1% cess	58685.19
					<b>TOTAL</b>	<b>5927204.45</b>

## ANNEXER-IV(iii)

Estimate of Over Head Reservoir at ARAMBAGH Water Supply Scheme under 'UIDSSMT' Programme for 350 Cum. Capacity and 20 Mtr. Height. At Nowpara Ward-9 of Arambagh Municipality

## Zone -III

Amount in Rupees					
Sl. No.	Description of Item	Quantity	Unit	Rate	Amount
1 P-68, I-1,a	<b>Earth work in excavation</b> of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterite or sand stone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, leveling, dressing and ramming the bottom bailing out water as required complete.				
	a).Depth of excavation not exceeding 1500 mm	130.00	M3	41.87	Rs. 5,443.10
	b).Depth of excavation for additional depth beyond 1500 mm and upto 3000 mm but not required shoring.	130.00	M3	77.42	Rs. 10,064.60
2 P-70, I-3,a	<b>Filling in foundation</b> or plinth by soils or sand in layers not exceeding 150 mm as directed and consolidation by through saturation with water and ramming complete including cost of supply of sand (payment to be made on the basis of measurement of finished quantity of work)				
	<b>By fine sand</b>	150.00	M3	329.71	Rs. 49,456.50
3 P-68, I-2,a	<b>Earth work in filling</b> in foundation trenches with good earth in layers not exceeding 150 mm including watering ,ramming etc. layer by layer all complete(payment to be made on the basis of measurement of finished quantity)				
	With earth obtained from excavation of foundation.	300.00	M3	26.00	Rs. 7,800.00
4 P-84, I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling joints with powder earth or local sand.	100.00	M2	159.60	Rs. 15,960.00
5 P-84, I-5	Ordinary Cement concrete M15 (Mix 4:2:1) with graded stone chips (20 mm size excluding shuttering and reinforcement, of any in ground floor as per IS 456 - 2000.				
	a) Pakur / chandil variety.	5.00	M3	3523.50	Rs. 17,617.50
6 P-106, I-26,a,b	<b>Brick work</b> with 1st class bricks in cement mortar ( 6:1)				
	a) in foundation & plinth	5.00	M3	2662.80	Rs. 13,314.00
	b) in super structure , Ground floor.	5.00	M3	2742.60	Rs. 13,713.00
7 P-94, I=14,A,a	<b>Cement concrete</b> with graded stone ballast (40 mm size)excluding shuttering.				
	a) (6:3:1) proportionaion.	15.00	M3	2731.05	Rs. 40,965.75
8 P-26, I-6,a	Nominal Mix M - 20 Cement concrete with graded stone chips(20 mm.size) excluding shuttering and reinforcement, if any, in ground floor. Pakur / Chandil Variety				
	a) In foundation & Upto 4 mtr. Height , (For Pedestal, Bracing & Coloumn )	75.00	M3	3974.40	Rs. 298,080.00
	b) For Coloumn, Bracing and Stairs From 4m above G.L. upto bottom of heel beam.	60.00	M3	3974.40	Rs. 238,464.00
	c) For roof/bottom dome, top ring beam , lantern, heal beam, shell wall, conical wall etc.	94.00	M3	4032.40	Rs. 379,045.60
10 P-100, I-19	<b>Reinforcement</b> for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc. including supply of rods, initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape , placing in proper position and binding with 16 swg black annealed wair at every intersection , complete as per drawing and direction.				
	a) In foundation & Upto 4 mtr. height	8.00	MT	56819.00	Rs. 454,552.00
	b) From 4 m above G.L. to top of reservoir.	20.00	MT	56999.00	Rs. 1,139,980.00

11 P-98, I-16	Hire and labour charges for shuttering with centering and necessary staging up to 4 m using approved stout props ballah steel post and steel plate ply board of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of work.				
	a) Steel shuttering or 9 to 12 mm thick approved quality ply board shuttering including necessary frame work fitting fixing all complete required in any RCC work and striking out the same after completion of that portion of work as per instruction and satisfaction of E.I.C (Payment will be made on the basis of area of actual contact with concrete surface ) 1) From foundation level to 4m above finished GL.	125.00	M2	195.80	Rs. 24,475.00
12 P-98, I-16	a) Hire and labour charges for shuttering for concrete work in overhead R C Reservoir on separate R C frame including fitting, fixing and striking off after completion of work including staging up to 4meter.				
	( Not applicable for resting on roof top )	950.00	M2	559.90	Rs. 531,905.00
	b) Hire and labour charges for staging and scaffolding made of strong and stout bamboo or salbullah props with necessary cross bracing of bamboo salbullah including that for unsupported horizontal projection out side lower ring with necessary fixtures making proper platform /stair with wooden , planks etc for the entire construction works and to maintain it till complete of work and removing the same as per direction and instruction of E.I.C (Mode Of measurement will be volumetric basic and quantity is to be arrived by multiplying plan area considering outside diameter of lowering beam. with height taken from finished G.L to bottom of lower ring beam )				
	Extra for staging beyond 4m	2300.00	M3	111.10	Rs. 255,530.00
	(Mode of measurement: Area of unsupported horizontal projection {where staging beyond 4m is practically un-avoidable} X mean height of staging above initial 4m.)				
13 P-1- I-	Supplying super plasticizer of Sika/Cico conforming to IS 2645 1975 & IS 9130 1979 to be need in mortar admixture @ 0.20% by Wt. Or cement (i.e., 100 ml per 50 kg. Of cement) for improving workability, reducing shrinkage & improvement of water tightness of the concrete.	175.00	Lit	175.00	Rs. 30,625.00
14	20 mm thick sand cement plaster(3:1) inside the reservoir floor, walls with admixture of necessary water proofing compound Sika/ Cico @ 20% by weight of cement of approved quality as per direction of E.I.C. to make the tank perfectly water tight, surface rendered perfectly smooth with neat cement finish 1.5 mm thick including shaping, sloping rounding off or chamfering corners where necessary, including cost of water proofing compound, chipping, curing etc. ( note: This item of work shall be done only after completion of water tightness test satisfactorily.)	250.00	Sqm	109.20	Rs. 27,300.00
15 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100 sq.m )	250.00	Sq.M	17.60	Rs. 4,400.00
16 ( vetted rate, 40 % enhanced)	Supplying at site & fitting fixing, erecting & building in position 450mm wide M.S. ladder consisting of 2 nos angle iron ( ISA ) 60x40x8 mm thick & 2 nos 12mm dia M.S. square bar as step placed @ 300mm c/c including fabrication, welding, drilling etc. as per drawing and finished with two coats of synthetic enamel paintings over a coat of priming etc all complete as per direction of E.I.c.				
	a) With hand rail made of 32mm dia G.I. pipe ( TATA medium quality ) supported on angle iron ( ISA ) 40x40x6mm thick and 450mm length placed @600mm c/c.	30.00	m	895.00	Rs. 26,850.00
17 ( vetted rate, 40 % enhanced)	Providing G.I. railing integrated with G.I. post placed @ 400mm c/c and stiffened top and centrally with G.I. pipe all made of 32mm dia G.I. pipe ( medium quality of TATA make) in R.C.C. stair, landing, top of roof & walkway including cost of G.I. pipe, tee & cross where necessary cutting pipes, welding at every junction and intersection of pipes, embedding the post in the concrete floor upto a minimum depth of 80mm etc. all complete as per drawing & finished with two coats of synthetic enamel painting to all exposed surface of G.I. pipes as per direction & satisfaction of E.I.C.	75.00	m	1234.00	Rs. 92,550.00
18	Making 25 mm thick bituminous expansion joint between shell wall and roof as per drawing and specification direction of E.I.C.	0.50	cum	9443.00	Rs. 4,721.50

19 (vetted rate)	Supplying <b>mosquito proof wire netting</b> of polythene (NETLON) size 75cm x 75 cm for ventilation including fitting, fixing in best Sal wood frame 8 cm x 6 cm section with side & cross wooden batten built with RCC wall painting with 2 (two) coats of synthetic enamel paint over a coat of primer as per direction of E.I.C and complete with necessary fixture as shown in the drawing (all exposed fixtures to be of rust proof quality)	6.00	Each	501.00	Rs.	3,006.00
20 (vetted rate)	Supplying <b>mosquito proof wire netting of polythene</b> wire of approved quality fitted over M S frame 25 mm x 6 mm including 1.30m x 0.75m door all door all fitted & fixed with necessary fixtures all fixtures to be best quality & rust proof) including painting two coats etc. complete in all respect as per drawing, specification & instruction	15.00	sqm	428.00	Rs.	6,420.00
21 (vetted rate)	Supplying, fitting, fixing approved type water level indicator with copper float, operating inside slotted PVC pipe for damping effect including the pipe guide pulley, inextensible wire, gauge board etc. as per specification & direction of E.I.C. All complete.	1.00	LS	2500.00	Rs.	2,500.00
22 (vetted rate)	<b>Supplying and installation of lightning solid conductor rod</b> of phosphorus bronze size 2 m x 12 mm dia. On the top dome of the reservoir structure & lightning conductor of galvanized iron wire 8mm dia from the roof along shell wall column up to G. L. to bottom of the earthing main pipe there should be 10 mm dia galvanized conductor wire fitted and fixed through 12 mm dia P V C pipe connecting with main earthing GI pipe of 50 mm. dia class-c heavy type to be used as earthing electrodes of 3.5 mtrs. in length driven down to at least 3.5 mtr. in length driven down to at least 5.5 mtr. below G.L and filling up with charcoal (making necessary arrangements for testing the same) should be installed as per I.E.E rule and direction of E.I.C.	1.00	item	4123.00	Rs.	4,123.00
23 (vetted rate, 35% enhanced)	Provision for <b>embossing the name and capacity of the Reservoir</b> with 16 mm thick (3:1) raised sand cement plaster with letter size 30 cm x 20 cm on the outside of shell wall of the reservoir painted complete as per direction of E.I.C.	1.00	Item	2000.00	Rs.	2,000.00
24 (vetted rate, 40% enhanced)	Construction masonry surface drain 250mm wide x 300 mm. deep (for overflow & washout) made of 250 mm thick 1st class brick work (4:1) over 125 mm jhama concrete (6:3:1) over a brick flat salling & 12 mm thick plaster with sand cement mortar (3:1) or inner vertical face, top portion of walls & upto 150 mm below G.L. on outer face of wall & 25 mm thick (1:2:4) wearing course of cement concrete with stone chips on bottom surface and including neat cement punning & finishing etc. complete as per drawing and specification	20.00	Mtr.	1002.50	Rs.	20,050.00
25 PHE Sch	Construction of masonry valve chamber, wash out chamber as per deptt. drawing with 1st class brick work in cement mortar (1:6) including earthwork in excavation with jhamakhoa (1:4:9) in foundation, 100 mm thick precast RCC slab (1:2:4) shuttering on bottom and sides, reinforcement work and other materials as per departmental drawing with supply of 150 mm x 150 mm CI surface box embedded into the precast slab including fitting, fixing over the chamber and overhauling the valve (if any) all complete including cost of all labour and materials (only valves will be supplied from local)					
	a) 300 mm dia Sluice Valve	1.00	Each	4940.00	Rs.	4,940.00
	b) 200 mm dia sluice Valve	4.00	Each	4686.00	Rs.	18,744.00
	c) 100mm dia sluice Valve	2.00	Each	4062.00	Rs.	8,124.00
26 PHE Sch	<b>20 mm thick cement plaster (3:1)</b> to all exposed surface for column, beam, bracing wall and slab of the tank with admixture of necessary water proofing compound of approved quality as per direction of E.I.C etc. including rounding off or chamfering corners including cost of chipping surface as required and necessary staging curing etc. all complete in all respect. (The payment of this item shall be done only after completion of water tightness test satisfactorily)	750.00	sqm	103.58	Rs.	77,685.00
27 PHE Sch	<b>Hoisting, erecting, placing and connecting CIDF pipes</b> and specials including carriage from local store, securing with built in specials, providing stays, clamps as required including repairing the pipes and specials with two coats of synthetic enamel paints staging platform and necessary equipments for doing the work etc. complete in all respect as per drawing specification and direction of E.I.C					
	a) 300 mm dia	20.00	Mtr	170.40	Rs.	3,408.00
	c) 200 mm dia sluice valve	56.00	Mtr	91.35	Rs.	5,115.60

	d) 100 mm dia	30.00	mtr	70.45	Rs.	2,113.50
28 PHE Sch	<b>Fitting, fixing duckfoot bend</b> including construction of cement concrete (4 2 1) base with stone chips of approved grade & quality including excavation of earth etc complete in all respect.					
	a) 350 mm dia (base size 450 x 450 x 600 mm deep)	1.00	Each	468.80	Rs.	468.80
	b) 250 mm dia (base size 450x450x600 mm deep)	1.00	Each	368.80	Rs.	368.80
	c) 200 mm dia (base size 450x450x550 mm deep)	1.00	Each	306.60	Rs.	306.60
	d) 100mm dia ( base size 250x250x500mm deep )	1.00	Each	93.40	Rs.	93.40
29 PHE Sch	Hoisting, fitting, fixing of bell mouth with puddle collar in RCC work as per drawing & specification and direction of EIC					
	a) 300 mm dia	1.00	Each	350.00	Rs.	350.00
	c) 200 mm dia	2.00	Each	200.00	Rs.	400.00
	d) 100mm dia	1.00	Each	100.00	Rs.	100.00
30 PHE Sch	<b>Making arrangement of water tightness test</b> conforming to the provision laid down in IS-3370 (part-1) 1956, by filling with water upto top water level (TWL) as shown in the drawing and as per direction of EIC for the tank proper including the arrangement of water, its carriage & lifting by necessary pipes, fittings and pumping machinery etc. all required for the purpose ( in case the water be arranged by dept, the payment will be made at a reduced of Rs. 12/- per cum.	350.00	cum	30.00	Rs.	10,500.00
31 PHE Sch	<b>Making flange joint where necessary</b> with supply necessary rubber insertion bolts, nut, washers etc. of approved quality and type and painting complete as per specification and direction of EIC.					
	a) 300 mm dia.	32.00	Each	384.00	Rs.	12,288.00
	c) 200 mm dia.	56.00	Each	264.00	Rs.	14,784.00
	d) 100mm dia	17.00	Each	189.20	Rs.	3,216.40
32 PHE Sch	<b>Making lead joint to C.I pipes specials &amp; valves</b> (conforming to IS-3114) with supply of pig lead (99.99% purity) spun yarn, fuel for bearing and other sundries, making clay mould to each with all allied works including making proper caulking all complete as per specification and direction of E.I.C					
	a) 300 mm dia. with supply of lead and 0.57 kg of spun yarn to each joint.	4.00	Each	806.00	Rs.	3,224.00
	c) 200 mm dia. With supply of 0.25 kg of lead and 0.57 kg of spun yarn to each joint	20.00	Each	446.00	Rs.	8,920.00
	d) 100 mm dia. With supply of 2.31 kg. of lead and 0.23 kg of spun yarn to each joint	4.00	Each	213.00	Rs.	852.00
33 PHE Sch	<b>Disinfection &amp; Washing the tank and pipe</b> connections including cleaning the inside of the tank etc. complete.	1.00	L.S	900.00	Rs.	900.00
34 PHE Sch	<b>Laying of C.I/ D.I pipes ,specials &amp; valves</b> in the trenches including lifting from the road side and carrying the same within a lead of 75 mtr for lowering into trenches and placing laying carefully in proper alignment ,gradient etc. by mobile crane and other necessary devices maintaining a minimum cover of 1.00 mtr. below ground level etc. all complete as per specification & direction of E.I.C					
	a) 300 mm dia,	5.00	Mtr	55.00	Rs.	275.00
	b) 200 mm dia.	5.00	mtr	38.00	Rs.	190.00
35 PHE Sch	<b>Painting of bituminous paint</b> of approved type & quality on tank roof as per drawing & specificatio including through cleaning of surface & sanding complete (including cost of sand)	100.00	Sqm	30.00	Rs.	3,000.00
36 PHE Sch	<b>Refelling Reservoir ( after disinfection and washing the tank etc as per item 34 above)</b> with fresh water up to top water level (twl) as shown in the drawing nd as per direction of EIC including the arrangement of water its carriage and lifting by the necessary pipes fittings and pumping machinery etc required for the purpose ( in case the water be Department the payment will be made at a reduce rate of Rs 12/- per cum.)	350.00	cum	28.00	Rs.	9,800.00



37 PHE Sch.	Providing water thinable Non-Toxic Epoxy coating (Techoxy or equivalent brand of approved quality) 2 (two) finished coats over 2(two) coats of primer of same brand, to the ceiling of roof dome including supply of requisite coating materials, cleaning of the substrate property to make it free from dirt, paints oil and greese sludge, blister loose plasters, fungal, moss, and other undesirable particuler using wire brush sand paper etc including mending good all damages all complete as per direction of EIC.	100	sqm	150.00	Rs.	15,000.00
38 PHE Sch.	Supplying and laying black alkathene sheet (400 gm/sqm) below the foundation, flooring, roofing as well as where necessary and as per direction of E.I.C.	35.00	sqm	9.00	Rs.	315.00
39 PHE Sch.	Supplying fitting and fixing in position reinforced cement polimer concrete manhole cover with matching frame.					
	i) 5 mt load bearing capacity round Manhole cover provided with two nos lifter hook with matching frame of size 550 mmx 65mm (cover) 650mmx 135mm (frame) & weight 90 Kg approx.	1.00	no	2127.30	Rs.	2,127.30
40 PHE Sch.	Supply at site C.I.D.F Pipe (K-9) as per relevent LS Specification with latest ammendments including cost of two coats of painting, loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)					
	a) 300 mm	3000.00	Kg	65.00	Rs.	195,000.00
	b) 200 mm	4300.00	Kg	65.00	Rs.	279,500.00
	c) 100 mm	800.00	Kg	65.00	Rs.	52,000.00
41 PHE Sch.	Supply at site C.I.D.F Specials (class -B) as per relevent LS Specification with latest ammendments including cost of two coats of painting, loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)					
	a) 300 mm	360.00	Kg	65.00	Rs.	23,400.00
	b) 200 mm	275.00	Kg	65.00	Rs.	17,875.00
	c) 100 mm	50.00	Kg	65.00	Rs.	3,250.00
42 PHE Sch.	Applying decorative cement base paint of snowcem super or similar approved quality after preparing the surface including scraping the same throughly( plaster or concrete surface ) as per manufactures specification Two coats	1200.00	sqm	24.00	Rs.	28,800.00
43 PHE Sch.	Suppling & laying polyethelin sheet (150 gm/sqm) below the foundation, flooring, roofing, as and where necessary as per direction of the E.I.C.	40.00	sqm	9.00	Rs.	360.00
44 Page- 68 / Sl. No. 5	Hire and labour charges for shoring work (includeing necessary close plank walling, framing, salbulla piling, strutting etc.) complete as per direction of the Engineer-in-charge for foundation excavation. (vertical surface area in contact with supported earth is to be measured.) (This item should be executed on specific direction of the Engineer-in-charge.)					
	(b) For additional depth beyond 1.5 m. and upto 3.00 m	65	m2	115.00	Rs.	7,475.00
<b>TOTAL</b>					Rs.	4,536,180.95
Add 1% cess						45361.81
<b>TOTAL</b>						<b>4581542.76</b>

## ANNEXER-IV(iv)

Estimate of Over Head Reservoir 550 Cum. Capacity and 20 Mtr. Height. At Zone-IV ( Ward-6,7,8,15,16 ) Chandur, Arambagh under UIDSSMT Programme at Arambagh

## Zone-IV

Amount in Rupees

Sl. No	Description of item	Quantity	Unit	Rate	Amount
1	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding literate or sand stone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, leveling, dressing and ramming the bottom bailing out water as required complete.				
	a).Depth of excavation not exceeding 1500 mm.	256.31	M3	41.87	Rs. 10,731.70
	b).Depth of excavation for additional depth beyond 1500 mm and upto 3000 mm but not required shoring.	290.48	M3	77.42	Rs. 22,488.96
2	Filling in foundation or plinth by soils or sand in layers not exceeding 150 mm as directed and consolidation by through saturation with water and ramming complete including cost of supply of sand (payment to be made on the basis of measurement of finished quantity of work)				
	By fine sand	327.420	M3	329.71	Rs. 107,953.65
3	Earth work in filling in foundation trenches with good earth in layers not exceeding 150 mm including watering ,ramming etc. layer by layer all complete(payment to be made on the basis of measurement of finished quantity) With earth obtained from excavation of foundation.	100.72	M3	26	Rs. 2,618.72
4 P-84, I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling joints with powder earth or local sand.	168.46	M2	159.60	Rs. 26,886.22
5 P-106, I-26,a,b	Brick work with 1st class bricks in cement mortar ( 6:1) a) in foundation & plinth	1.82	M3	2662.80	Rs. 4,851.62
6 P-94, I=14,A,a	Cement concrete with graded stone ballast (40 mm size)excluding shuttering. a) (6:3:1) proportaion.	16 068	M3	2731.05	Rs. 43,882.51
7 P-26, I 6,a	Nominal Mix M - 20 Cement concrete with graded stone chips(20 mm size) excluding shuttering and reinforcement, if any, in Pakur / Chandil Variety				
	a) In foundation & Upto 4 mtr. Height , (For Pedestal, Bracing & Coloumn )	99.34	M3	3974.40	Rs. 394,816.90
	b) For Coloumn, Bracing and Stairs From 4m above G.L. upto bottom of heel beam.	86.37	M3	3974.40	Rs. 343,249.06
	c) For roof/bottom dome, top ring beam , lantern, heal beam, shell wall, conical wall etc.	139.32	M3	4032.40	Rs. 561,781.87
8 P-100, I-19	Reinforcement for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc. including supply of rods, initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape , placing in proper position and binding with 16 swg black annealed wair at every intersection , complete as per drawing and direction.				
	a) In foundation & Upto 4 mtr. height	7 9487	MT	56819.00	Rs. 451,637.19
	b) From 4 m above G.L. to top of reservoir.	31.5877	MT	56999.00	Rs. 1,800,467.31

9 P-98, I-16	Hire and labour charges for shuttering with centering and necessary staging up to 4 m. using approved stout props ballah/steel post and steel plate/ply board of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of work.				
	a) Steel shuttering or 9 to 12 mm thick approved quality ply board shuttering including necessary frame work fitting fixing all complete required in any RCC work and striking out the same after completion of that portion of work as per instruction and satisfaction of EIC. (Payment will be made on the basis of area of actual contact with concrete surface.)				
	i) From foundation level to 4m above finished GL.	128.315	M2	195.80	Rs. 25,124.08
10 P-98, I-16	a) Hire and labour charges for shuttering for concrete work in overhead R.C. Reservoir on separate R.C. frame including fitting, fixing and striking off after completion of work including staging up to 4meter.				
	( Not applicable for resting on roof top. )	1288.746	M2	559.90	Rs. 721,568.89
	b) Hire and labour charges for staging and scaffolding made of strong and stout bamboo or salbullah props with necessary cross bracing of bamboo salbullah including that for unsupported horizontal projection out side lower ring with necessary fixtures making proper platform /stair with wooden, planks etc for the entire construction works and to maintain it till complete of work and removing the same as per direction and instruction of E.I.C (Mode Of measurement will be volumetric basic and quantity is to be arrived by multiplying plan area considering outside diameter of lowering beam. with height taken from finished G,L to bottom of lower ring beam.)				
	Extra for staging beyond 4m	3008.803	M3	111.10	Rs. 334,278.01
	(Mode of measurement: Area of unsupported horizontal projection (where staging beyond 4m is practically unavoidable) X mean height of staging) above initial 4m.)				
11 P- I-	Supplying super plasticizer of Sika/Cico conforming to IS 2645 1975 & IS 9130 1979 to be need in mortar admixture @ 0.20% by Wt. Or cement (i.e., 100 ml per 50 kg. Of cement) for improving workability, reducing shrinkage & improvement of water tightness of the concrete.	118.660	Kg	175.00	Rs. 20,765.50
12	20 mm thick sand cement plaster(3:1) inside the reservoir floor, walls with admixture of necessary water proofing compound Sika/ Cico @ 20% by weight of cement of approved quality as per direction of E.I.C. to make the tank perfectly water tight, surface rendered perfectly smooth with neat cement finish 1.5 mm thick including shaping, sloping rounding off or chamfering corners where necessary, including cost of water proofing compound, chipping, curing etc. ( note: This item of work shall be done only after completion of water tightness test satisfactorily.)	172.47	Sqm	109.20	Rs. 18,834.05
13 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc. (NOTE: Cement 0.152 cu.m. per 100.sq.m )	105.66	Sq.M	17.60	Rs. 1,859.62

14	<p>M.S. structural works in columns, beams etc. with simple rolled structural members (e.g. joists angle, channel sections conforming to IS: 226, IS: 808 &amp; SP (6)- 1964 connected to one another with bracket, gussets as per design, direction of Engineer-in-charge complete including cutting to requisite shape and length, fabrication with necessary bolting, metal arc welding conforming to IS: 816- 1956 &amp; IS: 9595 using electrodes of approved make and brand conforming to IS:814- 1957, haulage, hoisting and erection all complete. The rate includes the cost of rolled steel section, consumables such as electrodes, gas and hire charge of all tools and plants and labour required for the work including all incidental chages such as electricity charges, labour insurance charges etc.</p> <p>( payment to be made on the basis of calculated weight of structural members only in finished work as per IS specified weight. Payment for gusset, bracket, cleat rivets, bolts and nuts may be make by adding the actual weight of such items with the weight of finished structural members or 7% of weight for finished tructural members weighing not less than 22.5 Kg. / m. or 15 % of weight for finished structal members weighing less than 22.5 Kg. / m. may be increased allow for bracket, cleat, rivet, bolts and nuts etc. and no seperate payment being made for these items, as per direction of Engineer In Charge. The rates are considered for a hight of erection 8m. / 2nd floor level from the ground. Add 1.5% extra over the rate for each additional floor or 4m. beyond initial 8m. or part thereof.</p>	0.2135	M.T.	65354.80	Rs.	13,953.25
	For srtructural works in roof Trussesetc. Using joists, chnnels and angles of specified section weighing less than 22.5KG/m					
15	<p>Providing G.I. railing integrated with G.I. post placed @ 400mm c/c and stiffened top and centrally with G.I. pipe all made of 32mm dia G.I. pipe ( medium quality of TATA make) in R.C.C. stair, landing, top of roof &amp; walkway including cost of G.I. pipe , tee &amp; cross where necessary cutting pipes, welding at every junction and intersection of pipes, embedding the post in the concrete floor upto a minimum depth of 80mm etc. all complete as per drawing &amp; finished with two coats of synthetic enamel painting to all exposed surface of G.I. pipes as per direction &amp; satisfaction of E.I.C.</p>	86.94	sqm	1234.00	Rs.	107,283.96
16 ( vetted rate )	<p>Supplying mosquito proof wire netting of polythene wire of approved quality fitted over M.S frame 25 mm x 6 mm including 1.30m x 0.75m door all door all fitted &amp; fixed with necessary fixtures(all fixtures to be best quality &amp; rust proof) including painting two coats etc. complete in all respect as per drawing,</p>	2.66	sqm	428.00	Rs.	1,138.48
17 ( vetted rate )	<p>Supplying and installation of lightning solid conductor rod of phosphorus bronze size 2 m x 12 mm dia. On the top dome of the reservoir structure &amp; lightning conductor of galvanized iron wire 8mm dia from the roof along shell wall column up to G. L. to bottom of the earthing main pipe there should be 10 mm dia galvanized conductor wire fitted and fixed through 12 mm dia. P.V.C pipe connecting with main earthing GI pipe of 50 mm. dia class-c heavy type to be used as earthing electrodes of 3.5 mtrs. in length driven down to at least 3.5 mtr. in length driven down to at least 5.5 mtr . below G.L and filling up with charcoal (making necessary arrangements for testing the same )should be installed as per I.E .E rule and direction of E.I.C.</p>	1.00	item	4123.00	Rs.	4,123.00

18 (vetted rate, 35 % enhanced )	Provision for embossing the name and capacity of the Reservoir with 16 mm. thick(3:1) raised sand cement plaster with letter size 30 cm x 20 cm on the outside of shell wall of the reservoir painted complete as per direction of E.I.C.	1.00	Item	2000.00	Rs.	2,000.00
19 PHE Sch	Construction of masonry valve chamber, wash out chamber as per deptt. drawing with 1st class brick work in cement mortar(1:6) including earthwork in excavation with jhamakhoa(1:4:9) in foundation, 100 mm thick precast RCC slab(1:2:4) shuttering on bottom and sides, reinforcement work and other materials as per departmental drawing with supply of 150 mm x 150 mm CI surface box embedded into the precast slab including fitting, fixing over the chamber and overhauling the valve(if any)all complete including cost of all labour and materials(only valve)					
	a)300 mm dia Sluice Valve	1.00	Each	4940.00	Rs.	4,940.00
	b)200 mm dia sluice valve	1.00	Each	4686.00	Rs.	4,686.00
	c)100 mm dia sluice valve	1.00	Each	4062.00	Rs.	4,062.00
20 PHE Sch	20 mm thick cement plaster(3:1) to all exposed surface for column, beam, bracing wall and slab of the tank with admixture of necessary water proofing compound of approved quality as per direction of E.I.C.etc. including rounding off or chamfering corners including cost of chipping surface as required and necessary staging curing etc. all complete in all respect.(The payment of this item shall be done only after complrtion of water tightness test satisfactorily.)	1327.54	sqm	103.58	Rs.	137,506.59
21 PHE Sch.	Hoisting,erecting placing and connecting CIDF pipes and specials including carriage from local store, securing with built in specials,providing stays,clamps as required including repairing the pipes and specials with two coats of synthetic enamel paints staging platform and necessary equipments for doing the work etc. complete in all respect as per drawing specification and direction of E.I.C					
	a)300 mm dia	21.55	Mtr	170.40	Rs.	3,672.12
	b)200 mm dia.	53.30	Mtr	91.35	Rs.	4,868.96
	c)100 mm dia	20.60	Mtr	70.45	Rs.	1,451.27
22 PHE Sch.	Fitting, fixing duckfoot bend including construction of cement concrete (4:2:1) base with stone chips of approved grade & quality including excavation of earth etc.complete in all respect.					
	a)300 mm dia (base size 450 x 450 x600 mm deep)	1.00	Each	368.80	Rs.	368.80
	b) 200 mm dia.(base size 450x450x550 mm deep)	2.00	Each	306.60	Rs.	613.20
	c) 100mm dia ( base size 250x250x500mm deep )	1.00	Each	93.40	Rs.	93.40
23PHE Sch.	Hoisting,fitting,fixing of bell mouth with puddle collar in RCCwork as per drawing & specification and direction of EIC					
	a)300 mm dia	1.00	Each	350.00	Rs.	350.00
	b)100 mm dia.	1.00	Each	100.00	Rs.	100.00
24 PHE Sch.	Making arrangement of water tightness test conforming to the provision laid down in IS-3370 (part-1) 1956,by filling with water upto top water level(TWL) as shown in the drawing and as per direction of EIC for the tank proper including the arragement of water,its carriage & lifting by necessary,pipes,ittings and pumping machinery etc. all required for the purpose( in case the water be arranged by deppt,the payment will be made at a reduced of Rs. 12/-per cum.	550.00	cum	30.00	Rs.	16,500.00

25 PHE Sch	Making flange joint where necessary with supply necessary rubber insertion bolts, nut, washers etc. of approved quality and type and painting complete as per specification and direction of E.I.C.				
	a) 300 mm dia.	16.00	Each	384.00	Rs. 6,144.00
	b) 200 mm dia.	38.00	Each	264.00	Rs. 10,032.00
	c) 100 mm dia.	15.00	Each	189.20	Rs. 2,838.00
26 PHE Sch	Disinfection & Washing the tank and pipe connections including cleaning the inside of the tank etc. complete.	1.00	L.S	900.00	Rs. 900.00
27 PHE Sch	Laying of C.I./D.I pipes, specials & valves in the trenches including lifting from the road side and carrying the same within a lead of 75 mtr for lowering into trenches and placing laying carefully in proper alignment, gradient etc. by mobile crane and other necessary devices maintaining a minimum cover of 1.00 mtr. below ground level etc. all complete as per specification & direction of E.I.C				
	a) 300 mm dia.	6.20	Mtr	55.00	Rs. 341.00
	b) 200 mm dia.	4.65	mtr	38.00	Rs. 176.70
28 PHE Sch	Refilling Resorver ( after disinfection and washing the tank etc as per item 34 above) with fresh water up to top water level (twl) as shown in the drawing nd as per direction of EIC including the arrangement of water its carriage and lifting by the necessary pipes fittings and pumping machinery etc required for the purpose ( in case the water be Department the payment will be made at a reduce rate of Rs 12/- per cum.).	550.00	cum	12.00	Rs. 6,600.00
29 PHE Sch	Providing water thinable Non -Toxic Epoxy coating ( Techoxy or equivalent brand of approved quality ) 2 (two) finished coats over 2(two) coats of primer of same brand , to the ceiling of roof dome including supply of requisite coating materials , cleanning of the substrate poperty to make it free from dirt , paints oil and greese sludge , blister loose plasters , fungal , moss, and other undesirable particuler using wire brush sand paper etc including mending good all damages all complete as per direction of EIC.	118.12	sqm	150.00	Rs. 17,718.00
30	Supplying, fitting, fixing in position C.I. Manhole Cover with rim Round 450 mm x 100mm x 21 Kg ( approx)	1.00	no	840.00	Rs. 840.00
31 PHE Sch	Supply at site C.I.D.F Pipe (K-9) as per relevent I.S Specification with latest ammendments including cost of two coats of painting , loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)				
	a) 300 mm dia	3202.15	Kg	65.00	Rs. 208,139.75
	b) 200 mm dia	4030.70	Kg	65.00	Rs. 261,995.50
	c) 100 mm dia	669.00	Kg	65.00	Rs. 43,485.00
32 PHE Sch	Supply at site C.I.D.F Specials ( class -B) as per relevent I.S Specification with latest ammendments including cost of two coats of painting , loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)				
	a) 300 mm	307.00	Kg	65.00	Rs. 19,955.00
	b) 200 mm	185.00	Kg	65.00	Rs. 12,025.00
	c) 100 mm	35.00	Kg	65.00	Rs. 2,275.00

33	Hire and labour charges for shoring work (including necessary close plank walling, framing, salbulla piling, strutting etc.) complete as per direction of the Engineer-in-charge for foundation excavation (vertical surface area in contact with supported earth is to be measured.) (This item should be executed on specific direction of the Engineer-in-charge.) (b) For additional	78.78	sqm	115.10	Rs.	9,067.88
34 PHE Sch.	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works, using cement @1.75 kg/sq.m. all complete including all materials and labour. 3 mm. thick topping (High polishing grinding on this item is not permitted) with ordinary cement. 20 mm. thick.	150.866	sqm	129.60	Rs.	19,552.23
35 PHE Sch	Cement washing including cleaning and smoothening surface thoroughly (cement to be used @15 kg./100 sq.m. of surface for one coat and @25 kg./100 sq.m of surface for two coats) : External surface One coat	1221.88	sqm	3.81	Rs.	4,655.36
36 P-80 I-13	Supply of G.I. pipes of TATA make including necessary sockets. 32 mm dia Medium Quality	25.00	Mtr	238.95	Rs.	5,973.75
37	Applying Weather Coat Exterior primer white of Berger brand on plastered or concrete surface old or new surface to receive said paint including scraping and preparing the surface thoroughly, complete as per direction of the Engg-in-charge. (manufacturer's specification to be followed) Analyzed Rate approved by E.I.C. 1 Coat on new surface	1221.88	sqm	16.87	Rs.	20,613.12
38	Applying Weather Coat All Guard Exterior Paint of Berger brand on plastered or concrete surface old or new surface to receive said paint including scraping and preparing the surface thoroughly, complete as per direction of the Engg-in-charge. (manufacturer's specification to be followed) Analyzed Rate approved by E.I.C. i) 2 Coats on new surface with Bone White Shed ( CB017)	1191.07	sqm	61.78	Rs.	73,584.30
	ii) 2 Coats on new surface with Wedge Wood ( Grey ) Shed	30.81	sqm	64.86	Rs.	1,998.34
39	125 mm. thick brick work with 1st class bricks in cement mortar (4:1) in ground floor.	4.292	sqm	399.00	Rs.	1,712.51
<b>TOTAL</b>					Rs.	5,932,129.01
Add 1% cess						59321.29
<b>TOTAL</b>						5991450.30

## ANNEXURE-IV(v)

Estimate of Over Head Reservoir 200 Cum. Capacity and 16 Mtr. Height. At Zone-V ( Ward-12,18) Kalipur, Arambagh under UIDSSMT Programme at Arambagh

## Zone-V

					Amount in Rupees	
Sl. No	Description of item	Quantity	Unit	Rate	Amount	
1	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterite or sand stone) including removing, spreading or stacking the spoils within a lead of 75 m. as directed. The item includes necessary trimming the sides of trenches, leveling, dressing and ramming the bottom bailing out water as required complete.					
	a).Depth of excavation not exceeding 1500 mm.	123.77	M3	41.87	Rs.	5,182.25
	b).Depth of excavation for additional depth beyond 1500 mm and upto 3000 mm but not required shoring.	144.40	M3	77.42	Rs.	11,179.45
2	Filling in foundation or plinth by soils or sand in layers not exceeding 150 mm as directed and consolidation by through saturation with water and ramming complete including cost of supply of sand (payment to be made on the basis of measurement of finished quantity of work)					
	By fine sand	136.830	M3	329.71	Rs.	45,114.22
3 P-84, I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling joints with powder earth or local sand.	93.15	M2	159.60	Rs.	14,866.74
4 P-106,	Brick work with 1st class bricks in cement mortar ( 6:1)					
	a) in foundation & plinth	1.719	M3	2662.80	Rs.	4,577.35
5 P-94, I=14,A,	Cement concrete with graded stone ballast (40 mm size)excluding shuttering.					
	a) (6:3:1) proportaion.	8.370	M3	2731.05	Rs.	22,858.89
6 P-26, I-6,a	Nominal Mix M - 20 Cement concrete with graded stone chips(20 mm.size) excluding shuttering and reinforcement, if any, in ground floor.					
	Pakur / Chandil Variety					
	a) In foundation & Upto 4 mtr. Height , (For Pedestal, Bracing & Coloumn )	40.887	M3	3974.40	Rs.	162,501.29
	b) For Coloumn, Bracing and Stairs From 4m above G.L. upto bottom of heel beam.	34.233	M3	3974.40	Rs.	136,055.64
	c) For roof/bottom dome, top ring beam , lantern, heal beam, shell wall, conical wall etc.	53.986	M3	4032.40	Rs.	217,693.15
7 P-100, I-19	Reinforcement for reinforced concrete work in all sorts of structures including distribution bars, stirrups, binders etc. including supply of rods, initial straightening and removal of loose rust (if necessary), cutting to requisite length, hooking and bending to correct shape , placing in proper position and binding with 16 swg black annealed wair at every intersection , complete as per drawing and direction.					
	a) In foundation & Upto 4 mtr. height	3.6513	MT	56819.00	Rs.	207,463.21
	b) From 4 m above G.L. to top of reservoir.	12.1683	MT	56999.00	Rs.	693,580.93



8 P-98. 1-16	fire and labour charges for shuttering with centering and necessary staging up to 4 m. using approved stout props ballah/steel post and steel plate/ply board of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or straight including fitting, fixing and striking out after completion of work.				
	a) Steel shuttering or 9 to 12 mm thick approved quality ply board shuttering including necessary frame work fitting fixing all complete required in any RCC work and striking out the same after completion of that portion of work as per instruction and satisfaction of E.I.C. (Payment will be made on the basis of area of actual contact with concrete surface.)				
	i) From foundation level to 4m above finished G.L.	84.422	M2	195.80	Rs. 16,529.83
9 P-98. 1-16	a) Hire and labour charges for shuttering for concrete work in overhead R.C. Reservoir on separate R.C. frame including fitting, fixing and striking off after completion of work including staging up to 4meter.				
	(Not applicable for resting on roof top.)	633.281	M2	559.90	Rs. 354,574.03
	b) Hire and labour charges for staging and scaffolding made of strong and stout bamboo or salbullah props with necessary cross bracing of bamboo salbullah including that for unsupported horizontal projection out side lower ring with necessary fixtures making proper platform /stair with wooden, planks etc for the entire construction works and to maintain it till complete of work and removing the same as per direction and instruction of E.I.C (Mode Of measurement will be volumetric basic and quantity is to be arrived by multiplying plan area considering outside diameter of lowering beam. with height taken from finished G.L to bottom of lower ring beam.)				
	Extra for staging beyond 4m	1067.848	M3	111.10	Rs. 118,637.91
	(Mode of measurement: Area of unsupported horizontal projection (where staging beyond 4m is practically un-avoidable) X mean height of staging) above initial 4m.)				
10 P- 1-	Supplying super plasticizer of Sika/Cico conforming to IS 2645 1975 & IS 9130 1979 to be need in mortar admixture @ 0.20% by Wt. Or cement (i.e., 100 ml per 50 kg. Of cement) for improving workability, reducing shrinkage & improvement of water tightness of the concrete.	46.873	Kg	175.00	Rs. 8,202.78
11	20 mm thick sand cement plaster(3:1) inside the reservoir floor, walls with admixture of necessary water proofing compound Sika/ Cico @ 20% by weight of cement of approved quality as per direction of E.I.C. to make the tank perfectly water tight, surface rendered perfectly smooth with neat cement finish 1.5 mm thick including shaping, sloping rounding off or chamfering corners where necessary, including cost of water proofing compound, chipping, curing etc. (note: This item of work shall be done only after completion of water tightness test satisfactorily.)	80.224	Sqm	109.20	Rs. 8,760.46

12	<p>M.S. structural works in columns, beams etc. with simple rolled structural members (e.g. joists angle, channel sections conforming to IS: 226, IS: 808 &amp; SP (6)- 1964 connected to one another with bracket, gussets as per design, direction of Engineer-in- charge complete including cutting to requisite shape and length, fabrication with necessary bolting, metal arc welding conforming to IS: 816- 1956 &amp; IS: 9595 using electrodes of approved make and brand conforming to IS:814- 1957, haulage, hoisting and erection all complete. The rate includes the cost of rolled steel section, consumables such as electrodes, gas and hire charge of all tools and plants and labour required for the work including all incidental chages such as electricity charges, labour insurance charges etc.</p> <p>( pament to be made on the basis of calculated weight of structural members only in finished work as per IS specified weight. Payment for gusset, bracket, cleat rivets, bolts and nuts may be make by adding the actual weight of such items with the weight of finished structural members or 7% of weight for finished tructural members <u>weighing not less than 22.5 Kg. / m. or 15 % of weieht for finished</u></p> <p>For sructural works in roof Trussesetc. Using joists, chnnels and angles of specified section weighing less than 22.5KG./m</p> <p>P-200, Item-1,ii, P.W.D. Building Schedule.w.e.f. 01.9.2007 , with corrigenda e.f. 15.5.2008</p>	0.1917	M.T.	65354.80	Rs.	12,528.52
13	<p>Providing G.I. railing integrated with G.I. post placed @ 400mm c/c and stiffened top and centrally with G.I. pipe all made of 32mm dia G.I. pipe ( medium quality of TATA make) in R.C.C. stair, landing, top of roof &amp; walkway including cost of G.I. pipe , tee &amp; cross where necessary cutting pipes, welding at every junction and intersection of pipes, embedding the post in the concrete floor upto a minimum depth of 80mm etc. all complete as per drawing &amp; finished with two coats of synthetic enamel painting to all exposed surface of G.I. pipes as per direction &amp; satisfaction of E.I.C.</p>	61.23	M	1234.00	Rs.	75,557.82
14 ( vetted rate )	<p>Supplying and installation of lightning solid conductor rod of phosphorus bronze size 2 m x 12 mm dia. On the top dome of the reservoir structure &amp; lightning conductor of galvanized iron wire 8mm dia from the roof along shell wall column up to G. L. to bottom of the earthing main pipe there should be 10 mm dia galvanized conductor wire fitted and fixed through 12 mm dia. P.V.C pipe connecting with main earthing GI pipe of 50 mm. dia class-c heavy type to be used as earthing electrodes of 3.5 mtrs. in length driven down to at least 3.5 mtr. in length driven down to at least 5.5 mtr. below G.L and filling up with charcoal (making necessary arrangements for testing the same )should be installed as per I.E .E rule and direction of E.I.C.</p>	1.00	item	4123.00	Rs.	4,123.00
15 ( vetted rate, 35 % enhance d)	<p>Provision for embossing the name and capacity of the Reservoir with 16 mm. thick(3;1) raised sand cement plaster with letter size 30 cm x 20 cm on the outside of shell wall of the reservoir painted complete as per direction of E.I.C.</p>	1.00	Item	2000.00	Rs.	2,000.00

16 PHE Sch.	Construction of masonry valve chamber, wash out chamber as per deptt. drawing with 1st class brick work in cement mortar(1:6) including earthwork in excavation with jhamakhoa(1:4:9) in foundation,100 mm thick precast RCC slab(1:2:4) shuttering on bottom and sides. reinforcement work and other materials as per departmental drawing with supply of 150 mm x 150 mm CI surface box embedded into the precast slab including fitting, fixing over the chamber and overhauling the valve(if any)all complete including cost of all labour and materials(only valves will be supplied from local					
	a)250 mm dia Sluice Valve	1.00	Each	4940.00	Rs.	4,940.00
	b)150 mm dia sluice valve	1.00	Each	4062.00	Rs.	4,062.00
17 PHE Sch.	20 mm thick cement plaster(3:1) to all exposed surface for column, beam, bracing wall and slab of the tank with admixture of necessary water proofing compound of approved quality as per direction of E.I.C.etc. including rounding off or chamfering corners including cost of chipping surface as required and necessary staging curing etc. all complete in all respect.(The payment of this item shall be done only after complrtion of water tightness test satisfactorily.)	710.01	sqm	103.58	Rs.	73,542.84
18 PHE Sch.	Hoisting,erecting placing and connecting CIDF pipes and specials including carriage from local store, securing with built in specials,providing stays,clamps as required including repairing the pipes and specials with two coats of synthetic enamel paints staging platform and necessary equipments for doing the work etc. complete in all respect as per drawing specification and direction of E.I.C					
	a)250 mm dia	16.85	Mtr	170.40	Rs.	2,871.24
	b)150 mm dia.	41.80	Mtr	75.00	Rs.	3,135.00
	c)100 mm dia	15.55	Mtr	70.45	Rs.	1,095.50
19 PHE Sch.	Fitting, fixing duckfoot bend including construction of cement concrete (4:2:1) base with stone chips of approved grade & quality including excavation of earth etc.complete in all respect.					
	a)250 mm dia (base size 450 x 450 x600 mm deep)	1.00	Each	326.00	Rs.	326.00
	b 150 mm dia.(base size 450x450x550 mm deep)	2.00	Each	275.00	Rs.	550.00
	c) 100mm dia ( base size 250x250x500mm deep )	1.00	Each	93.40	Rs.	93.40
20 PHE Sch.	Hoisting,fitting,fixing of bell mouth with puddle collar in RCCwork as per drawing & specification and direction of EIC					
	a)250 mm dia	1.00	Each	250.00	Rs.	250.00
	b)150 mm dia.	2.00	Each	170.00	Rs.	340.00
	c)100 mm dia.	1.00	Each	100.00	Rs.	100.00
21 PHE Sch.	Making arrangement of water tightness test conforming to the provision laid down in IS-3370 (part-1) 1956,by filling with water upto top water level(TWL) as shown in the drawing and as per direction of EIC for the tank proper including the arrangement of water,its carriage & lifting by necessary,pipes,ittings and pumping machinery etc. all required for the purpose( in case the water be arranged by deptt,the payment will be made at a reduced of Rs. 12/-per cum.	200.00	cum	30.00	Rs.	6,000.00

22 PHE Sch.	Making flange joint where necessary with supply necessary rubber insertion bolts, nut, washers etc. of approved quality and type and painting complete as per specification and direction of EIC.				
	a) 250 mm dia.	14.00	Each	350.00	Rs. 4,900.00
	b) 150 mm dia.	31.00	Each	226.00	Rs. 7,006.00
	c) 100 mm dia.	10.00	Each	189.20	Rs. 1,892.00
23 PHE Sch.	Disinfection & Washing the tank and pipe connections including cleaning the inside of the tank etc. complete.	1.00	L.S	900.00	Rs. 900.00
24 PHE Sch.	Laying of C.I./ D.I pipes ,specials & valves in the trenches including lifting from the road side and carrying the same within a lead of 75 mtr for lowering into trenches and placing laying carefully in proper alignment ,gradient etc. by mobile crane and other necessary devices maintaining a minimum cover of 1.00 mtr. below ground level etc. all complete as per specification & direction of E.I.C				
	a) 250 mm dia,	5.50	Mtr	50.00	Rs. 275.00
	b) 150 mm dia.	6.70	mtr	12.30	Rs. 82.41
25 PHE Sch.	Painting of bituminus paint of approved type & quality on tank roof as per drawing & specificatio including through cleaning of surface & sanding complete(including cost of sand)	64.21	Sqm	30.00	Rs. 1,926.30
26 PHE Sch.	Refelling Resorver ( after disinfection and washing the tank etc as per item 34 above) with fresh water up to top water level (twl) as shown in the drawing nd as per direction of EIC including the arrangement of water its carriage and lifting by the necessary pipes fittings and pumping machinery etc required for the purpose ( in case the water be Department the payment will be made at a reduce rate of Rs 12/- per cum.).	200.00	cum	12.00	Rs. 2,400.00
27 PHE Sch.	Providing water thinable Non -Toxic Epoxy coating ( Techoxy or equivalent brand of approved quality ) 2 (two) finished coats over 2(two) coats of primer of same brand , to the ceiling of roof dome including supply of requisite coating materials , cleanning of the substrate poperty to make it free from dirt , paints oil and greese sludge , blister loose plasters , fungal , moss, and other undesirable particuler using wire brush sand paper etc including mending good all damages all complete as per direction of EIC.	55.917	sqm	150.00	Rs. 8,387.55
28	Supplying, fitting, fixing in position C.I. Manhole Cover with rim Round 450 mm x100mm x 21 Kg ( approx) P-180, Item-9,a S&P Schedule.	1.00	no	840.00	Rs. 840.00
29 PHE Sch.	Supply at site C.I.D.F Pipe (K-9) as per relevent I.S Specification with latest ammendments including cost of two coats of painting , loading carring unloading stacking property and sale tax all other taxes and changes etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)				
	a) 250 mm dia	2027.68	Kg	65.00	Rs. 131,799.20
	b) 150 mm dia	2362.68	Kg	65.00	Rs. 153,574.20
	c) 100 mm dia	464.94	Kg	65.00	Rs. 30,221.10

30 PHE Sch	Supply at site C I D F Specials (class-B) as per relevant IS Specification with latest amendments including cost of two coats of painting, loading, carrying, unloading, stacking, property and sale tax, all other taxes and charges etc complete as per direction of Engineer incharge (Mode of Measurement will be on book weight)					
	a) 250 mm dia	192.00	Kg	65.00	Rs.	12,480.00
	b) 150 mm dia	124.00	Kg	65.00	Rs.	8,060.00
	c) 100 mm dia	35.50	Kg	65.00	Rs.	2,307.50
31	Hire and labour charges for shoring work (includeing necessary close plank walling, framing, salbulla piling, strutting etc.) complete as per direction of the Engineer-in-charge for foundation excavation. (vertical surface area in contact with supported earth is to be measured.) (This item should be executed on specific direction of the Engineer-in-charge.)(b) For additional depth beyond 1.5 m. and upto 3.00 m	56.35	sqm	115.00	Rs.	6,480.25
32 PHE Sch.	Artificial stone in floor, dado, staircase etc. with cement concrete (4:2:1) with stone chips, laid in panels as directed with topping made with ordinary or white cement (as necessary) and marble dust in proportion (2:1) including smooth finishing and rounding off corners and including application of cement slurry before flooring works, using cement @1.75 kg./sq.m. all complete including all materials and labour. 3 mm. thick topping (High polishing grinding on this item is not permitted) with ordinary cement. 20 mm. thick. (P-126, Item-3,i, PWD Building Schedule.)	69.176	sqm	129.60	Rs.	8,965.21
33PHE Sch.	Cement washing including cleaning and smoothening surface thoroughly (cement to be used @15 kg./100 sq.m. of surface for one coat and @25 kg./100 sq.m of surface for two coats) : External surface One coat P-356, Item-7,a, P.W.D. Building Schedule.w.e.f. 01.9.2007, with corrigenda e.f. 15.5.2008	645.80	sqm	3.81	Rs.	2,460.50
34 P-80 I-13	Supply of G.I. pipes of TATA make including necessary sockets. 32 mm dia Medium Quality P-196, Item-1,d,ii PWD S&P Schedule of rates .w.e.f. 01.9.2007, with corrigenda e.f. 15.5.2008	12.89	Mtr	238.95	Rs.	3,080.07
35	125 mm. thick brick work with 1st class bricks in cement mortar (4:1) in ground floor.P-108, It-33, PWD Bldg Sch w.e.f.15.5.08	1.930	sqm	399.00	Rs.	770.07
<b>TOTAL</b>					Rs.	2,608,100.79
Add 1% cess						26081.01
<b>TOTAL</b>						2634181.80

## ANNEXURE V

Procurement of Pipe &amp; specials for Distribution &amp; Rising main of Water Pipe Line at Arambagh Municipality under "UDISSMT" scheme.

Sl. No.	Description of Item	Quantity	Unit	Rate	Amount
	<b>DI pipe (K7)</b>				
1(a)	100mm DI pipe (K7)	68504	Mtr	691.00	47336264.00
(b)	<b>100mm DI pipe (K7) Proposal for required quantity. Vide MEMO NO-68/ARAM/UIDSSMT/2010-11 Date-19/01/11</b>	16000	Mtr	704.00	11264000.00
3	150mm DI pipe (K7)	6267.00	Mtr	1003.00	6285801.00
4	200mm DI pipe (K7)	1880.00	Mtr	1246.00	2342480.00
5	250mm DI pipe (K7)	297.00	Mtr	1671.00	496287.00
6	300mm DI pipe (K7)	990.00	Mtr	2147.00	2125530.00
7	350mm DI pipe (K7)	60.00	Mtr	2697.00	161820.00
	<b>DI pipe (K9)</b>				
8	250mm DI pipe (K9)	148.50	Mtr	1886.00	280071.00
9	150mm DI pipe (K9)	4500.00	Mtr	1227.00	5521500.00
	<b>Specials</b>				
10	C.I.Specials				4366910.00
11	D.I.Specials				3167000.00
				Sub total Rs:	83347663.00
	<b>Specials required against item no 1(b)</b>			11264000.00x15%	Rs. 1,689,600.00
					Rs. 85,037,263.00
	<b>Say Rs.8.50 CRORE</b>				
	<b>( Rupees EIGHT CRORE FIFTY LAKHS)</b>				

**BRIO ZING UNLIMITED**

**PRICE LIST  
MARCH2011**

Sl.No	Item of Description	Packing	Quantity	Unit	Rate	Amount(Rs)
1	BZ-HSH calcium based high strength granular chlorination chemical	45 Kg	1	Kg	260.00/Kg	Rs;-11700.00
2	BZ-GDA-100 charges of Electro Mechanical injection system consisting of the following components.	1 No	1	Each	130752.00	Rs:-130752.00
3	Installation charges		1 item	each	2000.00	Rs:-2000.00
						Rs:-1,44,452.00

Total amount for 5 nos = 5x144452/- = 722260/- Say 7.22 lakhs

**Rate on behalf of BRIO ZING UNLIMITED**

**Including all taxes**

ANNEXURE-VI (i) (a)					
Estimate for the Land Development, Drain, allied works under UIDSSMT Programme					
ZONE-II at Brindavanpur, Arambagh					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1, a	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	40	%Cum	4187.00	Rs. 1,674.80
2 P-68 item=2a	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation.	16	%Cum	2600.00	Rs. 416.00
3 P-70,	Filling in foundation of plinth by silver sand in layers not exceeding 150mm as directed and	210	%Cum	22476.00	Rs. 47,199.60
4 P-84 I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	85	Sq.m	114.00	Rs. 9,690.00
5 P-94 I-14 (A)a	Cement concrete with graded stone ballast (40mm size) excluding shuttering.				
	(A) 6:3:1 proportion I) Ground floor,	8	Cum.	2023.00	Rs. 16,184.00
6 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	25	Cum	1902.00	Rs. 47,550.00
7 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground				
	(b) with 6:1 cement mortar, 15 mm. thick plaster - 1) Gr Floor.	190	Sq.m	45.00	Rs. 8,550.00
8 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc.	189	Sq.M	16.00	Rs. 3,024.00
	(NOTE: Cement 0.152 cu.m. per 100.sq.m)				
TOTAL					Rs. 134,288.40
Add CESS @ 1%					Rs. 1,342.88
Sub total					Rs. 135,631.28
Say,					Rs. 135630.00



## ANNEXURE-VI (i) (b)

Estimate for the Construction of Boundary Wall under UIDSSMT Programme at ZONE-II at Brindavanpur, Arambagh					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1, a	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	20	%Cum	4187.00	Rs. 837.40
2 P-68 item=2a	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation	20	%Cum	2600.00	Rs. 520.00
3 P-70,	Filling in foundation of plinth by silver sand in layers not exceeding 150mm as directed and	2	%Cum	22476.00	Rs. 449.52
4 P-84 I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	22	Sq.m	114.00	Rs. 2,508.00
5 P-86 I-7 (a)	Ordinary Cement concrete ( mix 3:1.5:1 ) with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor.			6.5	
	(a) Pakur variety.				
	A) Gr Floor.	14.50	Cum.	2944.00	Rs. 42,688.00
6 P-100 I-19 a i	Reinforcement of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction.				
	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
	(i) Tor steel/ Mild steel				
	A) Ground Floor.	1.55	M.T.	32000.00	Rs. 49,600.00

7 P-98 I-16, (a),(c),( f)	Hire and labour charges for shuttering with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	65	Sq.M	143.00	Rs.	9,295.00
	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	95	Sq.M	101.00	Rs.	9,595.00
8 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)					
	a) In foundation and plinth	3.5	Cum	1902.00	Rs.	6,657.00
9 P-108, I-33	125mm thick brick work with 1 <sup>st</sup> class bricks in cement mortar (4:1) in ground floor.					
	1) Ground Floor.	97	Sq.M	285.00	Rs.	27,645.00
10 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)					
	(b) with 6:1 cement mortar, 15 mm. thick plaster -					
	1) Gr Floor.	250	Sq.m	45.00	Rs.	11,250.00
11 P-202, 27	M.S. woks in brackets made from flates, angles, tees etc. to sizes specially bent, twisted, forged; making holes drilled and fitted to rafter of trusses with necessary bolts; nuts; washer or screws etc. (length of straight not less than 230 mm)	1.90	Qntl	4333.30	Rs.	8,233.27
12 P- 354, I- 5,ii, b	Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly.					
	i) External surface, Two coats of colour wash Ground floor	250	%Sq.m	1000.00	Rs.	2,500.00
13 P-366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	15	Sq.m	20.00	Rs.	300.00
14 P-366, I-8,b,iv	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary					
	B) On steel or other metal surface					
	With super gloss-( hi- gloss) Two coats (With any; shade except white)	15	Sq.m	38.00	Rs.	570.00



## ANNEXURE-VI(ii) (a)

Estimate for the Land Development, Drain, allied works under UIDSSMT					
ZONE-III at Noapara, Arambagh					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1 a	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	40	%Cum	4187.00	Rs. 1,674.80
2 P-68 item=2a	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation	16	%Cum	2600.00	Rs. 416.00
3 P-70,	Filling in foundation of plinth by silver sand in layers not exceeding 150mm as directed and	210	%Cum	22476.00	Rs. 47,199.60
4 P-84 I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	85	Sq.m	114.00	Rs. 9,690.00
5 P-94 I-14 (A)a	Cement concrete with graded stone ballast (40mm size) excluding shuttering.				
	(A) 6:3:1 proportion I) Ground floor.	8	Cum.	2023.00	Rs. 16,184.00
6 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	25	Cum	1902.00	Rs. 47,550.00
7 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground				
	(b) with 6:1 cement mortar, 15 mm. thick plaster 1) Gr Floor.	190	Sq.m	45.00	Rs. 8,550.00
8 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc.	189	Sq.M	16.00	Rs. 3,024.00
	(NOTE: Cement 0.152 cu.m. per 100.sq.m)				
				Total	Rs. 134,288.40
				Add CESS @ 1%	Rs. 1,342.88
				Total	Rs. 135,631.28
				Say	Rs.135630.00

Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1	<b>Earth work in excavation</b> of foundation trenches or drains in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
7					
8	a) Depth of excavation not exceeding 1.5m	22	%Cum	4187.00	Rs. 921.14
9	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
10	a) With earth obtained from excavation of foundation.	22	%Cum	2600.00	Rs. 572.00
11	<b>Filling in foundation of plinth by silver sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	2	%Cum	22476.00	Rs. 449.52
12					
13	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	25	Sq.m	114.00	Rs. 2,850.00
14	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor.		6.5		
15	(a) Pakur variety.				
16	A) Gr Floor.	16.00	Cum.	2944.00	Rs. 47,104.00
17	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction.				
18	(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
19	(i) Tor steel/ Mild steel				
20	A) Ground Floor.	1.75	M.T.	32000.00	Rs. 56,000.00
21	<b>Hire and labour charges for shuttering</b> with centring and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	85	Sq.M	143.00	Rs. 12,155.00
22	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	120	Sq.M	101.00	Rs. 12,120.00

	B	C	D	E	F	G
23	<b>8</b> P-106, I-26.	<b>Brick work with 1<sup>st</sup> class bricks in cement mortar (6:1)</b>				
24		a) In foundation and plinth	4.5	Cum	1902.00	Rs. 8,559.00
25	<b>9</b> P-108, I-33	<b>125mm thick brick work with 1<sup>st</sup> class bricks in cement mortar (4:1) in ground floor.</b>				
26		1) Ground Floor.	105	Sq.M	285.00	Rs. 29,925.00
27	<b>10</b> P-342 I-1	<b>Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)</b>				
28		(b) with 6:1 cement mortar, 15 mm. thick plaster -				
29		1) Gr Floor.	320	Sq.m	45.00	Rs. 14,400.00
30	<b>11</b> P-190, I-10, a, i	<b>M.S or W.I. ornamental grill of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg./sq.m. upto 16 kg./sq.m.</b>	225	Kg	40.00	Rs. 9,000.00
31	<b>12</b> P-354, I-5, i, a,b	<b>Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothing surface thoroughly.</b>				
32		i) External surface, Two coats of colour wash Ground floor	320	%Sq.m	1000.00	Rs. 3,200.00
33	<b>13</b> P-366, I-7	<b>Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothing surfaces by sand papering etc.</b>	20	Sq.m	20.00	Rs. 400.00
34	<b>14</b> P-366, I-8	<b>Painting with best quality synthetic enamel paint of approved make and brand including smoothing surface by sand papering etc including using of approved putty etc on the surface if necessary</b>				
35		B) On steel or other metal surface				
36		With super gloss-( hi- gloss)				
37		Two coats (With any; shade except white)	20	Sq.m	38.00	Rs. 760.00
38	<b>15</b> P-410, I- 6,a	<b>(a) Supplying, fitting galvanised 3 ply 12 gauge / 4 points line of barbed wire in fencing (holes already made in the body of the post) or fixed by staples tightening and fixing the wires in taut condition with straining bolts including the cost of cutting and of lapping joints in the wire as necessary but excluding the cost of galvanised staples, straining bolt and binding wire where necessary.</b>				
39		(Payment to be made on the length of individual lines of wire.)	480	%m	683.00	Rs. 3,278.40
40	<b>16</b> P-414, I- 13	<b>Galvanised straining bolts (with eye at one end with double nuts and washers) fitted and fixed complete.</b>				
41		(ii) 12 mm. dia.				
42		(b) 250 mm.	100	each	29.00	Rs. 2,900.00
43	<b>17</b> P-416, I- 14,b	<b>Galvanised staples fitted and fixed complete.</b>				
44		32.5 mm. to 37.5 mm. size	3000	each	0.50	Rs. 1,500.00

	B	C	D	E	F	G
45	18 P-416, I- 16	Supplying 6 ply galvanised strand wire 19 gauge fitted and fixed complete with necessary eyes, hook and straining bolts (excluding the cost of straining bolts.)	20	m	13.00	Rs. 260.00
46	19 P-412, I- 7.b	Labour for fitting wove wire or similar fencing net tightening and fixing the same to post with staples at every bar (including the cost of cutting and lapping joints in the net, the cost of staples, binding wire etc. and of labour for fixing such staples as necessary).				
47		(Payment to be made on the length of net in finished work.)	480	%m	540.00	Rs. 2,592.00
48		(b) Net above 1350 mm. height				
49	20 Page- 188 / Sl. No. 13	M.S. gate of Jail type as per approved design made of strong M.S. frame work, intermediate stiffeners and round / square bars or angles. M.S. sheet (not less than 14 gauge) gussetes, cleats etc. including necessary riveting, bolting, welding, locking and hanging arrangements, fitting and fixing complete as per direction of the Engineer-in -charge.	1	Qti	5350.00	Rs. 5,350.00
50					Total	Rs. 198,415.66
51					Add CESS @ 1%	Rs. 1,984.16
52					Total	Rs. 200,399.82
53					Say Rs.	200,400.00
54						

## ANNEXURE-VI ( iii)

Estimate for the Land Development, Drain, allied works under UIDSSMT Programme					
ZONE-IV at Chandur, Arambagh					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1 a	Earth work in excavation of foundation trenches or drains in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	40	%Cum	4187.00	Rs. 1,674.80
2 P-68 Item=2a	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation	16	%Cum	2600.00	Rs. 416.00
3 P-70,	Filling in foundation of plinth by silver sand in layers not exceeding 150mm as directed and	210	%Cum	22476.00	Rs. 47,199.60
4 P-84 I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	85	Sq.m	114.00	Rs. 9,690.00
5 P-94 I-14 (A)a	Cement concrete with graded stone ballast (40mm size) excluding shuttering.				
	(A) 6:3:1 proportion				
	l) Ground floor.	8	Cum	2023.00	Rs. 16,184.00
6 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	25	Cum	1902.00	Rs. 47,550.00
7 P-342 I-1	Plaster (to wall floor ceiling etc)with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground				
	(b) with 6:1 cement mortar, 15 mm. thick plaster - 1) Gr Floor.	190	Sq.m	45.00	Rs. 8,550.00
8 P-348 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc.				
	(NOTE: Cement 0.152 cu.m. per 100.sq.m )	189	Sq.M	16.00	Rs. 3,024.00
				Total	Rs. 134,288.40
				Add CESS @ 1%	Rs. 1,342.88
				Total	Rs. 135,631.28
				Say	Rs. 135630.00



	B	C	D	E	F	G
1	ANNEXURE-VI (iii)					
2	<b>Estimate for the Construction of Boundary Wall under UIDSSMT Programme at Arambagh Municipality.</b>					
3	<b>ZONE-IV at Chandur, Arambagh</b>					
4						
5	SI.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
7	1 P-68 Item-1, a	<b>Earth work in excavation</b> of foundation trenches or drains in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
8		a) Depth of excavation not exceeding 1.5m	22	%Cum	4187.00	Rs. 921.14
9	2 P-68 Item-2a	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
10		a) With earth obtained from excavation of foundation.	22	%Cum	2600.00	Rs. 572.00
11	3 P-70, 3a	<b>Filling in foundation of plinth by silver sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.	2	%Cum	22476.00	Rs. 449.52
12						
13	4 P-84 I-1	<b>Single brick flat soling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	25	Sq.m	114.00	Rs. 2,850.00
14	5 P-86 I-7 (a)	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor.		6.5		
15		(a) Pakur variety.				
16		A) Gr Floor.	16.00	Cum.	2944.00	Rs. 47,104.00
17	6 P-100 I-19 a i	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction.				
18		(a) For works in foundation basement and upto roof of ground floor / upto 4m.				
19		(i) Tor steel/ Mild steel				
20		A) Ground Floor.	1.75	M.T.	32000.00	Rs. 56,000.00
21	7 P-98 I-16, (a),(c),(f)	<b>Hire and labour charges for shuttering</b> with centring and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works. (a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	85	Sq.M	143.00	Rs. 12,155.00
22		(b) 25 mm to 30 mm shuttering without staging in foundation etc.	120	Sq.M	101.00	Rs. 12,120.00
23	8 P-106, I-26,	<b>Brick work with 1<sup>st</sup> class bricks</b> in cement mortar (6:1)				
24		a) In foundation and plinth	4.5	Cum	1902.00	Rs. 8,559.00

	B	C	D	E	F	G
1	<b>ANNEXURE-VI (iii)</b>					
25	<b>9</b> P-108, I-33	<b>125mm thick brick work with 1<sup>st</sup> class bricks in cement mortar (4:1) in ground floor.</b>				
26		1) Ground Floor.	105	Sq.M	<b>285.00</b>	Rs. 29,925.00
27	<b>10</b> P-342 I-1	<b>Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)</b>				
28		(b) with 6:1 cement mortar, 15 mm. thick plaster -				
29		1) Gr Floor.	320	Sq.m	<b>45.00</b>	Rs. 14,400.00
30	<b>11</b> P-190, I-10, a, i	<b>M.S or W.I. ornamental grill of approved design joints continuously welded with M.S W.I flats and bars for windows, railing etc. fitted and fixed with necessary screws and lugs in ground floor. (i) Grill weighing above 10 kg/sq.m. upto 16 kg/sq.m.</b>	225	Kg	<b>40.00</b>	Rs. 9,000.00
31	<b>12</b> P-354, I-5, i, a,b	<b>Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothing surface thoroughly.</b>				
32		i) External surface, Two coats of colour wash Ground floor	320	%Sq.m	<b>1000.00</b>	Rs. 3,200.00
33	<b>13</b> P-366, I-7	<b>Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothing surfaces by sand papering etc.</b>	20	Sq.m	<b>20.00</b>	Rs. 400.00
34	<b>14</b> P-366, I-8	<b>Painting with best quality synthetic enamel paint of approved make and brand including smoothing surface by sand papering etc including using of approved putty etc on the surface if necessary</b>				
35		B) On steel or other metal surface				
36		With super gloss-( hi- gloss)				
37		Two coats (With any, shade except white)	20	Sq.m	<b>38.00</b>	Rs. 760.00
38	<b>15</b> P-410, I-6, a	<b>(a) Supplying, fitting galvanised 3 ply 12 gauge / 4 points line of barbed wire in fencing (holes already made in the body of the post) or fixed by staples tightening and fixing the wires in taut condition with straining bolts including the cost of cutting and of lapping joints in the wire as necessary but excluding the cost of galvanised staples, straining bolt and binding wire where necessary.</b>				
39		(Payment to be made on the length of individual lines of wire.)	480	%m	<b>683.00</b>	Rs. 3,278.40
40	<b>16</b> P-414, I-13	<b>Galvanised straining bolts (with eye at one end with double nuts and washers) fitted and fixed complete.</b>				
41		(ii) 12 mm. dia.				
42		(b) 250 mm.	100	each	<b>29.00</b>	Rs. 2,900.00
43	<b>17</b> P-416, I-14, b	<b>Galvanised staples fitted and fixed complete.</b>				
44		32.5 mm. to 37.5 mm. size	3000	each	<b>0.50</b>	Rs. 1,500.00

	B	C	D	E	F	G
1	<b>ANNEXURE-VI (iii)</b>					
45	18 P-416, I- 16	Supplying 6 ply galvanised strand wire 19 gauge fitted and fixed complete with necessary eyes, hook and straining bolts (excluding the cost of straining bolts.)	20	m	13.00	Rs. 260.00
46	19 P-412, I- 7,b	Labour for fitting wove wire or similar fencing net tightening and fixing the same to post with staples at every bar (including the cost of cutting and lapping joints in the net, the cost of staples, binding wire etc. and of labour for fixing such staples as necessary)				
47		(Payment to be made on the length of net in finished work.)	480	%m	540.00	Rs. 2,592.00
48		(b) Net above 1350 mm. height				
49	20 Page- 188 / Sl. No. 13	M.S. gate of Jail type as per approved design made of strong M.S. frame work, intermediate stiffeners and round / square bars or angles. M.S. sheet (not less than 14 gauge) gussetes, cleats etc. including necessary riveting, bolting, welding, locking and hanging arrangements, fitting and fixing complete as per direction of the Engineer-in -charge.	1	Qtl	5350.00	Rs. 5,350.00
50					Total	Rs. 198,415.66
51					Add CESS @ 1%	Rs. 1,984.16
52					Total	Rs. 200,399.82
53					Say	Rs. 200,400.00
54						

## ANNEXURE-VI(v) (a)

Estimate for the Land Development, Drain, allied works under UIDSSMT					
ZONE-V at Kalipur, Arambagh					
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.
1 P-68 Item-1 a	Earth work in excavation of foundation trenches or drains, in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.				
	a) Depth of excavation not exceeding 1.5m	40	%Cum	4187.00	Rs. 1,674.80
2 P-68 item=2a	Earth work in filling in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.				
	a) With earth obtained from excavation of foundation	16	%Cum	2600.00	Rs. 416.00
3 P-70,	Filling in foundation of plinth by silver sand in layers not exceeding 150mm as directed and	210	%Cum	22476.00	Rs. 47,199.60
4 P-84 I-1	Single brick flat soling of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.	85	Sq.m	114.00	Rs. 9,690.00
5 P-94 I-14 (A)a	Cement concrete with graded stone ballast (40mm size) excluding shuttering.				
	(A) 6:3:1 proportion i) Ground floor.	8	Cum.	2023.00	Rs. 16,184.00
6 P-106, I-26, & 31(a)	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
	a) In foundation and plinth	25	Cum	1902.00	Rs. 47,550.00
7 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground				
	(b) with 6:1 cement mortar, 15 mm. thick plaster 1) Gr Floor.	190	Sq.m	45.00	Rs. 8,550.00
8 P-346 I-7	Neat cement punning about 1.5 mm thick in wall dado window sills floor drain etc.	189	Sq.M	16.00	Rs. 3,024.00
	(NOTE: Cement 0.152 cu.m. per 100.sq.m)				
					Rs. 134,288.40
Add CESS @ 1%					Rs. 1,342.88
Sub total					Rs. 135,631.28
<b>Say</b>					<b>Rs.135630.00</b>

	B	C	D	E	F	G
	ANNEXURE VIII (b)					
<b>Estimate for the Construction of Boundary Wall under UIDSSMT Programme at Arambagh Municipality.</b>						
<b>ZONE-V at Kalipur, Arambagh</b>						
Sl.No	Description of Items	Quantity	Unit	Rate Rs	Amount Rs.	
1	<b>Earth work in excavation</b> of foundation trenches or drains in all sorts of soil (including mixed soil but excluding laterites or sandstone) including removing spreading or stacking the spoils within a lead of 75m as directed. The item includes necessary trimming the sides of trenches levelling dressing and ramming the bottom bailing out water as required complete.					
7						
8	a) Depth of excavation not exceeding 1.5m	18	%Cum	4187.00	Rs.	753.66
2	<b>Earth work in filling</b> in foundation trenches or plinth with good earth in layers not exceeding 150mm including watering and ramming etc layer by layer complete.					
9						
10	a) With earth obtained from excavation of foundation.	18	%Cum	2600.00	Rs.	468.00
3	<b>Filling in foundation of plinth by silver sand</b> in layers not exceeding 150mm as directed and consolidating same by thorough saturation with water ramming complete including the cost of supply of sand.					
11						
12		0.5	%Cum	22476.00	Rs.	112.38
4	<b>Single brick flat soiling</b> of picked jhama bricks including ramming and dressing bed to proper level and filling points with powdered earth or local sand.					
13		25	Sq.m	114.00	Rs.	2,850.00
5	<b>Ordinary Cement concrete ( mix 3:1.5:1 )</b> with graded stone chips (20 mm down) excluding shuttering and reinforcement if any in ground floor.					
14			6.5			
15	(a) Pakur variety.					
16	A) Gr Floor.	14.00	Cum.	2944.00	Rs.	41,216.00
6	<b>Reinforcement</b> of reinforced concrete work in all sorts of structures including distribution bars stirrups binders etc including supply of rods initial straightening and removal of loose rust (if necessary) cutting to requisite length hooking and bending to correct shape placing in proper position and binding with 16 gauge black annealed wire at every inter section complete as per drawing and direction.					
17						
18	(a) For works in foundation basement and upto roof of ground floor / upto 4m.					
19	(i) Tor steel/ Mild steel					
20	A) Ground Floor.	1.5	M.T.	32000.00	Rs.	48,000.00
7	<b>Hire and labour charges for shuttering</b> with centreing and necessary staging upto 4 m. using approved stout props and thick hard wood planks of approved planks of approved thickness with required bracing for concrete slab, beams, columns, lintels curved or stright including fitting fixing and striking out after completion of works.					
21	(a) 25 mm to 30 mm thick wooden shuttering as per decision & direction of Engineer-In-Charge.	70	Sq.M	143.00	Rs.	10,010.00
22	(b) 25 mm to 30 mm shuttering without staging in foundation etc.	100	Sq.M	101.00	Rs.	10,100.00

	B	C	D	E	F	G
1		ANNEXURE-VI(iv)				
23	8 P-106, I-26.	Brick work with 1 <sup>st</sup> class bricks in cement mortar (6:1)				
24		a) In foundation and plinth	4	Cum	1902.00	Rs. 7,608.00
25	9 P-108, I-33	125mm thick brick work with 1 <sup>st</sup> class bricks in cement mortar (4:1) in ground floor.				
26		1) Ground Floor.	97	Sq.M	285.00	Rs. 27,645.00
27	10 P-342 I-1	Plaster (to wall floor ceiling etc) with sand and cement mortar including rounding off or chamfering corners as directed and raking out joints or roughening of concrete surface including throating nosing and drip course where necessary (ground floor)				
28		(b) with 6:1 cement mortar, 15 mm. thick plaster -				
29		1) Gr Floor.	230	Sq.m	45.00	Rs. 10,350.00
30	11 P-202, 27	M.S. woks in brackets made from flates, angles, tees etc. to sizes specially bent, twisted, forged; making holes drilled and fitted to rafter of trusses with necessary bolts; nuts; washer or screws etc. ( length of straight not less than 230 mm)	1	Qntf	4333.30	Rs. 4,333.30
31	12 P- 354, I- 5, i, a,b	Colour washing with pigments of any shade with a coat of white wash priming including cleaning and smoothening surface thoroughly. i) External surface , Two coats of colour wash				
32		Ground floor	230	%Sq.m	1000.00	Rs. 2,300.00
33	13 P-366, I-7	Priming one coat on timber plastered or on steel or other metal surface with synthetic enamel /oil bound primer of approved quality including smoothening surfaces by sand papering etc.	18	Sq.m	20.00	Rs. 360.00
34	14 P-366, I-8	Painting with best quality synthetic enamel paint of approved make and brand including smoothening surface by sand papering etc including using of approved putty etc on the surface if necessary				
35		B) On steel or other metal surface				
36		With super gloss-( hi- gloss)				
37		Two coats (With any; shade except white)	19.214	Sq.m	38.00	Rs. 730.13
38	15 P-410, I- 6,a	(a) Supplying, fitting galvanised 3 ply 12 gauge / 4 points line of barbed wire in fencing (holes already made in the body of the post) or fixed by staples tightening and fixing the wires in taut condition with straining bolts including the cost of cutting and of lapping joints in the wire as necessary but excluding the cost of galvanised staples, straining bolt and binding wire where necessary.				
39		(Payment to be made on the length of individual lines of wire.)	450	%m	683.00	Rs. 3,073.50
40	16 P-414, I- 13	Galvanised straining bolts (with eye at one end with double nuts and washers) fitted and fixed complete.				
41		(ii) 12 mm. dia.				
42		(b) 250 mm.	90	each	29.00	Rs. 2,610.00
43	17 P-416, I- 14,b	Galvanised staples fitted and fixed complete.				
44		32.5 mm. to 37.5 mm. size	20	each	0.50	Rs. 10.00

	B	C	D	E	F	G
1						
		<b>ANNEXURE-VI(iv)</b>				
45	18 P-416, I- 16	Supplying 6 ply galvanised strand wire 19 gauge fitted and fixed complete with necessary eyes, hook and straining bolts (excluding the cost of straining bolts.)	15	m	13.00	Rs. 195.00
46	19 P-412, I- 7,b	Labour for fitting wove wire or similar fencing net tightening and fixing the same to post with staples at every bar (including the cost of cutting and lapping joints in the net, the cost of staples, binding wire etc. and of labour for fixing such staples as necessary)				
47		(Payment to be made on the length of net in finished work.)	450	%m	540.00	Rs. 2,430.00
48		(b) Net above 1350 mm. height				
49	20 Page- 188 / Sl. No. 13	M.S. gate of Jail type as per approved design made of strong M.S. frame work, intermediate stiffeners and round / square bars or angles. M.S. sheet (not less than 14 gauge) gussetes, cleats etc. including necessary riveting, bolting, welding, locking and hanging arrangements, fitting and fixing complete as per direction of the Engineer-in -charge.	1	Qtl	5350.00	Rs. 5,350.00
50					Total	Rs. 180,504.97
51					Add CESS @ 1%	Rs. 1,805.05
52					Total	Rs. 182,310.02
53					Say	Rs. 182,310.00

**ORIGINAL.**  
**D.P.R**



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## PREFACE

Arambag is the sub-divisional head quarters of Hooghly District and is located about 150 kms away of state capital Kolkata and 90 kms from district head quarter Hooghly and is well connected by roads. Nearest rail way station is Tarokeswar and is about 40 kms from the municipal town.

Arambag is one of the oldest municipal town of West Bengal, started functioning since 1886 A.D. Water supply system of the town is an old one being inadequate both in terms of coverage and per capita supply rate.

Urban Infrastructure Development Scheme for Small and Medium Towns - centrally sponsored programme has already been launched in the year 2005-06 under 10<sup>th</sup> plan with the objective of up gradation and development of physical urban infrastructure along with the improvement of basic services for the urban poor as well as boosting the growth of the towns of the state in a uniform manner.

Preparation of the design of proposed water supply scheme under the above plan has been taken up as per State Urban strategy plan. It is anticipated that the implementation of the above programme will upgrade the basic urban infrastructure in a big way. It will also help the ULBs to become self reliant.

The scheme has been designed with ground water as source of water for which additional 5 (five) nos tube wells of size 300 mm x 200 mm have to be constructed. Depth of all the tube well has been kept as 150 meters, as per available subsoil information. Total municipal area has been divided into 5 (Five) water supply zones for equitable distribution of water. Provision for construction of additional 4 (four) number of Elevated Reservoirs has been kept in the estimate. The scheme will cover a population of 91778 in the year of 2038 A.D.

During preparation of the scheme utmost care has been taken in maximum utilization of existing infrastructures. Existing 9 (nine) nos tube wells, 1 (one) no Elevated Reservoir, existing distribution system and rising mains have been utilised. Total capital cost of the scheme has been estimated as Rs. 1178.32 Lakh including 5% incentives. Per capita cost of the scheme over population benefited in the design year 2038 AD comes to Rs. 1222.74 (Rupees one thousand two hundred twenty two and paise seventy four only). Operation and maintenance cost of the scheme has been estimated to Rs.78.06 Lakh. and production cost per kilo liter of water comes to Rs. 2.45 (Rupees two and forty five paise only).

The project is being funded by Govt. of India, the State Govt. and ULB in the ratio of 80:10:10.

Financial Viability of the scheme is presented in Chapter XVII.

## EXECUTIVE SUMMARY

### **Introduction:**

Arambag is a sub division head quarter of Hooghly district. And has a commercial and strategic importance due to it's proximity to four major district of West Bengal e.g. Bankura, Purulia, Medinipur (West), Bardhaman. The above municipality was formed dated back 1886 A.D. covering an area of 4.8 squire km presently it has 18 words covering 34.57 squire km.

Piped water supply scheme was introduced to this town during early 70's with ground water as source and street stand post supply provision. Distribution network was mainly of asbestos pipes. Due to the rapid expansion of above municipality water supply infrastructures become inadequate both in terms of coverage, quantity of supply etc.

Considering the above a thorough augmentation of the water supply system with provision of sufficient house connection has been prepared to consider UIDSSMT- a centrally sponsored program.

### **Project proposal:**

Provision of creation of 5 (five) nos new sources, 4 nos additional O.H.R.s with total capacity of 1730 cum, redesigning of total distribution network etc. has been kept in the present proposal.

### **Project cost:**

The cost estimate has been made for each individual items based on schedule of rates followed by PHE Dte, Govt. of West Bengal and estimated to Rs 1178.32 Lakh including incentives.

**Project duration:**

2 years time has been proposed for completion of the project from the date of sanction and placement of fund.

**Funding pattern:**

Govt. of India:	Rs. 897.77 Lakh
Govt. of West Bengal:	Rs. 112.22 Lakh
Local Body:	Rs. 112.22 Lakh
Total:	Rs. 1122.21 Lakh

**Incentives:**

Govt. of India @ 5%:	Rs.56.11 Lakh
----------------------	---------------

## PROJECT PROFILE

01	Name of State	:	WEST BENGAL
02	Name of Town	:	ARAMBAGH
03	Name of District	:	HOOGHLY
04	Population	:	Total Design Population for 5 (Five) Zones = 91,778 Nos.
05	Daily Water Demand	:	8.73 MLD
06	Per Capita Water Supply	:	70 lpcd
07	Source of Water	:	Ground Water
08	Hours of Pumping	:	12 hrs. / day
09	Hours of Supply	:	8 hrs. / day
10	No. of Elevated Reservoir	:	5 (Five) nos. including Existing one.
11	No. of CWR	:	4 (Four) Nos.
12	Length and Dia of the Rising Main		
	a) From TW to CWR		
	Zone - II	:	4020 mtr. 150 mm dia DI (K9) Pipe.
	Zone - III	:	830 mtr. 150 mm dia DI (K9) Pipe.
	Zone - IV	:	1430 mtr. 150 mm dia DI (K9) Pipe.
	b) From CWR to Overhead Reservoir		
	Zone - II to Zone - IV	:	50 mtr. 250 mm dia DI (K9) Pipe. (for each Zone)
	c) From TW to OHR for Zone - V	:	350 m. Long 150 mm dia DI (K9) Pipe.
13	Capital cost of the Scheme	:	Rs. 1122.21 Lakh (plus Rs. 56.11 Lakh incentives)
14	Per capita cost on 2038 AD Population	:	Rs. 1222.74
15	Annual O&M Charges	:	Rs. 78.06 Lakh

- 16 **Implementation Period**  
i) Date of Commencement : 2007  
ii) Date of Completion : 2009
- 17 **Agency responsible for**  
a) Implementation : Municipal Engineering Dte,  
Government of West Bengal.  
b) O&M : Arambagh Municipality.
- 18 **Funding Pattern**  
Govt. of India : Rs. 953.88 Lakh  
(including incentives)  
Govt. of West Bengal : Rs. 112.22 Lakh  
Local Body : Rs. 112.22 Lakh



## CHAPTER - I

### SALIENT FEATURES OF ARAMBAGH MUNICIPALITY WITH PARTICULAR REFERENCE TO EXISTING WATER SUPPLY SYSTEM

#### 1.0 SALIENT FEATURES OF ARAMBAGH MUNICIPAL TOWN

##### 1.1 Location

Arambagh is one of the four Sub - Divisional towns of the district Hooghly in the state of West Bengal. The town is situated at 22°39' N and 8°31' E. It is situated in the north western part of the district, the towns is connected by state highways and is the gate way to Midnapur, Bankura, Burdwan, Purulia districts. The town is 42 k.m. from Burdwan, the nearest district town.

##### 1.2 Area

At present the area of the town is 34.75 Sq. km. The Municipal area is divided in to 18 nos Wards for administrative purposes. At the time of establishment of Municipality in 1886, the area was 4.8 Sq. km.

Ward-wise Area is as follows:

Sl. No.	Ward No.	Area in Sq. km.
1	1	3.46
2	2	1.21
3	3	0.49
4	4	0.37
5	5	0.43
6	6	0.65
7	7	1.88
8	8	2.94
9	9	4.40
10	10	2.85

Sl. No.	Ward No.	Area in Sq. km.
11	11	4.73
12	12	1.11
13	13	2.15
14	14	0.70
15	15	2.19
16	16	2.66
17	17	0.75
18	18	1.79
<b>Total</b>		<b>34.75</b>

### 1.3 Historical Background

Arambagh is situated to the east of Kamarpukur by 14 km. and Joyrambati by 19 km. Both the place are international places of interest, being the birth place of Sri Sri Ramkrishna Paramhansa Dev and Mata Saradhamoni respectively. These places have gained international pilgrimage and are spots for tourist attraction.

Arambagh is diagonally situated to the North Western corner of Radhanagar by 27 km. Radhanagar is the birth place of great social reformer, Raja Rammohan Roy and a place of tourist attraction.

Great novelist, Bankim Chandra Chatterjee wrote his famous novel "Durgesh Nandini" on Garh Mandaron, a historical place, while he was S.D.O. of Arambag.

### 1.4 Population

Population as per 2001 census is 56140. Male population is 28729, Female population is 27411. The sex ratio i.e. number of female per 1000 males is 954. The gross density of population is 1615 person per Sq. km.

Growth of population since 1951 may be seen from the Table below :

Year	Population
1941	8992
1951	11460
1961	16501
1971	25592
1981	34205
1991	45211
2001	56140

It may be observed that there is steady growth of population in the town - no sudden influx of population has been there at any point of time.

The population of 56140 (2001 Census) is distributed in 18 Wards as under:

Sl. No.	Ward No.	Ward Population as per Census 2001	Sl. No.	Ward No.	Ward Population as per Census 2001
1	1	3031	11	11	1962
2	2	5248	12	12	2000
3	3	4225	13	13	6006
4	4	2595	14	14	2899
5	5	2158	15	15	4805
6	6	3577	16	16	3467
7	7	2165	17	17	2156
8	8	2174	18	18	1738
9	9	2859	<b>Total</b>		<b>56140</b>
10	10	3075			

It may be seen from the Table that a few wards are thinly populated whereas some wards located at central portion of the town are thickly populated.

#### 1.5 Topographical and Geological Features

The soil is reach fertile forms of new alluvial on clay subsoil with clay surface at some places. The town belongs to the gangetic plains of West Bengal. The topography is flat and at plains low with cobweb formation by main rivers and their branches.

The water table below ground level is fluctuating with the variation of the season. In the rainy season water table rises up to 8'-0" below G.L. and drops down to 30'-0" below G.L. during the summer season.

## 1.6 Climate and Rainfall

The climate is hot and humidity is high. In winter the temperature often fall below 10°C in the month of November and last till the end of February. In summer the temperature crosses 40°C. The average temperature ranges between 22°C and 35°C. The general wind direction is from south, south-west.

The rainy season is between June to September and the average rainfall is 1800 mm.

## 1.7 Agriculture

Arambagh Sub-Division is the highly agricultural advance area of West Bengal. Main products are Paddy, Potato, and Vegetables of every descriptions of highest quality. There is ample scope & opportunity for establishing rice bran oil Mills, Potato based alcohol factories; Potato based other consumer products and fast food preparation industries.

## 1.8 Industry

Economy of the town is based on mainly on agriculture and trading. There are 2 nos. Cold Storage, 14 nos. Rice mill and few nos. Oil mill in the town.

Arambag town is the main production centers of Arambag hatcheries, which is one the leading hatcheries of India today. Agricultural based industry such as solvent oil extraction plant from paddy brans and husks has also been setup in this Municipality.

A list of Industrial Units /Workshop in the town is given below:

1. Wood Craft / Bam - 55 nos.
2. Gold - 38 nos.
3. Bakery - 8 nos.
4. Hotel - 12 nos.

5. Pottery & Clay modeling - 18 nos.
6. Auto Mobile - 18 nos.
7. Spices - 8 nos.
8. Cold Storage - 2 nos.
9. Rice Mill - 14 nos.
10. Paper Mill - 1 no.
11. Oil Mill - 2 nos.
12. Poultry - 14 nos.
13. Snacks - 8 nos.
14. Brick Field - 9 nos.

### 1.9 Trade and Commerce

It has been stated that economy of the town is based on agriculture and trading, so main occupation of the town is trade, commerce and agriculture.

There are two Municipal Markets & three shopping centers. Road side shopping is cropping up indiscriminately causing congestion for traffic.

There is a high demand of commercial shops and organized shopping will help to create additional activities of the town. Two nos. shopping complex and one Super Market are owned by Municipality. There are a few nos. of oil mills, soap making industries and 2 nos. cold storage in the town. There are the largest Hatcheries in this town.

### 1.10 Banking Facilities

Banking facilities are adequate for the town.

Available banks are:

1. State Bank of India
2. United Commercial Bank
3. United Bank of India
4. Oriental Bank of Commerce
5. Arambagh Co-operative Agriculture and Rural Development Bank Ltd.
6. Hooghly District Central Co-operative Bank Ltd.

#### 1.11 Health

There is one Sub-Divisional Hospital with 250 bed capacity, Student Health Home, Hospital under Lions Club and 14 nos. Private Nursing Home, with specialized Doctor's in the town. These render health services to entire Arambag Sub-Division, Major part of Ghatal, Part of Burdwan. Different national health programme such as Pulse Polio, AIDS, TB etc. is also carried out in assistance with Municipality.

#### 1.12 Education

There are two degree colleges out of which one is exclusively for women, 3 nos. of Madhyamik Schools out of which 1 no school is exclusively for girls, 4 nos of H.S. Schools out of which one is exclusively for girls, 24 nos of Primary Schools, which have strengthened educational facility to the dwellers of Arambag Municipality and its suburb areas.

#### 1.13 Recreation and Cultural Facilities

There are 3 nos. Cinema Halls, Four small community Hall, 4 nos. Football ground.

#### 1.14 Drainage

Like all flat terrains the town has some localized drainage problems. Since the town is in the making, there is dearth of proper drainage facility which needs to be attended. There are 8.50 km. of pucca drains and 5.00 km of Kancha drains.

#### 1.15 Transport

The town has got about 74.13 km. road out of which 39.00 km. is metalled (Bituminus & concrete) road, 35.13 km. is Brick pavement & bats morrum road.

The life line of the town is Champadanga - Pursurah - Arambag Road through which is connected to Kolkata and Tarakeshwar in the east and Bishnupur, Bankura, in the North West Burdwan in the north and Midnapore, in the east. At present the main mode of travel within the town is cycle, rickshaws. Buses are not allowed to run inside the town.

#### 1.16 Housing

The type and pattern of housing facilities in the town presents more or less the similar picture as could be observed in the other district and sub-divisional towns of the state.

Most of the houses are old single stories and double storied.

#### 1.17 Sanitation

There is no underground Sewerage System in this Town. The garbage of the towns is collected by the Municipal Authority and dumped for filling up of low lands.

#### 1.18 Drinking Water Supply

It has been well-appreciated by the Municipal Authority that potable water supply is one of the most important civic services that the Municipal Authority is under legal obligation to care to.

Ever since the Municipality was established in 1886, there was a provision of water supply for the inhabitants of the Municipal town. The only sources of drinking water were Earthen Well / Masonry Well. Some section of the private individuals provided Masonry well in their own premises and the Municipal Authority provided a few number of Earthen Well for drinking water. Now, the Earthen wells are no more in existence.

Between 1960 and 1970, a good number of hand pump fitted shallow tube wells were installed. The Municipal Authority finally decided to replace shallow tube wells by Deep Tube wells and drinking water would be distributed to the consumers through pipe distribution systems. In pursuance of this, by 1975, a piped water supply scheme based on extraction of ground water by deep tube wells were prepared and executed by the Public Health Engineering Department, Govt. of West Bengal. Ground water thus extracted was stored in a one lakh gallon capacity overhead reservoir and supply was made to the Public Stand Posts through distribution pipe network.

Between 1975 and 1985, the existing water supply systems were being operated and maintained by PHED (West Bengal). The length of total distribution pipe line was about 24 km. There was no house connection, water was only available through 86 nos. of Public Stand Posts.

In the year 1985, the Municipality has taken over the above water supply systems from the Public Health Engineering Department, Govt. of West Bengal. Afterwards, old deep tube wells were replaced by new one to cater the emerging demands and small part of distribution system was also extended time to time. Presently 13 (thirteen) tube wells, 12 (twelve) in the east bank (5 running + 7 stand by due to aging & also low yield) and the other in the west bank (no stand by) are in operation. TW - 1 to TW - 3 are connected with existing OHR and the remaining tube wells are used for direct supply to the distribution grid. The existing scheme as on to-day was supplying water through about 600 stand posts available only on road side and 3228 house-service connection four times in a day (morning, noon, afternoon & night total 7 hours).



About 52% of the total population is served through this system. The remaining population still depends on shallow hand pumps tube wells. There are 600 nos. Hand operated tube-wells for them.

#### 1.19 Existing Land Use

The town is connected with four Districts i.e. Burdwan, Bankura, East Midnapur and Howrah. Naturally, people of all classes visit here. It is the main trading center for vast hinter land. Outskirts of the towns are agricultural based. Rapid growth of population is not worthy to mention here.

#### 1.20 Electrical Power Supply

Electrical Power is required for Industrial as well as for Domestic use such as Street Lighting, Public Buildings and Individual Houses Lighting, etc. The entire Electrical Power Supply to the Municipal Town of Arambagh is controlled by West Bengal State Electricity Board (W.B.S.E.B). It is gathered that adequate Electric Power is available for operation of the Pumping Station, lighting and other purposes of the proposed Water Supply Scheme at Arambagh Municipal Town.

#### 1.21 Administrative Set Up

The Arambag is the Sub-Divisional Town in the District of Hooghly. It is also under the Arambag Police Station and Arambag Block. The town earned the status of Municipality on 1886. The Municipality divided in to 18 nos. of Wards. The town accommodates Block Development Office and Police Station and other various offices of different departments of the Govt. and Semi Govt.

## CHAPTER - II

### NEED FOR THE PROJECT

- 2.0 In the Introductory Chapter, Para 1.18, a brief description of the Drinking Water Supply Systems in the town given chronological development of Water Supply starting from in sanitary dug well to shallow Hand Pump tube well to the present stage of Deep Tube Well has been brought out. The existing Water Supply System based on 13 Deep tube wells (12 in the east bank and the other in the west bank) distribute water through distribution system mainly of 3" and 4" AC pipes laid during early 70s' i.e. almost 30 years hence. Out of 12 (twelve) Tube Wells in the east bank, 5 (five) were sunk in recent years to replace and/or make the low yield 7 Tube Wells as stand-by for sustainability. Presently 8 (eight) number of Tube Wells are either in very old or yielding very less water or both.

The existing water supply infrastructure is only capable of covering about 40% of total municipal area and only 52% of 2001 population. Most of the wards are only partially covered mainly due to the construction of new roads, settlement of new habitations etc after the final commissioning of the scheme. Due to the inadequate capacity of distribution system, low pressure zones have developed in the terminal ends.

Present average per capita water supply in the municipal area covered by the existing scheme, as per 2001 census population is about 43 lpcd and 45 lpcd in the east bank & west bank respectively. In the year 2008, the same would be 38 lpcd and 39 lpcd respectively.

Under the circumstances, the existing system based on ground water source can continue to serve as an accepted system of potable water, as the ground water is adequately available in the area. Hydrogeological Map of CGWB and other information provide the basis of selection of this kind of source. Moreover, there is no alternative dependable surface or sub-surface water source. Though river Darakeswar is flowing through the town, however, due to non-perennial nature, it is discarded.

Secondly, as mentioned in Para 2.0 that the distribution system are 30 years old and need either Rehabilitation or Replacement. Rehabilitation technique is complicated because there is not a one-to-one correspondence between problems and solutions. Rehabilitation can take the form of Replacement of the major portions of the distribution system with new pipes particularly when the old pipes suffer from structural integrity problems. In fact, the 30 years old AC pipes do suffer from structural integrity. However, for economic reasons it is also proposed to retain all AC and C.I. Pipes. which shall be integrated to the new system after proper design.

From the available information, it is very much clear that existing water supply infrastructures especially distribution net work and storage facilities are grossly inadequate both in terms of present and future need and any cosmetic changes will not improve the situation. A thorough augmentation with the creation of additional sources, storage capacity and distribution network with re-orientation of existing zonal boundaries for equitable distribution of water is very much needed.

In this connection it is pertinent to point out that, formulation of proper house connection policy is also very much needed to reduce the wastage, discourage unauthorized tapping etc. Accordingly, thorough augmentation considering the provision of house connection for the entire population is recommended as the only option.

In view of the above, the need for this project is obvious for a long-term solution for potable water supply in the town of Arambagh.

## CHAPTER - III

### APPROACH AND METHODOLOGIES

- 3.0 In the previous Chapter, it is established beyond doubt that there is need to go in for a sustainable Drinking Water Supply Scheme based on Ground Water Source.

In conceptualizing planning, design and estimation of the cost of the proposed project, the following Approach and Methodology are adopted :

- **Projection of Future Population and Demand**

Population is projected based on the norms recommended in Water Supply and Treatment Manual, GOI. Water Demand is estimated based on norms recommended therein. Industrial demand is kept at 10% as usual.

- **Selection of Source of Water**

The River Darakeswar which is passing through the town is not a perennial river. As such, dependability on this River as source has a considerable doubt. There is no perennial river in the vicinity also. So, exploitation of river water as a surface source is discarded.

The existing water supply scheme of Arambagh Municipality is based on ground water source and water is extracted from 13 nos. big dia deep tubewells sunk within the command area. So, ground water is selected as source of water supply to meet the future demand. The CGWB Map also establishes long-term dependability on the source of supply.

The water bearing aquifer will be tapped by means of rig bored big diameter deep tube well. Tube wells are designed for 15 years.

- Selection of site

The site of new TW is so selected that spatial distance among them should not be less than 500 meters. This consideration requires for complying the present norms also. Restricted withdrawal and appropriate spacing among the tube wells supported by natural recharge are expected to make the proposed tube wells sustainable through out their normal life.

- Quantity

It is evident from the yield test report of reference tube well, the TW no. 13 of Arambagh Municipal water supply scheme within the Arambagh Municipality sunk during 1989, that ground water is available in adequate quantity.

Hydro-geological Map of C.G.W.B. describes the hydrogeological condition of ground water of the area as thick unconfined to semi-confined aquifer. It also indicates that heavy duty tube wells within 200 m depth have a potential of large yield prospects (about 200 Cum/hr).

From Hydro-geological Map of C.G.W.B. and other relevant information it may be safely assumed that on an average 80 m<sup>3</sup>/hr water may be safely tapped from the proposed tube wells.

- Quality

The ground water of this region is free from Arsenic & Fluoride contamination. Quantity being enough, quality of the source is also within the permissible level. No treatment except disinfections is necessary for this water supply scheme.

- **Zoning**

The existing water supply scheme comprises only one zone.

Capacity of the overhead reservoirs is only 450 cum which corresponds to only 9% of present (2008) and 6% of ultimate (2038) demand. Staging height of the existing reservoirs is only 16.76 m. It is hardly possible to meet the requirement of a municipality of having an area of 34.75 sq. km. by only one zone. Large part of the municipality thus remains either partially covered or experiencing low pressure or both.

Considering above aspects, re-demarcation of existing zone and creation of additional 4 (four) zones are proposed. Augmented scheme will thus comprise of 5 (five) zones. Zone-wise wards are given below :

Zone - I : Ward no. 3, Ward no. 4, Ward no. 5 & Ward no. 14.

Zone - II : Ward no. 1, Ward no. 2 & Ward no. 13.

Zone - III : Ward no. 9, Ward no. 10, Ward no. 11 & Ward no. 17.

Zone - IV : Ward no. 6, Ward no. 7, Ward no. 8, Ward no. 15 & Ward no. 16.

Zone - V : Ward no. 12 & Ward no. 18.

While fixing the zonal boundaries, utmost consideration has been made in utilizing the existing infrastructure.

- **Pumps**

It is proposed to provide submersible pumps capable of yielding the required discharge at a design head to CWR in Zone - II, Zone - III & Zone - IV and to OHR in Zone - V. Submersible pumps have additional advantages of a lower capital cost and protection against over heating under prolonged operation. In Zone - I, existing system of pumping will be utilized.

Centrifugal pumps are proposed to provide required lift of water from CWR to OHR in Zone - II, Zone - III & Zone - IV.

Pumps are designed for 15 years.

- **Rising Main**

All the existing rising mains in Zone - I will remain as far as practicable.

Two stages of rising main are proposed for Zone - II, Zone - III and Zone - IV. In first stages, all contributing tube wells will discharge to CWR, an intermediate storage tank, independently to avoid fall of cumulative discharge due to the unbalance head at junction node. From CWR, water will be lifted to OHR by second stage rising main.

In Zone - V, water from TW is proposed to discharge directly to OHR for gravity supply to the consumers.

Economical size of the rising main is designed based on the principle recommended in the Manual on Water Supply and Treatment, published by GOI.

All rising main are designed for a period of 30 years.

- **Clear Water Reservoir**

In Zone - II, Zone - III and Zone - IV, Two or more TW is necessary. So, a Clear Water Reservoir is suggested as an intermediate storage for collection of water from different TWs. In Zone - V, no Clear Water Reservoir is proposed as the water demand is met up by only one TW.



Clear Water Reservoir will be located within the complex of the Headworks.

The Capacity of CWR will have 30 minutes detention period and is designed for a period of 15 years.

- Disinfection

Generally, water extracted from deep layer by rig bored tube well does not contain any disease causing bacteria. However provision has been kept for disinfections by chlorination to guard against eventual contamination, and bleaching powder would be used as the source of chlorine.

Chlorine as disinfectant is thus recommended.

- Over Head Reservoir / Service Reservoir

These are designed for a period of 15 years.

It is proposed to supply water through R.C.C. elevated reservoirs to cater to the inevitable fluctuation of water consumption (i.e. Peak demand) during various parts of the day. It is also useful when supply is to be maintained during power failure.

Location of the reservoirs are mainly guided by the factor such as availability of land rather than on topography / contour of the area. To rationalize the whole system of distribution 5 OHRs' are installed in 5 Zones. Additional OHRs' may be constructed at the end of 15 years periods.

Existing OHRs' are in-built into proposed systems.

- **Distribution System**

To attain equitable distribution of water the town is divided into Zones - Zone I, Zone-II, Zone-III, Zone-IV and Zone-V. In making zone, contiguity of the wards, topography / contour of the area have been the main considerations.

The distribution system is designed for a period of 30 years. The system is designed using computerized software and using Hazen William's Formula taking 'C' value 140 for D.I. Pipe as recommended in the CPHEEO Manual. Since the system is not designed for direct pumping, no balancing tanks are provided at the end of the system.

The supply of water is to be made within 8 hours with a daily demand rate of 70 lpcd. Peak factor for design of distribution system has been considered as 3 and the minimum terminal head at the furthest end as 7.0 m. It is assumed that population will mostly be served by house connection. Distribution lines are to be operated section-wise for which valves have to be provided at suitable location.

The existing distribution systems are utilized to the full extent. Almost All A.C. Pipes (3" & 4") and C.I. Pipes of the same age are proposed to be retained and new parallel pipes are to be put to use wherever necessary.

- **Selection of Pipe Material**

For this project use of metallic pipes only are considered. Use of other non-metallic pipes will not give a durable solution. Considering the rapid growth of urbanization, which is expected in these areas, repair and maintenance work has to be kept at a minimum.

Among metallic pipes, use of MS pipes has not been considered. Major portion of the requirement will be used for distribution main, where MS pipes are normally not used considering high probability of getting corroded and in the lower diameter range the protection system available with MS pipe is not adequate.

If Cast Iron (CI) pipes are used, it has been checked during the design calculation by computer software used for design calculation (UNDP-LOOP) that the diameter chosen for CI option is higher than the DI option mainly due to comparatively lower 'C' value of CI pipes. Centrifugally applied internal cement mortar lining (applied in factory condition) offers much lower frictional resistance in DI pipes, thus saves a lot of energy cost compared to CI / MS pipes. As per CPHEEO Manual, Hazen William's 'C' value for unlined pipe is 100 whereas 'C' value for DI pipe (cement mortar lined) is 140.

So the DI option with comparatively lower selected diameter is found to be more cost effective than the others.

- **Operation and Maintenance (O&M)**

Operation and Maintenance of elaborate Piped Water Supply System like this needs adequate fund and supervision through trained Technical personnel. Since the project contemplate about 85% house-service connections, it is possible to make it economically self supporting. Moreover, an attempt has been made in this project to reduce recurring costs and to make O&M simple by way of providing proven technique.

- **Environmental Impact Assessment**

Environmental Impact Assessment is an essential prerequisite for any project, be it small or large. By and large, water supply project of this magnitude does not have any adverse effects; rather it brings a lot of positive impacts.

A near-thorough analysis encompassing various related parameters are presented in the Report.

## CHAPTER - IV

### ESTIMATION OF FUTURE POPULATION

Water Supply Schemes are designed for a period of 30 years (as per CPHEEO Manual) with the year of commissioning as the base year. However, some of the components of the system are designed for intermediate period of 15 years. For the instant scheme 2008 is adopted as the base year, 2023 as the intermediate period while 2038 is the final year of the Design period.

The future population for which the scheme is designed is thus projected for the year 2008, 2023 and 2038. In estimating future population, a number of methods are available. These are :

- (i) Demographic Method
- (ii) Arithmetic Increase Method
- (iii) Incremental Increase Method
- (iv) Geometrical Increase Method
- (v) Decreasing rate of Growth Method
- (vi) Graphical Method
- (vii) Graphical Method based on Single City
- (viii) Graphical Method based on cities with similar Growth Pattern.
- (ix) Logistic Curve Method and
- (x) Method of Density.

Out of the various methods indicated above, Arithmetic Increase Method, Incremental Increase Method, Geometric Increase Method and Logistic Curve Method are the suitable methods and others are not for a small town like Arambagh. In the Arithmetic or Geometric Increase Method, per decade growth rate is assumed to be constant, but in Incremental Increase Method this is not so. This method will give end results somewhere between the results given by Arithmetic Increase Method and Geometric Increase Method. The Logistic Curve Method is a statistical

method and the curve is fitted using method of three selected points of time.

Arambag Municipality has experienced a steady population growth rate from 1941-2001. Growth percentage varies from 24.17 % during 1991-2001 to 55.09% during 1961-1971. From 1981 growth rate is decreasing. This may be due to the improvement of literacy rate and other social factors. For prediction of future population various models - Arithmetical Progression, Geometrical Progression, Incremental Increase and Logistic Curve method have been calculated. Analysis by all the methods are given below:

**Population for the last 6 decades**

Year	Population
1941	8992
1951	11460
1961	16501
1971	25592
1981	34205
1991	45211
2001	56140

Base Year	2008
Intermediate Year	2023
Design Year	2038

**1. Process : Arithmetical Progression Method**

**Computation of incremental difference**

Year	Population	Increment
1941	8992	-
1951	11460	2468
1961	16501	5041
1971	25592	9091
1981	34205	8613
1991	45211	11006
2001	56140	10929
Average		7858

**Estimation of future population**

Description	Year	Projected Population	Increment Factor
Base Year	2008	61641	1.10
Inter. Year	2023	73428	1.31
Design Year	2038	85215	1.52

## 2. Process : Geometrical Progression Method

### Computation of growth rate

Year	Population	Increment	% increase per decade	Growth rate per decade
1941	8992			
1951	11460	2468	27.45	0.2745
1961	16501	5041	43.99	0.4399
1971	25592	9091	55.09	0.5509
1981	34205	8613	33.66	0.3366
1991	45211	11006	32.18	0.3218
2001	56140	10929	24.17	0.2417
Geometric mean				0.3469

### Estimation of future population

Description	Year	Projected Population	Increment Factor
Base Year	2008	69152	1.23
Inter. Year	2023	108096	1.93
Design Year	2038	168971	3.01

## 3. Process : Incremental Increase Method

### Computation of incremental increase

Year	Population	Increment	Incremental increase
1941	8992		
1951	11460	2468	
1961	16501	5041	2573
1971	25592	9091	4050
1981	34205	8613	-478
1991	45211	11006	2393
2001	56140	10929	-77
	Average	7858	1692

### Estimation of future population

Description	Year	No. of decades	Projected Population	Increment Factor
Base Year	2008	0.7	62647	1.12
Inter. Year	2023	2.2	79383	1.41
Design Year	2038	3.7	99927	1.78

#### 4. Process : Logistic Curve Method

The logistic curve is fitted using method of three selected points of time namely 1941, 1971 and 2001 to cover available whole census data.

Available census data

Year	Time (t)	Population (Y)
1941	0	8992
1951		11460
1961		16501
1971	1	25592
1981		34205
1991		45211
2001	2	56140

The equation of logistic curve for the above census data is

$$Y = 112029.04 / (1 + e^{(1.9963 - t)/0.8186})$$

Estimation of future population

Description	Year	Time (t)	Projected Population	Increment Factor
Base Year	2008	2.2333	64068	1.141
Inter. Year	2023	2.7333	79655	1.419
Design Year	2038	3.2333	91778	1.635

The "Logistic Curve Method" provides a good estimation of expected population and is thus the choice of the Engineers. In this scheme, this method is adopted for population projection.

**Population of the Arambagh Town**

Base Year	2008	64,068
Intermediate Year	2023	79,655
Final Year	2038	91,778



**Zone-wise Population, according to 2001 Census of India, is as under :**

Zone I	11,877
Zone II	14,285
Zone III	10,052
Zone IV	16,188
Zone V	3,738
<b>Total</b>	<b>56,140</b>

**Ratio of Zone-wise population to total population (expressed in %)**

Zone I	11877	/	56140	x	100	=	21.16	%
Zone II	14285	/	56140	x	100	=	25.44	%
Zone III	10052	/	56140	x	100	=	17.91	%
Zone IV	16188	/	56140	x	100	=	28.83	%
Zone V	3738	/	56140	x	100	=	6.66	%

**Therefore, Zone-wise projected population**

**Zone I :**

2008 AD	64068	x	21.16	/	100	=	13557
2023 AD	79655	x	21.16	/	100	=	16855
2038 AD	91778	x	21.16	/	100	=	19420

**Zone II :**

2008 AD	64068	x	25.44	/	100	=	16299
2023 AD	79655	x	25.44	/	100	=	20264
2038 AD	91778	x	25.44	/	100	=	23348

**Zone III :**

2008 AD	64068	x	17.91	/	100	=	11475
2023 AD	79655	x	17.91	/	100	=	14266
2038 AD	91778	x	17.91	/	100	=	16437

**Zone IV :**

2008 AD	64068	x	28.83	/	100	=	18470
2023 AD	79655	x	28.83	/	100	=	22965
2038 AD	91778	x	28.83	/	100	=	26460

**Zone V :**

2008 AD    64068 x    6.66 /    100 =    4267  
2023 AD    79655 x    6.66 /    100 =    5305  
2038 AD    91778 x    6.66 /    100 =    6113

**Summary of Projected Population**

Sl. No.	Zone	Years		
		2008	2023	2038
1	I	13557	16855	19420
2	II	16299	20264	23348
3	III	11475	14266	16437
4	IV	18470	22965	26460
5	V	4267	5305	6113
	<b>Total</b>	<b>64068</b>	<b>79655</b>	<b>91778</b>

## CHAPTER -V

### ESTIMATION OF WATER DEMAND

#### 5.0 A Brief Note on Demands

Arambagh is a medium town with total present population of about 60 thousand. As indicated in the introductory chapter, the town is not provided with sewerage system. As per Manual on Water Supply and Treatment, published by GOI, for towns provided with piped water supply but without sewerage system, the recommended maximum water supply level is 70 lpcd.

With the development of basic infrastructures such as Water Supply, Road etc. water requirements for commercial, institutional and minor industries shall increase. Provision for industrial demand has been kept and has been limited to 10% as usual.

Fire fighting demand is estimated as per CPHEEO Manual. One third demand forms part of service reservoir (OHR). The balance amount will be met up from existing water bodies (ponds, lake etc.).

All other demands are as per CPHEEO Manual, GOI.

**ESTIMATION OF WATER DEMAND  
FOR  
ZONE - I, COVERING WARD NOS. - 3, 4, 5 & 14**

Sl. No.	Description of Item	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	Design Population (D.P.)	13557	16855	19420
2	Basic demand @ 70 lpcd on D.P. in litres.	948990	1179850	1359400
3	Industrial Demand @ 10% of (2) above.	94899	117985	135940
4	Unaccounted for water (UFW) @ 15% of (2) above (As per CPHEEO Manual)	142349	176978	203910
5	1/3 <sup>rd</sup> of Fire Fighting demand in Kilolitre per day based on formula : $100 \sqrt{P}$ where, P = Population in thousand.	122733	136849	146894
<b>Total in litres</b>		<b>1308971</b>	<b>1611662</b>	<b>1846144</b>
<b>in MLD</b>		<b>1.31</b>	<b>1.61</b>	<b>1.85</b>

**ESTIMATION OF WATER DEMAND  
FOR  
ZONE - II, COVERING WARD NOS. - 1, 2 & 13**

Sl. No.	Description of Item	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	Design Population (D.P.)	16299	20264	23348
2	Basic demand @ 70 lpcd on D.P. in litres.	1140930	1418480	1634360
3	Industrial Demand @ 10% of (2) above.	114093	141848	163436
4	Unaccounted for water (UFW) @ 15% of (2) above (As per CPHEEO Manual)	171140	212772	245154
5	1/3 <sup>rd</sup> of Fire Fighting demand in Kilolitre per day based on formula : $100 \sqrt{P}$ where, P = Population in thousand.	134573	150052	161066
<b>Total in litres</b>		<b>1560736</b>	<b>1923152</b>	<b>2204016</b>
<b>in MLD</b>		<b>1.56</b>	<b>1.92</b>	<b>2.20</b>

**ESTIMATION OF WATER DEMAND  
FOR  
ZONE - III, COVERING WARD NOS. - 9, 10, 11 & 17**

Sl. No.	Description of Item	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	Design Population (D.P.)	11475	14266	16437
2	Basic demand @ 70 lpcd on D.P. in litres.	803250	998620	1150590
3	Industrial Demand @ 10% of (2) above.	80325	99862	115059
4	Unaccounted for water (UFW) @ 15% of (2) above (As per CPHEEO Manual)	120488	149793	172589
5	1/3 <sup>rd</sup> of Fire Fighting demand in Kilolitre per day based on formula :100 $\sqrt{P}$ where, P = Population in thousand.	112916	125901	135142
<b>Total in litres</b>		<b>1116979</b>	<b>1374176</b>	<b>1573380</b>
<b>in MLD</b>		<b>1.12</b>	<b>1.37</b>	<b>1.57</b>

**ESTIMATION OF WATER DEMAND  
FOR  
ZONE - IV, COVERING WARD NOS. - 6, 7, 8, 15 & 16**

Sl. No.	Description of Item	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	Design Population (D.P.)	18470	22965	26460
2	Basic demand @ 70 lpcd on D.P. in litres.	1292900	1607550	1852200
3	Industrial Demand @ 10% of (2) above.	129290	160755	185220
4	Unaccounted for water (UFW) @ 15% of (2) above (As per CPHEEO Manual)	193935	241133	277830
5	1/3 <sup>rd</sup> of Fire Fighting demand in Kilolitre per day based on formula : $100 \sqrt{P}$ where, P = Population in thousand.	143256	159739	171464
<b>Total in litres</b>		<b>1759381</b>	<b>2169177</b>	<b>2486714</b>
<b>in MLD</b>		<b>1.76</b>	<b>2.17</b>	<b>2.49</b>

**ESTIMATION OF WATER DEMAND  
FOR  
ZONE - V, COVERING WARD NOS. - 12 & 18**

Sl. No.	Description of Item	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	Design Population (D.P.)	4267	5305	6113
2	Basic demand @ 70 lpcd on D.P. in litres.	298690	371350	427910
3	Industrial Demand @ 10% of (2) above.	29869	37135	42791
4	Unaccounted for water (UFW) @ 15% of (2) above (As per CPHEEO Manual)	44804	55703	64187
5	1/3 <sup>rd</sup> of Fire Fighting demand in Kilolitre per day based on formula :100 $\sqrt{P}$ where, P = Population in thousand.	68856	76775	82415
<b>Total in litres</b>		<b>442219</b>	<b>540963</b>	<b>617303</b>
<b>in MLD</b>		<b>0.44</b>	<b>0.54</b>	<b>0.62</b>



### Summary of Water Demand in MLD

Sl. No.	Zone	Base Year 2008	Intermediate Year 2023	Final Year of Design Period 2038
1	I	1.31	1.61	1.85
2	II	1.56	1.92	2.20
3	III	1.12	1.37	1.57
4	IV	1.76	2.17	2.49
5	V	0.44	0.54	0.62
	<b>Total</b>	<b>6.19</b>	<b>7.61</b>	<b>8.73</b>

## CHAPTER - VI

### PHYSICO-CHEMICAL ANALYSIS OF GROUND WATER WITHIN THE COMMAND AREA AND SELECTION OF UNIT TREATMENT PROCESSES.

#### 6.0 GROUND WATER ANALYSIS REPORT

Ground water is selected as the source of water supply. CGWB Map and other relevant information indicate that quantity is adequate. The quality of this ground water needs to be checked before supplying to the consumers. As per IS 10500 : 1991 (Norms for drinking water quality), all the physical, chemical and bacteriological parameters should be within permissible level at consumer end.

Water Samples from the existing water supply scheme based on ground Water Sources are analysed. Out of 8 analysis report, 5 were analysed in Public Health Engineering Directorate Laboratory, Hooghly Division, Hooghly and remaining were analysed in Government recognized Laboratory, R.V. Briggs & Co. Pvt. Ltd., Kolkata. The analysis reports are enclosed for ready reference (ref. Page no. 36 to 43).

From the analysis report it may be observed that the existing ground water sources are safe in terms of chemical as well as bacteriological parameters. Therefore, Ground Water can be taken as suitable source of supply of Potable Water.

Absence of arsenic and traces of fluoride indicates that the area is not arsenic / fluoride prone area. Traces of nitrate also discards chances of contamination of ground water by fertilizers used by the local farmers in the surrounding agricultural fields.

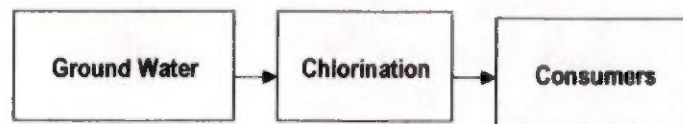
It may be seen from the Report that all parameters analysed are within the permissible limit.

6.1 Selection of Treatment Methods and Flow Sheet.

As all the parameters namely pH value, Total hardness, TDS, Chlorine, Nitrate, Fluoride, Iron and Arsenic are well within the permissible limit as set by IS 10500 : 1991, no physical and chemical treatment is necessary for extracted ground water. Though the water is bacteriologically safe, however, provision has been kept for disinfection by chlorination to guard against eventual contamination.

Thus, a Simple Disinfection Process is adopted.

The flow sheet of selected unit Process is indicated below :



**Flow Sheet of Selected Unit Process**

# Government of West Bengal

Office of the Executive Engineer  
Hooghly Division,  
PHE DTE, Hooghly Station Road,  
P.O.- Rabindranagar, Hooghly

## TEST REPORT

Name of the Block : *Arambag*

Date : *10.03.06*

Location (Village/Mouza) : *Tap Inside Arambag Bay's School.*

J. L. No. :

Name of the P. W. Scheme :

Type of Source (Deep TWL/DWPTWL/Ord. TWL/Dug Well) :

Sample Bottle No. (Chemical) : *(432)*

Sample Bottle No. (Bacteriological) :

Date & Time of Collection : *6.03.06. at 7.30 a.m.*

Sample Collected in presence of : *Submitted by the Chairman, Arambag Municipality*

Parameters	Limit		Results
	Requirement	Permissible	
<b>CHEMICAL EXAMINATION</b>			
pH Value	8.5 to 8.5	No Relaxation	<i>7-20</i>
Turbidity, NTU	5	10	-
Total Hardness (mg/l)	300	600	<i>180.96</i>
T. D. S. (mg/l)	500	2000	<i>500.00</i>
Chloride (mg/l)	250	1000	<i>75.94</i>
Residual Free Chlorine (mg/l)	0.2	-	-
Nitrate (mg/l)	<i>45</i>	100	<i>0.83</i>
Fluoride (mg/l)	1.0	1.5	<i>0.65</i>
Sulphate (mg/l)	200	400	-
Iron (mg/l)	0.3	1.0	<i>0.08</i>
Arsenic (mg/l)	0.05	No Relaxation	<i>0.01</i>
<b>BACTERIOLOGICAL EXAMINATION :</b>			
Total Coliform, MPN/100ml of sample	Absent	Absent	
Faecal Coliform, MPN/100ml of sample	Absent	Absent	

\* IS 10500 (1991) : Norms for drinking water, as amended on 01, January 1993

Remarks / Recommendations :

- 36 -

*Am*  
*10/3/06*  
Chemist  
Dist. Laboratory

Asstt. Engr. (H. Gr.)  
Hooghly Division  
P. H. E. Dte.

*Acaibo*  
Ex. Engineer  
Hooghly Division  
P. H. E. Dte.

# Government of West Bengal

Office of the Executive Engineer  
Hooghly Division,  
PHE DTE, Hooghly Station Road,  
P.O.- Rabindranagar, Hooghly

## TEST REPORT

Date : 10.03.06

Name of the Block : Axambag

Location (Village/Mouza) : Axambag Netaji College

J. L. No. :

Name of the P. W. Scheme :

Type of Source (Deep TWL/DWPTWL/Ord. TWL/Dug Well) :

Sample Bottle No. (Chemical) : (433)

Sample Bottle No. (Bacteriological) :

Date & Time of Collection : 5.03.06 at 7 a.m.

Sample Collected in presence of : Submitted by the chairman, Axambag Municipality

Parameters	Limit		Results
	Requirement	Permissible	
<b>CHEMICAL EXAMINATION</b>			
pH Value	6.5 to 8.5	No Relaxation	7.25
Turbidity, NTU	5	10	-
Total Hardness (mg/l)	300	600	142.86
T. D. S. (mg/l)	500	2000	200.00
Chloride (mg/l)	250	1000	36.16
Residual Free Chlorine (mg/l)	0.2	-	-
Nitrate (mg/l)	45	100	0.07
Fluoride (mg/l)	1.0	1.5	0.64
Sulphate (mg/l)	200	400	-
Iron (mg/l)	0.3	1.0	0.06
Arsenic (mg/l)	0.05	No Relaxation	BDL
<b>BACTERIOLOGICAL EXAMINATION :</b>			
Total Coliform, MPN/100ml of sample	Absent	Absent	
Faecal Coliform, MPN/100ml of sample	Absent	Absent	

\* IS 10500 (1991) : Norms for drinking water, as amended on 01, January 1993

Remarks / Recommendations :

-37-

*10/3/06*  
Chemist  
Dist. Laboratory

Asstt. Engr. (H. Gr.)  
Hooghly Division  
P. H. E. Die.

*Anaita*  
Ex. Engineer  
Hooghly Division  
P. H. E. Die.

Office of the Executive Engineer  
Hooghly Division,  
PHE DTE, Hooghly Station Road,  
P.O.- Rabindranagar, Hooghly

**TEST REPORT**

Date: 10.03.06.

Name of the Block: Axambag.

Location (Village/Mouza): Axambag Gowelati more

J. L. No.:

Name of the P. W. Scheme:

Type of Source (Deep TWL/DWPTWL/Ordinary TWL/Dug Well):

Sample Bottle No. (Chemical): (434)

Sample Bottle No. (Bacteriological):

Date & Time of Collection: 5.03.06. at 6.30 a.m.

Sample Collected in presence of: Submitted by the chairman, Axambag Municipality.

Parameters	Limit		Results
	Requirement	Permissible	
<b>CHEMICAL EXAMINATION</b>			
pH Value	6.5 to 8.5	No Relaxation	7.35.
Turbidity, NTU	5	10	-
Total Hardness (mg/l)	300	600	152.38
T. D. S. (mg/l)	500	2000	500.00
Chloride (mg/l)	250	1000	115.71
Residual Free Chlorine (mg/l)	0.2	-	-
Nitrate (mg/l)	45	100	1.73
Fluoride (mg/l)	1.0	1.5	0.66
Sulphate (mg/l)	200	400	-
Iron (mg/l)	0.3	1.0	0.09
Arsenic (mg/l)	0.05	No Relaxation	302
<b>BACTERIOLOGICAL EXAMINATION:</b>			
Total Coliform, MPN/100ml of sample	Absent	Absent	
Faecal Coliform, MPN/100ml of sample	Absent	Absent	

\* IS 10500 (1991): Norms for drinking water, as amended on 01, January 1993

Remarks / Recommendations:

- 35 -

Chemist  
Dist. Laboratory

Asstt. Engr. (H. Qr.)  
Hooghly Division  
P. H. E. Dte.

Ex. Engineer  
Hooghly Division  
P. H. E. Dte.

Office of the Executive Engineer  
Hooghly Division,  
PHE DTE. Hooghly Station Road,  
P.O.- Rabindranagar, Hooghly

**TEST REPORT**

Date: 10.03.06.

Name of the Block: *Axambag*

Location (Village/Mouza): *Axambag Girl's College*

J. L. No.:

Name of the P. W. Scheme:

Type of Source (Deep TWL/DWPTWL/Ord. TWL/Dug Well):

Sample Bottle No. (Chemical): *(435)*

Sample Bottle No. (Bacteriological):

Date & Time of Collection: *5.03.06. at 5.30 a.m.*

Sample Collected in presence of: *Submitted by the chairman, Axambag Municipality*

Parameters	Limit		Results
	Requirement	Permissible	
<b>CHEMICAL EXAMINATION</b>			
pH Value	6.5 to 8.5	No Relaxation	<i>7.25</i>
Turbidity, NTU	5	10	-
Total Hardness (mg/l)	300	600	<i>333.34</i>
T. D. S. (mg/l)	500	2000	<i>500.00</i>
Chloride (mg/l)	250	1000	<i>119.89</i>
Residual Free Chlorine (mg/l)	0.2	-	-
Nitrate (mg/l)	45	100	<i>1.16</i>
Fluoride (mg/l)	1.0	1.5	<i>0.90</i>
Sulphate (mg/l)	200	400	-
Iron (mg/l)	0.3	1.0	<i>0.06</i>
Arsenic (mg/l)	0.05	No Relaxation	<i>BOL</i>
<b>BACTERIOLOGICAL EXAMINATION:</b>			
Total Coliform, MPN/100ml of sample	Absent	Absent	
Faecal Coliform, MPN/100ml of sample	Absent	Absent	

\* IS 10500 (1991): Norms for drinking water, as amended on 01, January 1993

Remarks / Recommendations:

-39-

*(Signature)*  
14/3/06  
Chemist  
Dist. Laboratory

Asstt. Engr. (H. Gr.)  
Hooghly Division  
P. H. E. Dte.

*(Signature)*  
Ex. Engineer  
Hooghly Division  
P. H. E. Dte.

# Government of West Bengal

Office of the Executive Engineer  
Hooghly Division,  
PHE DTE, Hooghly Station Road,  
P.O.- Rabindranagar, Hooghly

## TEST REPORT

Date: 10.03.06.

Name of the Block: *Axambag*

Location (Village/Mouza): *Axambag Bus stand*

J. L. No.:

Name of the P. W. Scheme:

Type of Source (Deep TWL/DWPTWL/Ordinary TWL/Dug Well):

Sample Bottle No. (Chemical): *436*

Sample Bottle No. (Bacteriological):

Date & Time of Collection: *5.03.2006 at 10. A.M.*

Sample Collected in presence of: *Submitted by the chairman, Axambag Municipality.*

Parameters	Limit		Results
	Requirement	Permissible	
<b>CHEMICAL EXAMINATION</b>			
pH Value	6.5 to 8.5	No Relaxation	<i>7.30</i>
Turbidity, NTU	5	10	-
Total Hardness (mg/l)	300	600	<i>114.29</i>
T. D. S. (mg/l)	500	2000	<i>300.00</i>
Chloride (mg/l)	250	1000	<i>61.47</i>
Residual Free Chlorine (mg/l)	0.2	-	-
Nitrate (mg/l)	45	100	<i>0.06</i>
Fluoride (mg/l)	1.0	1.5	<i>0.72</i>
Sulphate (mg/l)	200	400	-
Iron (mg/l)	0.3	1.0	<i>0.04</i>
Arsenic (mg/l)	0.05	No Relaxation	<i>BDL</i>
<b>BACTERIOLOGICAL EXAMINATION:</b>			
Total Coliform, MPN/100ml of sample	Absent	Absent	
Faecal Coliform, MPN/100ml of sample	Absent	Absent	

\* IS 10500 (1991) : Norms for drinking water, as amended on 01, January 1993

Remarks / Recommendations:

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*14/3/06*  
Chemist  
Dist. Laboratory

Asstt. Engr. (H. Gr.)  
Hooghly Division  
P. H. E. Dte.

*Arcaibn*  
Ex. Engineer  
Hooghly Division  
P. H. E. Dte.





# R.V. BRIGGS & CO. PRIVATE LTD.

ANALYTICAL CHEMISTS  
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"ANALYTICAL KOLKATA"  
e-mail : r.vbriggs @ sify.com

( GOVERNMENT RECOGNISED )

Telephone : 2246-3661  
2248-2668  
Fax : 33-2248-0447

**SAMPLE SUBMITTED BY PARTY:**

**TEST REPORT**

Name of Client : M/s. CONCIV.  
Address : 176/1 Bl-G New Alipore, Kolkata - 53.  
Your ref. No. : Letter dated 9.6.06.  
Description of Sample : Drinking water  
Mark on Sample : ARAMBAGH, tubewell at SASTITALA, Ward - 2.  
Sealed : with lac.  
Sample received on : 12.6.06. Analysis completed on : 16.6.06.

**A. MICROBIOLOGICAL TEST FINDINGS :**

Sl. No.	Test parameters	Test method	Results	Norms as per IS : 10500 - 1991
1.	Coliform organism, MPN/100 ml.	IS : 1622 - 1981	NIL	10 max.
2.	Faecal Coliform / 100 ml.	IS : 1622 - 1981	Absent	Absent
3.	E.coli / 100 ml.	IS : 1622 - 1981	Absent	Absent

**B. PHYSICAL TEST FINDINGS :** 1. Appearance : Clear 2. Colour : Colourless

**C. CHEMICAL TEST FINDINGS :** 3. Odour : Odourless

Sl. No.	Test parameters	Test method	Unit	Results	Norms as per IS : 10500 - 1991
					HDL MPL
1.	Turbidity	APHA 20th Edition 2130B	NTU	1	5.0 10.0
2.	pH Value	APHA 20th Edition 4500-H+B	-	8.04	6.5-8.5 6.5-8.5
3.	Total Dissolved Solids	IS : 3025 (Part-16) - 1984	mg/l	344.00	500 2000
4.	Alkalinity as CaCO <sub>3</sub>	IS : 3025 (Part-23) - 1986	mg/l	180.32	- -
5.	Silica as SiO <sub>2</sub>	APHA 20th Edition 4500-SiO <sub>2</sub> C	mg/l	2.80	- -
6.	Iron as Fe	APHA 20th Edition 3500-Fe B	mg/l	0.12	0.30 1.00
7.	Calcium as CaO	IS : 3025 (Part-40) - 1986	mg/l	81.45	105 280
8.	Magnesium as MgO	APHA 20th Edition 3500Mg B	mg/l	19.39	50 160
9.	Sulphate as SO <sub>4</sub>	IS : 3025 (Part-24) 1986	mg/l	3.07	200 400
10.	Chloride as Cl	APHA 20th Edition 4500Cl-B	mg/l	99.00	250 1000
11.	Nitrate as NO <sub>3</sub>	ASTM Standard - 1608D, 1985	mg/l	0.29	45 100
12.	Total Hardness as CaCO <sub>3</sub>	IS : 3025 (Part-21) - 1983	mg/l	193.92	300 600
	a) Temporary Hardness	-	mg/l	180.32	- -
	b) Permanent Hardness	-	mg/l	13.60	- -
13.	Arsenic as As	APHA 20th Edition	mg/l	0.005	0.05 No

3111B

relaxation

**REMARKS:** Bacteriologically - Satisfactory for drinking purpose.  
Chemically - Satisfactory for the parameters mentioned above.

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(K.P.DE)

Technical Director

DM: Note 1 HDL - Highest Desirable Limit 2 MPL - Maximum Permissible Limit  
Authorised signatory For R.V. Briggs & Co. Private Ltd.

- The test report shall not be reproduced except in full without written approval of the company
- Results relate only to the items tested.



# R.V. BRIGGS & CO. PRIVATE LTD

ANALYTICAL CHEMISTS  
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e-mail : rvbriggs@stt.com

(GOVERNMENT RECOGNISED)

Telephone : 2248-3861  
2248-2898  
Fax : 33-2248-0447

**SAMPLE SUBMITTED BY PARTY :**

**TEST REPORT**

Name of Client : M/s. CONCIV.  
Address : 176/1, Block 'O' New Alipore, Kolkata-53.  
Your ref. No. : letter dated 8.8.06.  
Description of Sample : Drinking water  
Mark on Sample : ARAMBAGH tubewell at Singhpara, Ward - 3,  
Sealed : Sealed with lac.  
Sample received on : 1.8.2006 Analysis completed on : 10.8.2006

**A. MICROBIOLOGICAL TEST FINDINGS :**

Sl. No.	Test parameters	Test method	Results	Norms as per IS : 10500 - 1991
1.	Coliform organism, MPN/100 ml.	IS : 1622 - 1981	NIL	10 max.
2.	Faecal Coliform / 100 ml.	IS : 1622 - 1981	Absent	Absent
3.	E.coli / 100 ml.	IS : 1622 - 1981	Absent	Absent

**B. PHYSICAL TEST FINDINGS :** 1. Appearance : Clear 2. Colour : Colourless

**C. CHEMICAL TEST FINDINGS :** 3. Odour : Odourless

Sl. No.	Test parameters	Test method	Unit	Results	Norms as per IS : 10500 - 1991
					HDL MPL
1.	Turbidity	APHA 20th Edition 2130B	NTU	< 1	5.0 10.0
2.	pH Value	APHA 20th Edition 4500-H+B	-	8.08	6.5-8.5 6.5-8.5
3.	Total Dissolved Solids	IS : 3025 (Part-16) - 1984	mg/l	428.00	500 2000
4.	Alkalinity as CaCO <sub>3</sub>	IS : 3025 (Part-23) - 1986	mg/l	172.48	- -
5.	Silica as SiO <sub>2</sub>	APHA 20th Edition 4500-SiO <sub>2</sub> C	mg/l	2.40	- -
6.	Iron as Fe	APHA 20th Edition 3500-Fe B	mg/l	0.14	0.30 1.00
7.	Calcium as CaO	IS : 3025 (Part-40) - 1986	mg/l	74.66	105 280
8.	Magnesium as MgO	APHA 20th Edition 3500Mg B	mg/l	21.01	50 100
9.	Sulphate as SO <sub>4</sub>	IS : 3025 (Part-24) 1986	mg/l	2.69	200 400
10.	Chloride as Cl	APHA 20th Edition 4500Cl-B	mg/l	158.40	250 1000
11.	Nitrate as NO <sub>3</sub>	ASTM Standard - 1608D, 1985	mg/l	0.34	45 100
12.	Total Hardness as CaCO <sub>3</sub>	IS : 3025 (Part-21) - 1983	mg/l	185.84	300 600
	a) Temporary Hardness	-	mg/l	172.48	- -
	b) Permanent Hardness	-	mg/l	13.36	- -
13.	Arsenic as As	APHA 20 th Edition 3111B	mg/l	/0.005	0.05 No

**REMARKS:** Bacteriologically - Satisfactory for drinking purpose.  
Chemically - Satisfactory for the parameters mentioned above.

(K.P.DE)  
Technical Director

Authorised signatory  
For R.V. Briggs & Co. Private Ltd.

DM:

Note : 1. HDL - Highest Desirable Limit. 2 MPL - Maximum Permissible Limit

- The test report shall not be reproduced except in full without written approval of the company
- Results relate only to the items tested.



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e-mail : rvbriggs@sify.com

Telephone : 2248-3001  
2248-2688  
Fax : 33-2248-0447

(GOVERNMENT RECOGNISED)

SAMPLE SUBMITTED BY PARTY :

TEST REPORT

Name of Client : M/S. CONGIV.  
Address : 176/1, Block G New Alipur Kolkata - 53  
Your ref. No. : Letter dated 18.12.04.  
Description of Sample : Drinking water  
Mark on Sample : Vivekananda Pally, Arambagh Municipality, Ward No-13.  
Sealed : With lac.  
Sample received on : 18.12.04. Analysis completed on 22.12.04.  
12/1/05

A. MICROBIOLOGICAL TEST FINDINDIGS :

Sl. No.	Test parameters	Test method	Results	Norms as per IS : 10500 - 1991
1.	Coliform organism, MPN/100 ml.	IS : 1622 - 1981	NIL	10 max.
2.	Faecal Coliform / 100 ml.	IS : 1622 - 1981	Absent	Absent
3.	E.coli / 100 ml.	IS : 1622 - 1981	Absent	Absent

B. PHYSICAL TEST FINDINGS : 1. Appearance : Clear 2. Colour : Colourless

C. CHEMICAL TEST FINDINGS : 3. Odour : Odourless

Sl. No.	Test parameters	Test method	Unit	Results	Norms as per IS : 10500 - 1991
					HDL MPL
1.	Turbidity	APHA 20th Edition 2130B	NTU	1	5.0 10.0
2.	pH Value	APHA 20th Edition 4500-H+B	-	8.04	6.5-8.5 6.5-8.5
3.	Total Dissolved Solids	IS : 3025 (Part-16) - 1984	mg/l	344.00	500 2000
4.	Alkalinity as CaCO <sub>3</sub>	IS : 3025 (Part-23) - 1986	mg/l	180.32	- -
5.	Silica as SiO <sub>2</sub>	APHA 20th Edition 4500-SiO <sub>2</sub> C	mg/l	2.80	- -
6.	Iron as Fe	APHA 20th Edition 3500-Fe B	mg/l	0.12	0.30 1.00
7.	Calcium as CaO	IS : 3025 (Part-40) - 1986	mg/l	81.45	105 280
8.	Magnesium as MgO	APHA 20th Edition 3500Mg B	mg/l	19.39	50 160
9.	Sulphate as SO <sub>4</sub>	IS : 3025 (Part-24) 1986	mg/l	3.07	200 400
10.	Chloride as Cl	APHA 20th Edition 4500Cl-B	mg/l	99.00	250 1000
11.	Nitrate as NO <sub>3</sub>	ASTM Standard - 1608D, 1985	mg/l	0.29	45 100
12.	Total Hardness as CaCO <sub>3</sub>	IS : 3025 (Part-21) - 1983	mg/l	193.92	300 600
	a) Temporary Hardness	-	mg/l	180.32	- -
	b) Permanent Hardness	-	mg/l	13.60	- -
13.	Arsenic as As	APHA 20th Edition	mg/l	0.005	0.05 No

3111B

relaxation

REMARKS: Bacteriologically - Satisfactory for drinking purpose.  
Chemically - Satisfactory for the parameters mentioned above.

(K.P.DE)

Technical Director

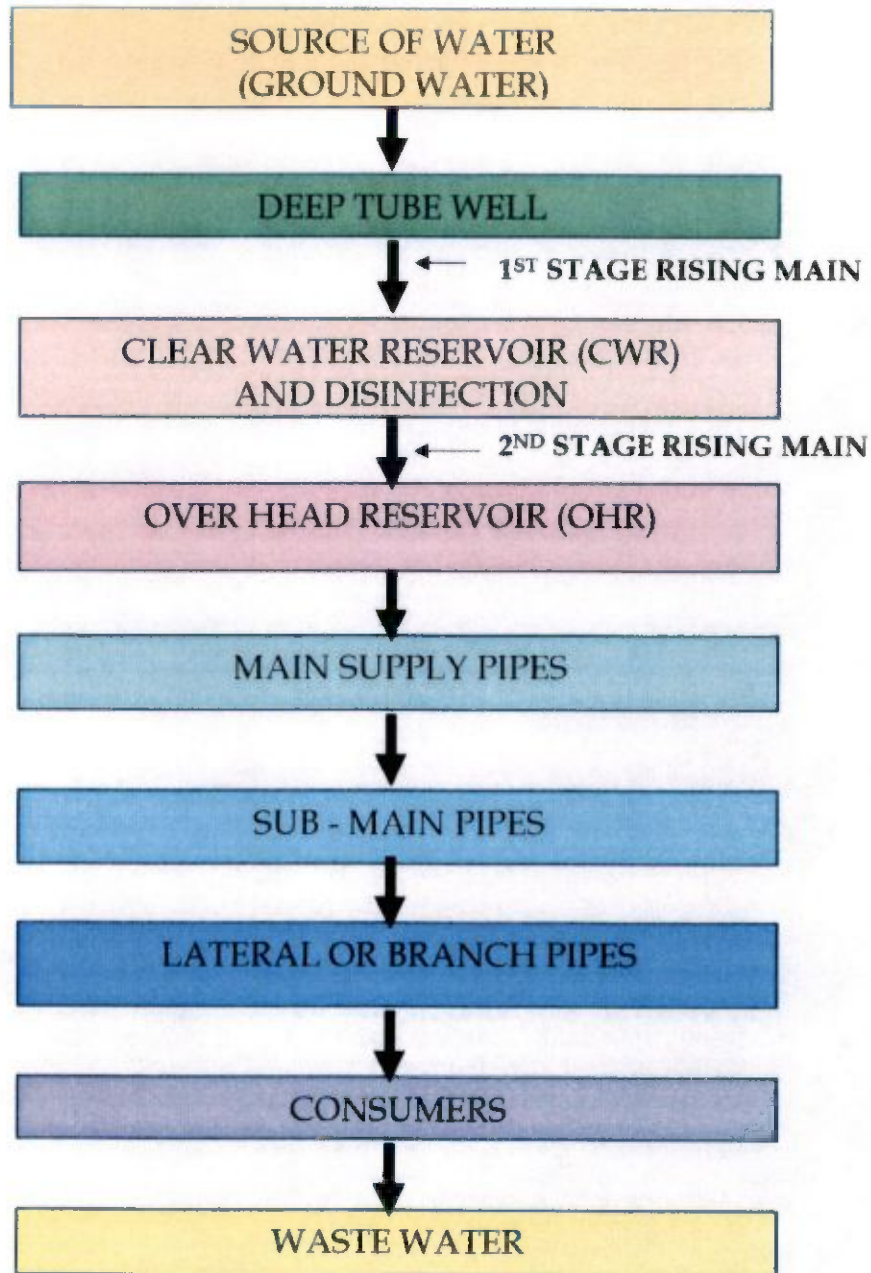
Authorised signatory  
For R.V. Briggs & Co. Private Ltd.

DMs Note : 1. HDL - Highest Desirable Limit. 2. MPL - Maximum Permissible Limit

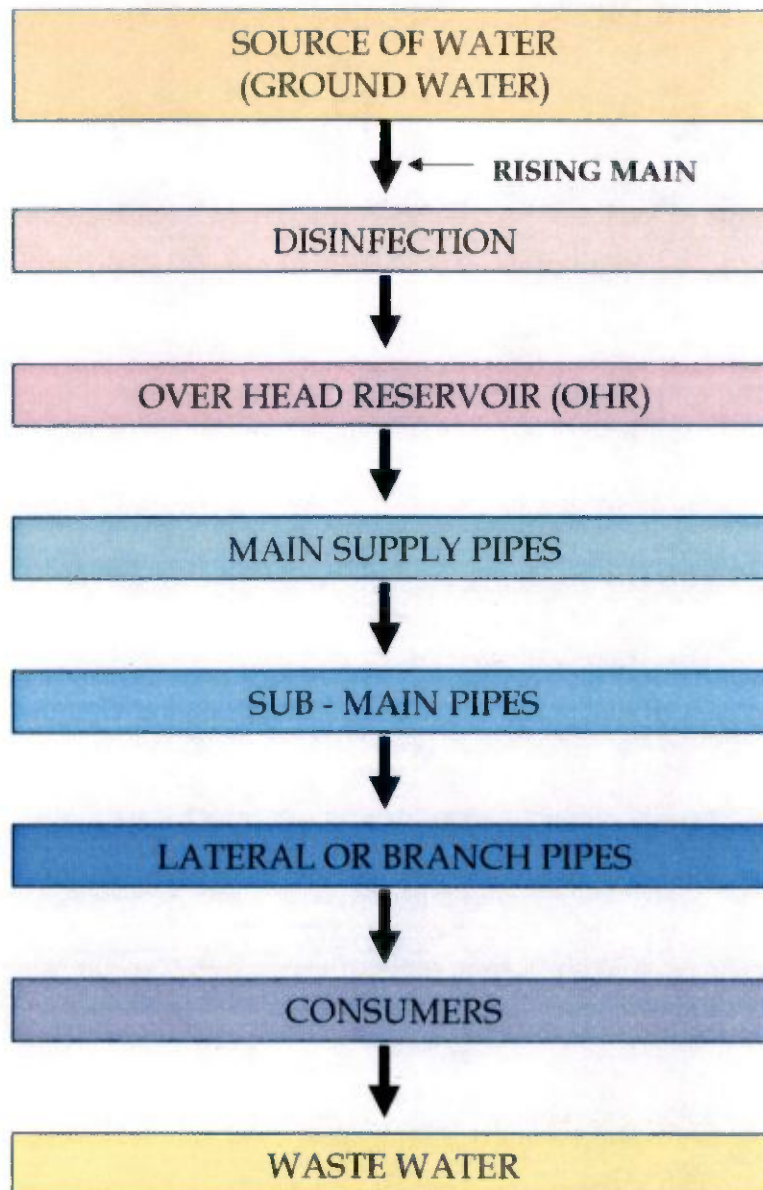
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CHAPTER - VII

GENERAL FLOW DIAGRAM FOR EACH ZONE UNDER THE  
PROPOSED WATER SUPPLY SCHEME IN ARAMBAGH  
(FOR ZONE - I, ZONE - II, ZONE - III & ZONE - IV)



GENERAL FLOW DIAGRAM FOR ZONE - V UNDER  
THE PROPOSED WATER SUPPLY SCHEME IN ARAMBAGH



## CHAPTER - VIII

### DESIGN AND SELECTION OF DEEP TUBE WELL

The existing scheme is based on ground water source and water is extracted from 13 nos. big dia deep tubewells sunk within the command area. Out of 13 nos., 9 nos. will be utilized in the proposed scheme and 4 nos. will be discarded due to their aging (more than 15 years age) and also very low yield (around 5000 gph).

Ground water is available in the area to meet the future demand. So it has been proposed to use ground water as source of supply for the augmentation scheme. The aquifer will be tapped by means of rig bored big diameter deep tube well. The layer chart & yield test report of reference tube well, within the Arambg Municipality sunk during 1989 along with other details has been annexed (ref. Page no. 52 to 65).

Depth of the tube well has been kept as 150 mtr. Exact depth will be determined and fixed at the time of execution by trial boring and proper testing of water quality and quantity of tube well. Spatial distance between two tube wells, as per present norms should not be less than 500 meters. Restricted withdrawal and appropriate spacing between two tube wells supported by natural recharge are expected to make the proposed tube wells sustainable through out their normal life.

From Hydro-geological Map of C.G.W.B. and other relevant information it may be safely assumed that on an average 80 Cum/hr water may be tapped from the proposed tube wells. However, provision for trial boring with electro logging has been kept in the scheme.

Following provision of proposed tube wells has been kept:

Housing pipe - 300 mm dia and 35 m. long ERW pipe.  
Well pipe - 200 mm dia and 85 m. long ERW pipe.  
Strainer - 200 mm dia and 30 m long Fibre glass strainer.

Expected discharge = 80 KL/hr

Hours of pumping = 12 hrs.

Expected discharge per TW =  $80 \times 12 = 960$  KLD = 0.96 MLD

Zone-wise existing tube wells which will be utilized in the present schemes are

**Zone - I**

Present yield of TW no.1 = 8500 gph

Present yield of TW no. 2 = 15100 gph

Present yield of TW no. 3 = 13800 gph

**Zone - II**

Present yield of TW no. 4 = 14400 gph

Present yield of TW no. 10 = 8700 gph

Present yield of TW no. 15 = 14400 gph

**Zone - III**

Present yield of TW no. 11 = 9200 gph

Present yield of TW no. 12 = 8300 gph

**Zone - IV**

Present yield of TW no. 14 = 14400 gph

### ESTIMATION OF NO. OF TW REQUIRED

The tube wells are designed for 15 years. So, it should cater the intermediate demand i.e. demand for the year 2023.

#### Zone - I

Water requirement = 1.61 MLD

Present yield of existing good condition TW,

TW no. 1 = 8500 gph

TW no. 2 = 15100 gph

TW no. 3 = 13800 gph

Water available from existing TW = 8500 + 15100 + 13800  
= 37400 gph  
= 170.02 KL/hr

For 12 hours of pumping per day,

Total water available = 170.02 x 12  
= 2040.24 KLD  
= 2.04 MLD  
> 1.61 MLD

Hence, O.K.

#### Zone - II

Water requirement = 1.92 MLD

Present yield of existing good condition TW,

TW no. 4 = 14400 gph

TW no. 10 = 8700 gph

TW no. 15 = 14400 gph

Water available from existing TW = 14400 + 8700 + 14400  
= 37500 gph  
= 170.47 KL/hr



For 12 hours of pumping per day,

$$\begin{aligned}\text{Total water available} &= 170.47 \times 12 \\ &= 2045.64 \text{ KLD} \\ &= 2.05 \text{ MLD} \\ &> 1.92 \text{ MLD}\end{aligned}$$

Hence, O.K.

### Zone - III

Water requirement = 1.37 MLD

Present yield of existing good condition TW,

$$\text{TW no. 11} = 9200 \text{ gph}$$

$$\text{TW no. 12} = 8300 \text{ gph}$$

$$\begin{aligned}\text{Water available from existing TW} &= 9200 + 8300 \\ &= 17500 \text{ gph} \\ &= 79.55 \text{ KL/hr}\end{aligned}$$

For 12 hours of pumping per day,

$$\begin{aligned}\text{Total water available} &= 79.55 \times 12 \\ &= 954.6 \text{ KLD} \\ &= 0.95 \text{ MLD}\end{aligned}$$

$$\text{Net water required from new source} = 1.37 - 0.95 = 0.42 \text{ MLD}$$

$$\text{So, no. of new TW required} = 0.42 / 0.96 = 0.44$$

Provide 1 (one) no. new TW.

As new TW provide 0.96 MLD of water and the remaining demand can be met up from existing TW either by TW no. 11 (yield = 41.82 KL/hr) or by TW no. 12 (yield = 37.73 KL/hr), it is proposed to utilize them alternatively thereby increasing their life. Due to located far from the proposed OHR, TW no. 11 will be used for boosting in the pipe line.

**Zone - IV**

Water requirement = 2.17 MLD

Present yield of existing good condition TW,

TW no. 14 = 14400 gph

Water available from existing TW = 14400 gph

= 65.46 KL/hr

For 12 hours of pumping per day,

Total water available =  $65.46 \times 12$

= 785.52 KLD

= 0.78 MLD

Net water required from new source =  $2.17 - 0.78 = 1.39$  MLD

So, no. of new TW required =  $1.39 / 0.96 = 1.45$

Provide 2 (two) nos. of new TW.

Due to located far from the proposed OHR, existing TW i.e. TW no. 14 will be used for boosting in the pipe line.

**Zone - V**

Water requirement = 0.54 MLD

There is no existing TW to be utilized.

So, no. of new TW required =  $0.54 / 0.96 = 0.56$

Though 1 (one) TW is sufficient to cater the water demand of Zone - V, however, another tube well is proposed to be provided to ensure sustainable water supply during maintenance of only tube well.

Thus, provide 2 (two) no. new TW - one will be operative and the other will be stand-by.

### Check for entrance velocity

For 300 mm x 200 mm proposed TW,

Maximum yield = 80 KL/hr = 80 Cum/hr

Effective opening area = 10% of strainer area.

Probable choking in future = 50% of effective area.

Entrance velocity =  $(80 \times 100) / (\pi \times 0.2 \times 30 \times 0.5 \times 0.10 \times 3600)$   
= 2.36 cm/sec.

This is within 2-4 cm/sec, hence safe.

### Summary of Tube Wells

Zone	No. of Existing TW	No. of Proposed TW	Total (Existing + Proposed)	Remarks
I	3	-	3	All Working, no stand-by
II	3	-	3	All Working, no stand-by
III	2	1	3	Two Working, one stand-by (from existing)
IV	1	2	3	All Working, no stand-by
V	-	2	2	One Working & One stand-by

No. 100/1989

# H. Engineering & Construction

D. L. ROY ROAD, P.O. KRISHNAGAR, DIST. NADIA, W.B.

Work: - Sinking 300x150mm dia T Well. At Kalipur  
 Work No 7 - XII

at with: - Arambagh Municipality Govt. Tubewell No - 5 Has.  
 Kalipur (Arambagh) District: - Hooghly.

## DEVELOPMENT & YIELD TEST CERTIFICATE

(Test taken through-Orific Metre/W Hatch)

Test taken on: - 11/9/89

- |  |                                     |
|--|-------------------------------------|
| Development started on: - 7/9/89       | 6. Horse power of Engine: - 65 H.P. |
| Development completed on: - 10/9/89    | 7. Pump stage: - 2 Stage.           |
| Total hours of Development: - 40 Hours | 8. Static water level: - 20' 0"     |
| Total hours of yield: - 8 Hours        | 9. Discharge in I.P.G.H.: - 55,000  |
| Under contract: - (11)                 | 10. Draw down: - 23' 4"             |

in inch.	Discharge in I.P.G.H.	Pumping water level.	Draw down
	34,750	33'-2"	13'-2"
	42,500	36'-7"	16'-7"
	49,000	40'-4"	20'-4"
	55,000	43'-4"	23'-4"
	33,000	36'-6"	11'-6"

Signature of \_\_\_\_\_  
 11/9/89

Contractor's Representative

Signature  
 11/9/89

AUTHORITY

# B. M. ENGINEERING & CONSTRUCTION

D. L. Roy Road, Krishnagar, Nadia (W. B.)

Work at Work : Sinking of 300mm x 150mm dia tubewell at Kalipur under Arambagh Municipality, Ward No. XII.

Contract With : Chairman, Arambagh Municipality.

Dist. Tubewell No.:

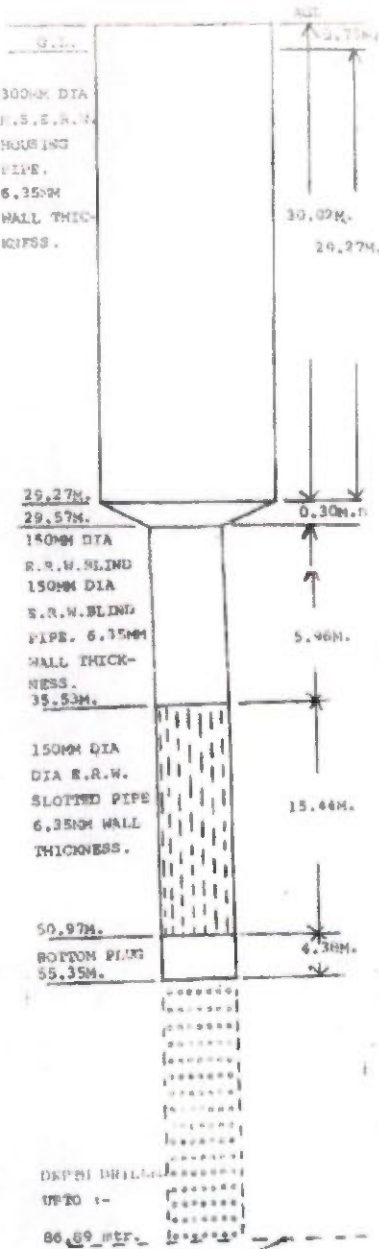
Location : Arambagh Municipality, (Kalipur, Ward No. XII)

District : Hooghly.

### DIFFERENT DATA

Drilling Commenced on	0.9.89.	G.L.
Drilling Completed on	0.9.89.	
Depth drilled upto	86.89 metr.	300MM DIA
Lowered on	6.9.89.	R.R.W. BLIND HOUSING PIPE.
<b>Yield Test :</b>		
Date of Testing	11/09/1989	6.35MM WALL THICKNESS.
Yield	36.750 GPM	
Draw Down	13.2 metr.	
S. Barium Plug/Log	1 No.	
M. S. Tip Cap	1 No.	
M. S. Reducer	1 No.	
M. S. Housing Clamp	1 pair	
M. S. Centre Guide	6 sets.	

### DIAGRAM OF TUBEWELL



### STRATA FORMATION

0.0M to 3.05M	: Surface clay.
3.05M to 6.10M	: Sand very fine brownish.
6.10M to 9.15M	: Sand fine brownish.
9.15M to 15.24M	: Sand coarse to medium mixed with gravel.
15.24M to 18.29M	: Sand coarse and gravel mixed clay.
18.29M to 21.34M	: Sticky Clay sticky yellow ish.
21.34M to 27.44M	: Sandy clay light yellowish
27.44M to 30.50M	: Sand very fine.
30.50M to 33.55M	: Sand medium brownish.
33.55M to 34.47M	: Clay sticky.
33.55M to 34.47M	: Clay sticky.
34.47M to 42.68M	: Sand coarse mixed with gravel brownish.
42.68M to 48.78M	: Sand medium to coarse brownish.
48.78M to 52.43M	: Sand medium light brownish
52.43M to 86.89M	: Clay sticky blackish.

### TUBEWELL ASSEMBLY

M. S. Housing Pipe	: 30.02 metr.
M. S. Blind Pipe	: 5.96 metr.
M. S. Slotted Pipe/R.G. Strainer/Beasa Muametsal Strainer	: 15.44 metr.
M. S. Blank Pipe	: 4.30 metr.

B.M. Engineering & Construction  
 Partner: [Signature]  
 Signature of Contractor

[Stamp]  
 Sub Assistant Engineer

Assistant Engineer

Executive Engineer

# B. M. ENGINEERING & CONSTRUCTION

D. L. Roy Road, Krishnagar, Nadia (W.B.)

PHONE - KRISHNA

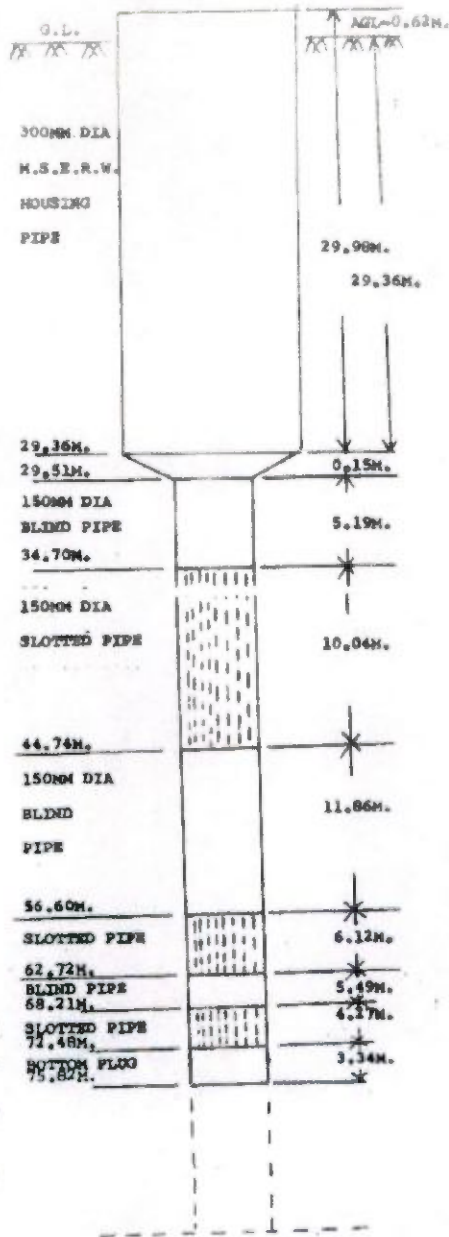
Name of Work: Sinking of 1 no. 300mm x 150mm dia tubewell at Ward No-VIII under Arambagh Municipality.  
 Contract With: Chairman, Arambagh Municipality.  
 Location: At Ward No-VIII under Arambagh Municipality.

Govt. Tubewell No.:  
 District: Hooghly.

**DIFFERENT DATA**

Drilling started on: 20-9-89  
 Drilling completed on: 20-9-89  
 Length drilled upto: 88.41M.  
 Lowered on: 21-9-89  
 Yield Test:  
 Date of Testing:  
 Yield:  
 Draw Down:  
 M. S. Bottom Plug/Cap: 1 No.  
 M. S. Top Cap: 1 No.  
 M. S. Reducer: 1 No.  
 M. S. Housing Clamp: 1 pair  
 M. S. Centre Guide: 1 set.

**DIAGRAM OF TUBEWELL**



**STRATA FORMATION**

0.00M to 3.04M:- Sandy clay.  
 3.04M to 6.09M:- Fine sand brownish.  
 6.09M to 9.14M:- Hard black clay.  
 9.14M to 15.24M:- Fine to medium sand light brown.  
 15.24M to 18.29M:- Coarse sand with pebbles light brown.  
 18.29M to 24.39M:- Fine sand light brown.  
 24.39M to 33.04M:- Very fine sand light brown.  
 33.04M to 36.58M:- Medium coarse sand with pebbles light yellow.  
 36.58M to 39.63M:- Fine to medium sand yellowish.  
 39.63M to 45.75M:- Very coarse sand with little bolder.  
 45.75M to 54.82M:- Fine sand yellowish.  
 54.82M to 64.02M:- Fine to medium sand brownish with mica.  
 64.02M to 67.07M:- Fine sand yellowish with mica.  
 67.07M to 73.17M:- Fine to medium sand with pebble light brownish.  
 73.17M to 88.41M:- Hard black clay.

**TUBEWELL ASSEMBLY**

M. S. Housing Pipe: 29.98M.  
 M. S. Blind Pipe: 22.54M.  
 M. S. Slotted Pipe/F.G. Strainer/Brass Monometal Strainer: 20.43M.  
 M. S. Blank Pipe: 3.34M.

*[Signature]*  
 Signature of Contractor

Sub-Assistant Engineer

Assistant Engineer

Executive Engineer

**CONCIV**

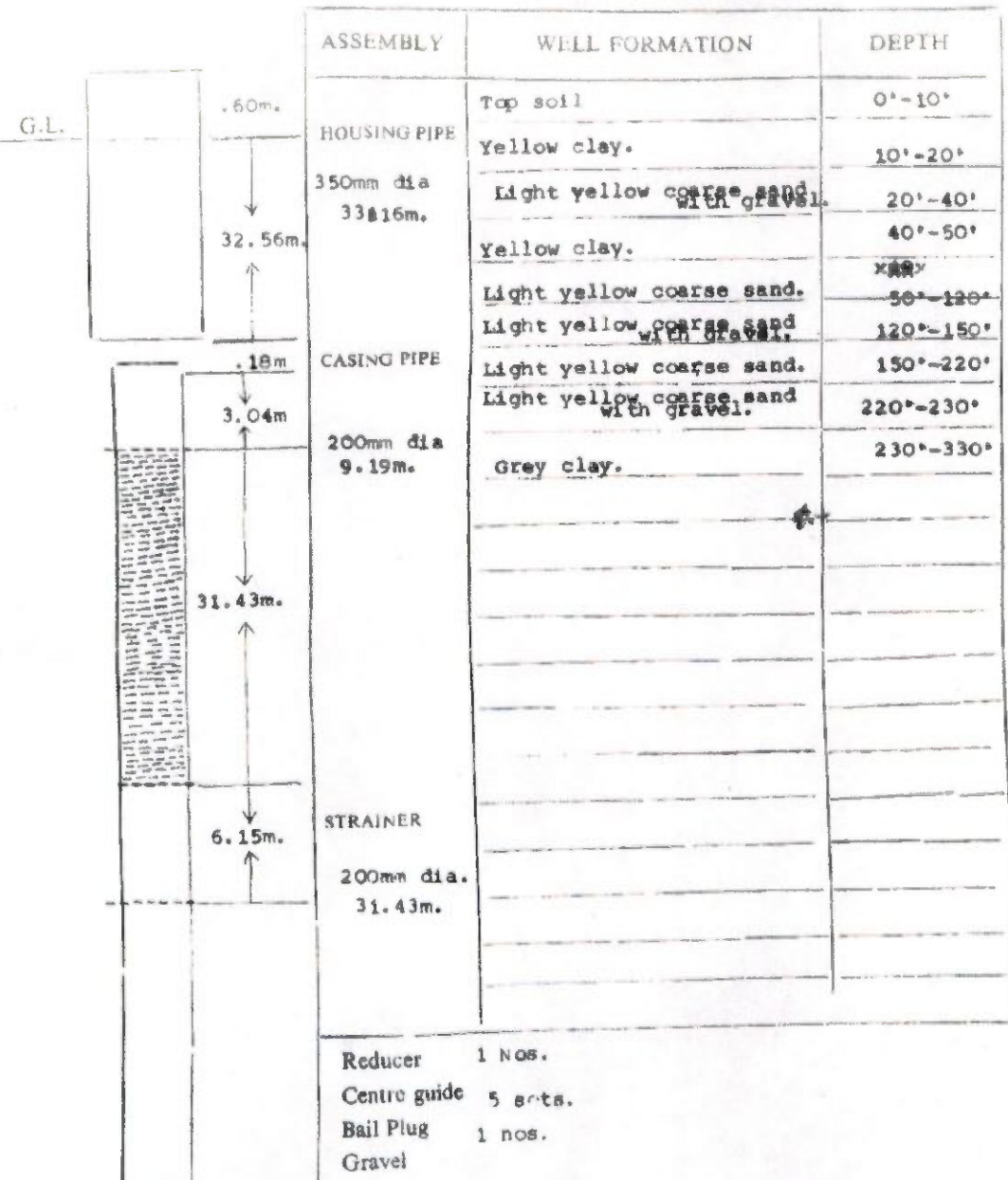
176/1, Block 'G'  
New Alipore, Calcutta-53

Date 30.10.99

AUTHORITY  
DISTRICT  
LOCATION  
WELL NO.

Chairman, Arambagh Municipality.  
Hoogly.  
Nowpara (Football ground) Ward No. 9.

WELL RECORD & ASSEMBLY CHART



- Reducer 1 nos.
- Centre guide 5 sets.
- Bail Plug 1 nos.
- Gravel

*[Signature]*  
Signature  
Accepting Officer

*[Signature]*  
Contractor's Representative





# CONCIV

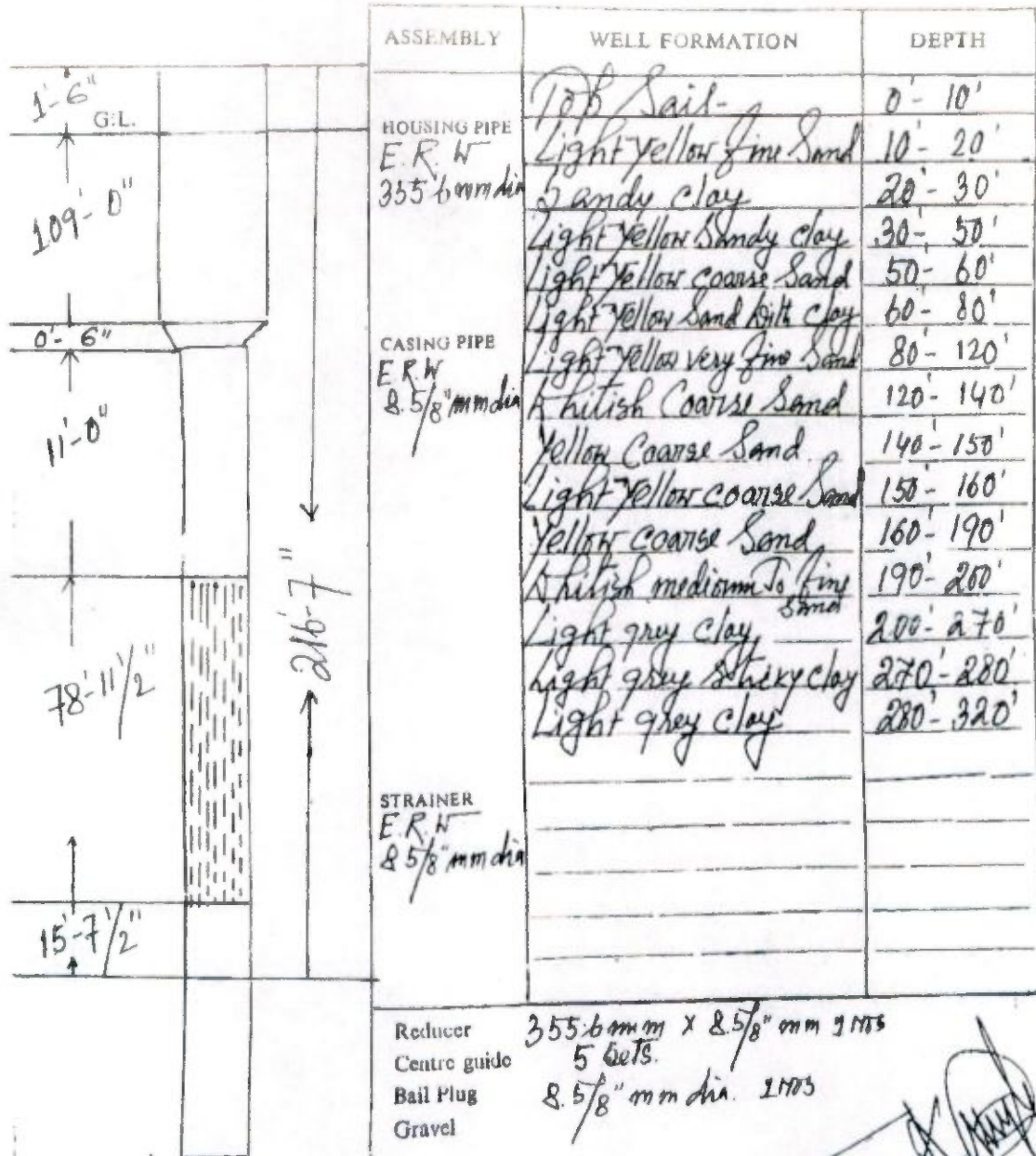
176/1, Block "G"  
New Alipore, Calcutta-53

Date 13/2/01

AUTHORITY  
DISTRICT  
LOCATION  
WELL NO.

*Chairman*  
*Asanm bagh Municipality*  
*Hooghly*  
*Behind water supply.* *Ward no. 3*

## WELL RECORD & ASSEMBLY CHART



*[Signature]*  
Signature  
Accepting Officer

*[Signature]*  
Signature  
Contractor's Representative

**CONCIV**  
176/1, Block "G"  
New Alipore, Calcutta-53

Date \_\_\_\_\_  
AUTHORITY  
DISTRICT  
LOCATION  
WELL NO.

Anambagh Municipality  
Anambagh, Hooghly.  
Brinda banpur. Ward No. 1.

(4) WELL RECORD & ASSEMBLY CHART

ASSEMBLY		WELL FORMATION	DEPTH
0.58M G.L.	5.75M 6.27M	Top Soil.	0-10'
35.85M	5.69M	HOUSING PIPE 350mm dia	Yellow fine sand - 10-40'
	5.67M	Light yellow clay.	40-70'
	6.19M	Light yellow med. sand.	70-80'
	6.06M	Light yellow very fine sand.	80-90'
	0.15M	Light yellow clay.	90-100'
35.20M	0.15M 6.83M 6.07M 5.93M 6.63M 5.95M	CASING PIPE 250 MM dia	Light yellow med. sand - 100-140'
		Light reddish med sand	140-190'
		Whitish fine to med. sand.	190-160'
		Light reddish coarse sand.	160-180'
		Whitish medium sand.	180-200'
		Whitish coarse sand with gravel.	200-220'
		Light gray very fine sand with mica.	220-230'
		Grey clay.	230-330'
66.81M	3.65M	STRAINER 250 mm dia H.S. Slotted	
		6.03M 6.07M 5.93M 6.63M	
68.86M	33.65M		
		Reducer 350mm x 250mm dia / Nos.	
		Centre guide 18 Nos. (6 sets).	
		Bail Plug 250mm dia / Nos.	
		Gravel 16100 M <sup>3</sup>	

Boring - 7/9/03 to 08/9/03  
Lowering on - 09/9/03  
Developing - 09/9/03 - 12/9/03  
Adholes by Air Compressor  
13/9/03 - 14/9/03  
16 borel. by turbine pump.

Signature \_\_\_\_\_  
Accepting Officer

Total length of the tubewell Assembly

69.44 Mtrs - 58-

Signature \_\_\_\_\_ 16.9.03  
Contractor's Representative

**CONCIV**  
176/1, Block "G"  
New Alipore, Calcutta-53

Date  
AUTHORITY  
DISTRICT  
LOCATION  
WELL NO.

Chairman, Arambagh Moujpalaty  
Arambagh Hooghly.  
Daulatpur.  
Ward No. 15.

WELL RECORD & ASSEMBLY CHART

ASSEMBLY		WELL FORMATION	DEPTH	
60M. G.L.	4.85M	Top Soil.	0-10'	
	5.40M	HOUSING PIPE 350 mm dia	Light Yellow clay.	
	4.47M			
	4.53M	Brownish fine sand.	20'-40'	
	5.79M	Light yellow clay.	40-60'	
	5.08M	Yellow fine sand	60-100'	
	5.84M	Light yellow fine sand	100-120'	
	0.15M	Brownish Sandy clay.	120-125'	
	34.64M	HOUSING OF 350 mm dia	Yellow coarse sand.	125-140'
	34.79M	CASING PIPE 250 mm dia	Yellow coarse sand to Med. sand	140-190'
38.75M	3.96M	① 3.96M ② 3.13M	Deep gray clay.	
	5.94M			
	5.96M			
56.67M				
59.80M	3.13M			
STRAINER N.S. 250 mm dia				
① 6.02M				
② 5.94M				
③ 5.96M				
Reducer 350 mm dia x 250 mm dia → 1 Nos				
Centre guide 12 Nos (4 sets).				
Bail Plug 250 mm dia 1 Nos.				
Gravel				

Boring date - 14/9/03 to 11/9/03  
 Lowering date - 12/9/03  
 Developing - 13/9/03 - 15/9/03  
 10 hours by air compressor.  
 25/9/03 - 27/9/03  
 16 hours by suction pump.

Signature  
Accepting Officer

Total length of the  
Assembly  
59.80M + 60M (G.L.)  
= 60.40M.

Signature  
Contractor's Representative



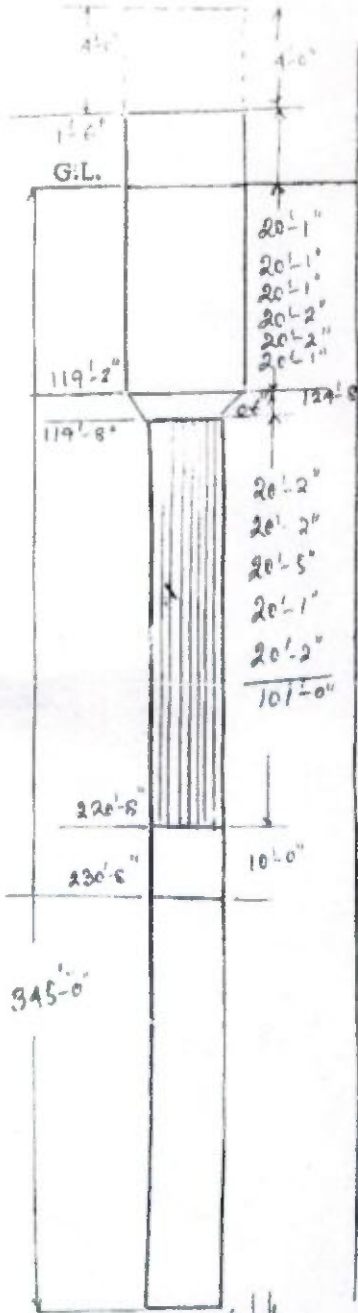
# CONCIV

176/1, Block "G"  
New Allipore, Calcutta-53

Starting date - 12/10/05  
 Location date - 14/10/05  
 Date of completion - 17/10/05

Date  
 AUTHORITY Chairman  
 DISTRICT Arambagh Municipality  
 LOCATION Hooghly, Vivekananda Pally, ward No-13  
 WELL NO.

## WELL RECORD & ASSEMBLY CHART



ASSEMBLY	WELL FORMATION	DEPTH
	Top Soil	0'-10'
HOUSING PIPE	Brownish fine sand	10'-20'
	Light yellow clay	20'-80'
	whitish fine sand	80'-120'
	whitish coarse sand	120'-150'
	Light reddish coarse sand	150'-290'
CASING PIPE	Light reddish med sand	290'-300'
	whitish med sand	300'-320'
	Reddish very fine sand	320'-340'
	Brownish sandy clay	340'-345'
STRAINER		

Reducer 12" x 8" dia - 140  
 Centre guide 18 Nos / six sets.  
 Bail Plug 8" dia - 140  
 Gravel 15 Fic. mt.

Total length of tubewell  
 assembly = 230'-8" + 1'-6" + 4'-0"  
 = 236'-2"

Signature  
 Accepting Officer

*[Signature]*  
 17/10/05

Signature  
 Contractor's Representative

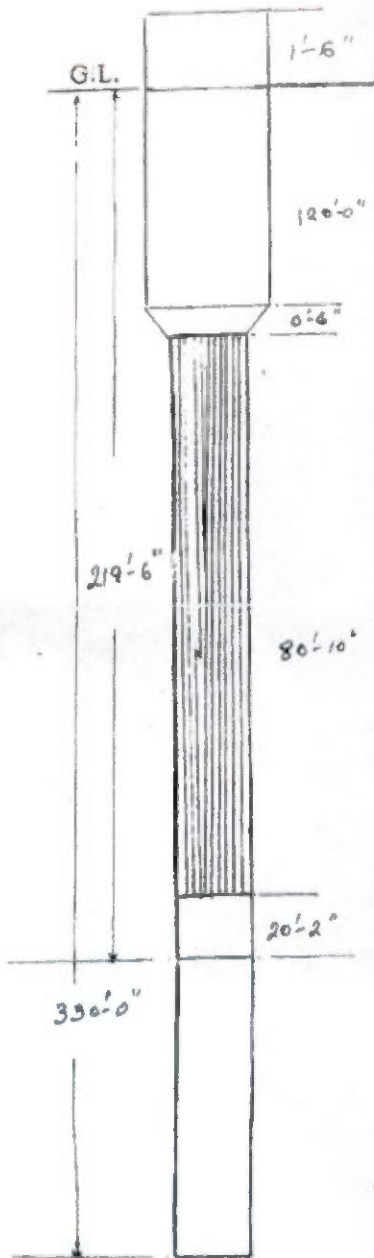


# CONCIV

176/1, Block "6"  
New Alipore, Calcutta-53

Date  
AUTHORITY  
DISTRICT  
LOCATION  
WELL NO.

Chairman,  
Anarabagh Municipality  
Hooghly.  
Singhpur Ward - III  
Lowering Date - 19/7/68  
WELL RECORD & ASSEMBLY CHART



ASSEMBLY	WELL FORMATION	DEPTH
12" HOUSING PIPE	Top soil	0' - 10' 0"
20'-0"	Brownish fine Sand	10' - 30' 0"
20'-0"	Light yellow clay	30' - 80' 0"
20'-0"	Whitish Sand	80' 0" - 120' 0"
20'-0"	Whitish coarse Sand	120' - 200' 0"
20'-0"	Light redish med Sand	200' - 230' 0"
20'-0"	White med Sand	230' - 250' 0"
20'-0"	Brownish sandy clay	250' - 330' 0"
8" CASING PIPE		
20'-2"		
8" STRAINER		
20'-2 1/2"		
20'-2 1/2"		
20'-3"		
20'-3"		
80'-10"		
Reducer 12" x 8"	1 No	
Centre guide 8"	6 Sets	
Bail Plug 8"	1 No	
Gravel		

Signature  
Accepting Officer

Signature  
Contractor's Representative

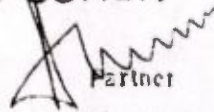
ARAMBAGH MUNICIPALITY

Water Supply Department

Report on condition of Deep Tubewell Pumps in operation  
in different areas of Arambagh Municipality.

<u>Pump No.</u>	<u>Period of Operation</u>	<u>V Notch Head in inches</u>	<u>Present yield Gallons per Hour</u>
1.	6 years	5-9/16"	8500.
2.	1 year	7"	15100.
3.	3 years	6-3/4"	13800.
4.	3 years	6-7/8"	14400.
5.	17 years	4-1/2"	5020.
6.	12 years	5-3/4"	5750.
7.	17 years	4-9/16"	5220.
8.	12 years	4-3/4"	5750.
10.	6 years	5-5/8"	8700.
11.	6 years	5-3/4"	9200
12.	7 years	5-1/2"	8300
14.	3 years	6-11/16"	13400.
15.	2 years	6-7/8"	14400.

For CONCIV



Partner

11/1/07



# HYDROGEOLOGICAL MAP OF HUGLI DISTRICT, WEST BENGAL

SCALE  
1:100,000



## LEGEND

AGE GROUP	LITHOLOGY	HYDROGEOLOGICAL CONDITION	GROUNDWATER POTENTIAL	GROUNDWATER STRUCTURE FEASIBLE
Quaternary	Recent Alluvium, Clay Silt, Sand, Gravel etc.	Thick unconfined to semi confined aquifer	Large yield prospects, about 200 m <sup>3</sup> /hr	Heavy duty tubewells within 200m depth
	Older Alluvium, Silt, Sand, Ferruginous Concretion, Gravel, Pebbles etc.	Thick unconfined to semi confined aquifer	Low capacity tubewells yield 20-30 m <sup>3</sup> /hr	Low capacity medium dia tubewells within 40-60m filled with centrifugal/submersible pumps
		Water table contours pre-monsoon 1990		Piezometer contours
		National water level monitoring stations		
		Heavy duty irrigation tubewells		
		Exploratory wells drilled by CGWB		

17° 30'      00' 45'      00' 00'      15'      30'

CSW

## CHAPTER - IX

### DESIGN OF CLEAR WATER RESERVOIRS (CWR) FOR ZONE-II, ZONE-III AND ZONE-IV.

- 9.0 From the previous chapter, it is learnt that 3 (three) nos. of TW are required for Zone - I to Zone - IV. In Zone - I, where existing TW no. 1, TW no. 2 and TW no. 3 are attached with existing OHR, is kept unaltered. In other Zones namely Zone - II, Zone - III and Zone - IV, where existing TWs are presently discharging directly to distribution system for boosting shall operate simultaneously for 12 hours alongwith proposed new TWs to extract ground water and the consumers will get this water 3 (three) times in a day for 8 hours. So, a Clear Water Reservoir is suggested as an intermediate storage for collection of water from different TWs.

In Zone - V, no Clear Water Reservoir is proposed as the water demand is met up by only one TW.

Clear Water Reservoir is located within the complex of the Headworks near OHR. The Capacity of CWR will have 30 minutes detention period.

As per CPHEEO Manual, Service reservoir shall have 15 year design period. So, it is to be designed for water demand of the year 2023. The zone-wise water demand for the year 2023 is furnished below.

	Zone - II	Zone - III	Zone - IV
Water demand	1.92 MLD	1.37 MLD	2.17 MLD
(2023)	1920 Cum/day	1370 Cum/day	2170 Cum/day

**Zone - II**

Water demand for the year 2023 = 1.92 MLD  
= 1920 Cum/day

Pumping hour = 12 hour

Hourly supply to CWR =  $1920 / 12 = 160$  Cum/hr.

Provide 30 min. detention period.

So, Capacity of CWR =  $160 \times 0.5 = 80$  Cum.

Provide 80 Cum capacity CWR.

**Zone - III**

Water demand for the year 2023 = 1.37 MLD  
= 1370 Cum/day

Pumping hour = 12 hour

Hourly supply to CWR =  $1370 / 12 = 114.17$  Cum/hr.

Provide 30 min. detention period.

So, Capacity of CWR =  $114.17 \times 0.5 = 57.08$  Cum.

Provide 60 Cum capacity CWR.

**Zone - IV**

Water demand for the year 2023 = 2.17 MLD  
= 2170 Cum/day

Pumping hour = 12 hour

Hourly supply to CWR =  $2170 / 12 = 180.83.83$  Cum/hr.

Provide 30 min. detention period.

So, Capacity of CWR =  $180.83.83 \times 0.5 = 90.41$  Cum.

Provide 90 Cum capacity CWR.

**Summary of Capacity of CWR**

<b>Zone No.</b>	<b>CWR Capacity required (Cum)</b>	<b>CWR Capacity provided (Cum)</b>
<b>II</b>	80	80
<b>III</b>	57.08	60
<b>IV</b>	90.41	90

## CHAPTER - X

### DESIGN OF OVER HEAD RESERVOIRS (OHR)

10.0 It is proposed to supply water through R.C.C. elevated reservoirs to cater to the inevitable fluctuation of water consumption (i.e. Peak demand) during various parts of the day. It is also useful when supply is to be maintained during power failure. In the absence of a reliable water use data, the capacity of the elevated reservoir has been calculated by mass curve considering 8 hrs supply to the consumers and 12 hrs pumping of water (from 6 AM to 12 NOON & 2 PM to 8 PM) to fill up the service reservoir.

One elevated reservoir of capacity 1 lakh gallon i.e. 450 cum with a staging height of 16.76 m exists. Maximum emphasis has been given in full utilization of this existing reservoir.

As per CPHEEO Manual, Service reservoir shall have 15 year design period. So, it is to be designed for water demand of the year 2023. The zone-wise water demand for the year 2023 is furnished below.

	Zone - I	Zone - II	Zone - III	Zone - IV	Zone - V
<b>Water</b>	1.61 MLD	1.92 MLD	1.37 MLD	2.17 MLD	0.54 MLD
<b>demand</b>	1610	1920	1370	2170	540
<b>(2023)</b>	Cum/day	Cum/day	Cum/day	Cum/day	Cum/day

The design calculation of capacity of OHR is given in the following pages.