

ई-मेल/स्पीड पोस्ट

पत्रांक:-3प/मु0म0नि0यो0-19-01/2017/2063/पं०रा०

बिहार सरकार
पंचायती राज विभाग

प्रेषक,

अरविन्द कुमार चौधरी,
सचिव

सेवा में,

सभी जिला पदाधिकारी,
बिहार।

पटना, दिनांक...1.8/..8.4../2017

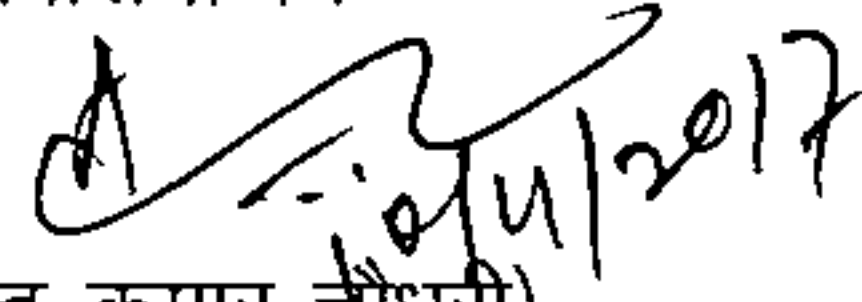
विषय:- गैर गुणवत्ता प्रभावित क्षेत्रों में मुख्यमंत्री ग्रामीण पेयजल निश्चय योजना के अंतर्गत छोटी-छोटी योजनाओं के क्रियान्वयन हेतु तैयार मानक प्राक्कलन के प्रेषण के संबंध में।

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि गैर गुणवत्ता प्रभावित क्षेत्रों में पंचायती राज विभाग द्वारा मुख्यमंत्री ग्रामीण पेयजल निश्चय योजना के क्रियान्वयन हेतु निर्गत दिशा-निर्देश के आलोक में लोक स्वास्थ्य अभियंत्रण विभाग द्वारा तैयार बारह प्रकार के मानक प्राक्कलन आवश्यक कार्रवाई हेतु संलग्न कर भेजी जा रही है।

अनुलग्नक:-यथोपरि।

विश्वासभाजन


(अरविन्द कुमार चौधरी)
सचिव

बिहार सरकार
लोक स्वास्थ्य अभियंत्रण विभाग।

सचिव
पंचायती राज विभाग
भारतीय कोषांग
गैर प्रेस. 2560
दिनांक 3/4/17

पत्रांक- अभि० प्र० का को-57

पटना, दिनांक- 3/4/2017

प्रेषक :

दिनेश्वर प्रसाद सिंह,

अभियंता प्रमुख-सह-विशेष सचिव

सेवा में,

निदेशक,

पंचायती राज विभाग, बिहार, पटना।

विषय:- गैर गुणवत्ता प्रभावित क्षेत्रों में मुख्यमंत्री ग्रामीण पेयजल निश्चय योजना के अंतर्गत छोटी-छोटी योजनाओं के लिए प्राक्कलन के संबंध में।

महाशय,

उपर्युक्त विषय के संबंध में कहना है कि पंचायत राज विभाग द्वारा मुख्यमंत्री ग्रामीण पेयजल निश्चय योजना के कार्यान्वयन हेतु निर्गत दिशा-निदेश के आलोक में बारह प्रकार के मानक प्राक्कलन तैयार कर आवश्यक कार्रवाई हेतु संलग्न किया जा रहा है।

अनु०-यथोपरि।

विश्वासभाजन

दिनांक 3.4.2017

(दिनेश्वर प्रसाद सिंह)

अभियंता प्रमुख-सह-विशेष सचिव

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7/4/2017

श्री साह का
कृपा
कृपा
3/4/17



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATES

FOR

**CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME
TO BE CONSTRUCTED BY PUNCHAYATI RAJ DEPTT, GOVT. OF BIHAR**

UNDER MUKHYAMANTRI GRAMIN PEYJAL YOJNA

FOR

100, 150 AND 200 HOUSEHOLDS

WITH

DIFFERENT TYPES OF TUBEWELLS

AND

3.0 MTR. M.S. STAGING WITH WATER STORAGE

FOR NON QUALITY AFFECTED AREAS

2017-18

INDEX

Various types of Model Estimates for Construction of Rural Piped Water Supply Scheme with 3 metre high Steel staging for 5000 Ltr. water storage

Sl. No.	No. of Households in the Ward	Type and size of Tubewell	Estimated Cost in Rs. Lakh	Page No.		
1	100	150mm X 90m deep Gravel packed T/W	9.226	1	-	11
2	100	125mm X 75mm dia & 90M deep T/W for alluvial soil	8.675	12	-	22
3	100	125mm X 75mm dia & 90M deep T/W for rocky strata	9.089	23	-	33
4	100	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	8.514	34	-	44
5	150	150mm X 90m deep Gravel packed T/W	11.111	45	-	55
6	150	125mm X 75mm dia & 125M deep T/W for alluvial soil	10.977	56	-	66
7	150	125mm X 75mm dia & 125M deep T/W for rocky strata	11.546	67	-	77
8	150	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	10.399	78	-	88
9	200	150mm X 90m deep Gravel packed T/W	12.426	89	-	99
10	200	150mm X 100mm dia & 125M deep T/W for alluvial soil	12.690	100	-	111
11	200	150mm X 100mm dia & 125M deep T/W for rocky strata	13.256	112	-	123
12	200	200/165 mm dia 90 M deep drilled Tubewell by DTH Rig machine	11.713	124	-	134
16	Drawing of steel staging			135	-	135



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSE HOLDS

ESTIMATED COST-- Rs. 9.226 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.9,13,512.94
Add 1% Contingency		Rs.9,135.13
G. TOTAL		Rs.9,22,648.07
Say		Rs.9,22,600.00

(Rs. Nine Lakh Twenty two Thousand six hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.9,22,600.00 (Rs. Nine Lakh Twenty two Thousand six hundred) only

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Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,637.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumgarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials laobours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials laobours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
TOTAL					Rs.1,65,744.45
Say					Rs.1,65,744.00

Analysis of Chamber for TW
Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
S.O.R. No. 13.17.1									
13.17.1	C.P. (1:3) with 5% Cico & neat cement	2	1.00	1.00	1.00	4.00 M ²			
	Internal face	1	1.00	1.00		1.00 M ²			
+13.36.1	Bed surface					5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
						0.338 M ³ x 70 Kg/ M3	23.625 Kg.	P/Kg	Rs.56.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe 150.00 0.30 1.10 =	49.50			
	63mm dia Pipe 150.00 0.30 1.10 =	49.50			
	50mm dia Pipe 300.00 0.30 1.10 =	99.00			
	40mm dia Pipe 400.00 0.30 1.10 =	132.00			
		330.00 M ³			
	Add 5% extra for fittings =	16.50 M ³			
		346.50 M ³	P/M ³	Rs.230.50	Rs.79,868.25
1B	Provision for PCC road cutting and its restoration	11.25 M ³	P/M ³	Rs.4,428.80	Rs.49,824.00
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
		339.57 M ³	P/M ³	Rs.74.50	Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00 M	P/M	Rs.239.81	Rs.2,398.10
	75mm dia Pipe	150.00 M	P/M	Rs.239.81	Rs.35,971.50
	63mm dia Pipe	150.00 M	P/M	Rs.168.77	Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00 M	P/M	Rs.89.99	Rs.26,997.00
	40mm dia Pipe	400.00 M	P/M	Rs.59.78	Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00 M	P/M	Rs.59.78	Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2 Nos.	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4 Nos.	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsized) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.				
	Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.				
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
	40mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
	TOTAL				Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping

Contract from nearest source up-to pumping						
Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.	1	(one) job	p/job	Rs. 30,500.00	Rs.30,500.00
	(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos					
	(ii) 1x3x1.5 mm ² flat copper conductor submersible cable -40 (forty) mtrs.					
	(iii) 40 mm dia union socket- 1(one) no.					
	(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.					
	(v) 40 mm dia G.I Elbow—1(One) no.					
	(vi) 40 mm dia M.S. clamps—2(Two) Pairs.					
	(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.					
	(viii) Tube well cap for 125 mm dia T/Well - 1(one) no.					
	(ix) 40 mm dia x 50 mm dia reducer socket -1(one) no.					

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake - 1(one) no.	1 (one) job	p/job	Rs. 28,500.00	Rs. 28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs. 130.00	Rs. 2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs. 2,803.00	Rs. 2,803.00
Total Rs.					Rs. 64,403.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE									
S.No.	Description				Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.								
	MDPE Pipe 20mm dia nominal bore				6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall								
18.7.1	15 mm nomonal bore				1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil								
2.8.1	6.00	0.30	0.60	1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead								
2.26					1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:								
18.20.1	15mm nominal bore				1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)				1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :								
18.15.1	15mm nominal bore				1	Each	Rs.273.00	Rs.273.00	
Total								Rs.1,513.41	
Say								Rs.1,513.00	
Total Nos. of House Holds= 100 Nos. @ Rs.1,513.00 Rs.1,51,300.00									

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rearing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 = 8.208				
	For fixing Ladder				
	1 1.00 0.50 0.275 = 0.138				
		8.346			
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
	base of footing				
	4 1.20 1.20 0.10 = 0.576				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
		0.626			
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
	base of footing				
	4 1.20 1.20 = 5.760				
	Landing Platform				
	1 1.00 0.50 = 0.500				
		6.260			
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 = 0.576				
	For Grouting at base plate				
	4 0.20 0.20 0.050 = 0.008				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
		0.634			
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work puto plinth level	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 = 1.200				
	Column below GL				
	4 0.20 0.20 0.85 = 0.136				



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSE HOLD S

ESTIMATED COST-- Rs. 8.675Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

**NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR VWARD
HAVING 100 HOUSE HOLDS**

S.N.	Description	Total Amount
1	Construction of 125mm X75mmx 90m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,11,137.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico frished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.8,58,906.62
Add 1% Contingency		Rs.8,589.07
G. TOTAL		Rs.8,67,495.69
Say		Rs.8,67,500.00

(Rs. Eight Lakh Sixty seven Thousand five Hundred) only

Note:

i) This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.

ii) Water quality testing of source should be done after construction of Tube well.

iii) Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.8,67,500.00 (Rs. Eight Lakh Sixty seven Thousand five Hundred) only

[Signatures]

Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 90M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.378.00	Rs.34,020.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e) 125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d) 125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around				
	the tubewell etc. all complete as per direction of E/I.	6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken at distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,11,137.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70 Kg/ M3	23.625 Kg.	P/Kg		Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
		330.00	M ³		
	Add 5% extra for fittings =	16.50	M ³		
		346.50	M ³	P/M ³	Rs.230.50
1B	Provision for PCC road cutting and its restoration	11.25	M ³	P/M ³	Rs.4,428.80
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
		339.57	M ³	P/M ³	Rs.74.50
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81
	75mm dia Pipe	150.00	M	P/M	Rs.239.81
	63mm dia Pipe	150.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00	M	P/M	Rs.89.99
	40mm dia Pipe	400.00	M	P/M	Rs.59.78
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.59.78
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos	Each	Rs.1,351.60
	50mm dia Pipe	2	Nos	Each	Rs.811.40
	40mm dia Pipe	4	Nos	Each	Rs.613.90

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to

Sl. No.	Particulars	Quantity	Unit	Rate	Amount	
1	2	3	4	5	6	
[A]	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.	1	(one) job	p/job	Rs.30,500.00	Rs.30,500.00
	(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos					
	(ii) 1x3x1.5 mm ² flat copper conductor submersible cable -40 (forty) mtrs.					
	(iii) 40 mm dia union socket- 1(one) no.					
	(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.					
	(v) 40 mm dia G.I Elbow—1(One) no.					
	(vi) 40 mm dia M.S. clamps—2(Two) Pairs.					
	(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.					
	(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.					
	(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.					

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
				Total Rs.	Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00	
Total					Rs.1,513.41	
Say					Rs.1,513.00	
Total Nos. of House Holds= 100 Nos. @ Rs.1,513.00 Rs.1,51,300.00						

Total Nos. of House Holds=

100 Nos. @

Rs.1,513.00 Rs.1,51,300.00

Sub Est. No. 6										
3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK										
S.N.	Particulars					Quantity		Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.									
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.					1490 Kg		P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including re-sing of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil									
	base of footing									
	4	1.20	1.20	1.425	=					
	For fixing Ladder									
	1	1.00	0.50	0.275	=					
						8.346 M ³		P/M ³	Rs.230.50	Rs.1,923.64
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.									
	base of footing									
	4	1.20	1.20	0.10	=					
	Landing Platform									
	1	1.00	0.50	0.10	=					
						0.626 M ³		P/M ³	Rs.204.40	Rs.127.95
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.									
	base of footing									
	4	1.20	1.20		=					
	Landing Platform									
	1	1.00	0.50		=					
						6.260 M ²		P/M ²	Rs.253.80	Rs.1,588.79
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.									
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.20	1.20	0.100	=					
	For Grouting at base plate									
	4	0.20	0.20	0.050	=					
	Landing Platform									
	1	1.00	0.50	0.10	=					
						0.634 M ³		P/M ³	Rs.4,373.20	Rs.2,772.61
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work puto plinth level									
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.00	1.00	0.30	=					
	Column below GL									
	4	0.20	0.20	0.85	=					

S.N.	Particulars					Quantity	Unit	Rate	Amount
	Column above GL								
	4	0.20	0.20	0.25	=	0.040			
						1.376	M ³	P/M ³	Rs.4,530.30
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.								Rs. 6,233.69
	16	1.00	0.30		=	4.800			
	16	0.20	0.85		=	2.720			
	16	0.20	0.25		=	0.800			
						8.320	M ²	P/M ²	Rs.169.00
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.								Rs. 1,406.08
	8 mm to 16 mm tor steel								
	Total Reinforcement.								
	@0.80% of Vol. Of Concrete					86.00	Kg.	P/Kg.	Rs.56.00
					=				Rs. 4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth; consolidating each deposited layer by ramming and watering lead					2.086	M ³	P/M ³	Rs.74.50
									Rs.155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg					4.2624	Kg	P/kg	Rs.73.60
									Rs.313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:								
	New steel work (two or more coats)								
	Frame work								
	0.5	14.00	3.00		=	21.000			
	0.5	3.50	3.50		=	6.125			
						27.125	M ²	M ²	Rs.63.60
						27.13	M ²		Rs.1,725.15
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.								
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)					203	Nos.	%0 nos.	Rs.606.10
									Rs. 123.04
	(b) Coarse Sand (100 Km. lead)					0.860	M ³	P/M ³	Rs.1,221.09
									Rs.1,050.14
	(c) Stone Chips (150 Km. lead)					1.730	M ³	P/M ³	Rs.1,746.29
									Rs.3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)					0.720	M ³	P/M ³	Rs.217.23
									Rs.156.41
	TOTAL								Rs.1,28,521.72
	say								Rs.1,28,500.00

2/1/17

Am

Shankar



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSE HOLD S

ESTIMATED COST-- Rs. 9.089 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

**NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD
HAVING 100 HOUSE HOLDS**

S.N.	Description	Total Amount
1	Construction of 125mm X75mmx 90m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,52,096.68
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethyene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.8,99,865.62
Add 1% Contingency		Rs.8,998.66
G. TOTAL		Rs.9,08,864.28
Say		Rs.9,08,900.00

(Rs. Nine Lakh Eight Thousand Nine Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.9,08,900.00 (Rs. Nine Lakh Eight Thousand Nine Hundred) only

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Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Sub Est. No. 1

**CONSTRUCTION OF 125MM X 75MM Dia & 90M DEEP TUBE WELL
(For Rocky strata including Boulders)**

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge. upto 90 metre depth below ground level. (Rocky strata including Boulders)				
24.1.1.1	(a) 300mm dia bore from G.L. to 90.0M	90.0 M	P/M	Rs.833.10	Rs.74,979.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	34.0 M	P/M	Rs.328.50	Rs.11,169.00
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e) 125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d) 125 mm dia M.S. Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around				
	the tubewell etc. all complete as per direction of E/I.	6.5 M ³	P/M ³	Rs.917.00	Rs.5,960.50
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken at distance 400km.)	6.5 M ³	P/M ³	Rs.4,336.54	Rs.28,187.48
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	3 Hrs.	Each	Rs.649.40	Rs.1,948.20
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,52,096.68

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering C.P. (1:3) with 5% Cico & neat cement	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
S.O.R. No.									
13.17.1	Internal face	2	1.00	1.00	1.00	4.00 M ²			
+13.36.1	Bed surface	1	1.00	1.00		1.00 M ²			
						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x	70	Kg/ M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe 150.00 0.30 1.10 =	49.50			
	63mm dia Pipe 150.00 0.30 1.10 =	49.50			
	50mm dia Pipe 300.00 0.30 1.10 =	99.00			
	40mm dia Pipe 400.00 0.30 1.10 =	132.00			
		330.00	M ³		
	Add 5% extra for fittings =	16.50	M ³		
		346.50	M ³		
1B	Provision for PCC road cutting and its restoration	11.25	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.		P/M ³	Rs.4,428.80	Rs.79,868.25
		339.57	M ³	P/M ³	Rs.25,297.97
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81
	75mm dia Pipe	150.00	M	P/M	Rs.35,971.50
	63mm dia Pipe	150.00	M	P/M	Rs.25,315.50
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00	M	P/M	Rs.26,997.00
	40mm dia Pipe	400.00	M	P/M	Rs.23,912.00
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.717.36
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	2 Nos.	Each	Rs.811.40	Rs.1,622.80
	40mm dia Pipe	4 Nos.	Each	Rs.613.90	Rs.2,455.60

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsized) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I. Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
		2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
					Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to

...including extension of L.I. line from nearest source up-to					
Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A]	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.				
	(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos	1 (one) job	p/job	Rs.30,500.00	Rs.30,500.00
	(ii) 1x3x1.5 mm ² flat copper conductor submersible cable -40 (forty) mtrs.				
	(iii) 40 mm dia union socket- 1(one) no.				
	(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.				
	(v) 40 mm dia G.I Elbow—1(One) no.				
	(vi) 40 mm dia M.S. clamps—2(Two) Pairs.				
	(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.				
	(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.				
	(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.				

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control panel operated on 220 V, 3 phase, 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make - 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth, providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE								
S.No.	Description	Qty	Unit	Rate	Amount			
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.							
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82			
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall							
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70			
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil							
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94			
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85			
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:							
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10			
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00			
5	Providing and fixing brass bib cock of approved quality :							
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00			
	Total				Rs.1,513.41			
	Say				Rs.1,513.00			
Total Nos. of House Holds=		100 Nos. @		Rs.1,513.00		Rs.1,51,300.00		

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including ressing of sides and ramming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 = 8.208				
	For fixing Ladder				
	1 1.00 0.50 0.275 = 0.138				
	8.346	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.				
	base of footing				
	4 1.20 1.20 0.10 = 0.576				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.626	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.				
	base of footing				
	4 1.20 1.20 = 5.760				
	Landing Platform				
	1 1.00 0.50 = 0.500				
	6.260	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
5 4.1.2	Providing and laying in position cement concrete of specified grade exluding the cost of centring and shuttering-all work upto plinth level.				
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 = 0.576				
	For Grouting at base plate				
	4 0.20 0.20 0.050 = 0.008				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.634	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work puto plinth level				
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 = 1.200				
	Column below GL				
	4 0.20 0.20 0.85 = 0.136				

S.N.	Particulars					Quantity	Unit	Rate	Amount
	Column above GL								
	1	0.20	0.20	0.25	=	0.040			
						1.376			
						1.376 M ³	P/M ³	Rs.4,530.30	Rs.6,233.69
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.								
	16	1.00	0.30		=	4.800			
	16	0.20	0.85		=	2.720			
	16	0.20	0.25		=	0.800			
						8.320			
						8.320 M ²	P/M ²	Rs.169.00	Rs.1,406.08
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.								
	8 mm to 16 mm tor steel								
	Total Reinforcement.								
	@0.80% of Vol. Of Concrete								
					=	86.00 Kg.	P/Kg.	Rs.56.00	Rs.4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead								
						2.086 M ³	P/M ³	Rs.74.50	Rs.155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg								
						4.2624 Kg	P/kg	Rs.73.60	Rs.313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:								
	New steel work (two or more coats)								
	Frame work								
	0.5	14.00	3.00		=	21.000			
	0.5	3.50	3.50		=	6.125			
						27.125			
						27.13 M ²	M ²	Rs.63.60	Rs.1,725.15
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.								
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)					203 Nos.	%0 nos.	Rs.606.10	Rs.123.04
	(b) Coarse Sand (100 Km. lead)					0.860 M ³	P/M ³	Rs.1,221.09	Rs.1,050.14
	(c) Stone Chips (150 Km. lead)					1.730 M ³	P/M ³	Rs.1,746.29	Rs.3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)					0.720 M ³	P/M ³	Rs.217.23	Rs.156.41
								TOTAL	Rs.1,28,521.72
								say	Rs.1,28,500.00

7/4/17

M. S. S. S.



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 100 HOUSE HOLD S

ESTIMATED COST-- Rs. 8.514 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 100 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distrbution network of High Density Polyethyene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.3,90,355.94
4	Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.64,403.00
5	Providing house conrection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.1,51,300.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.8,43,011.85
Add 1% Contingency		Rs.8,430.12
G. TOTAL		Rs.8,51,441.97
Say		Rs.8,51,400.00

(Rs. Eight Lakh Fifty one Thousand Four Hundred) only

Note:

i) This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.

ii) Water quality testing of source should be done after construction of Tube well.

iii) Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.8,51,400.00 (Rs. Eight Lakh Fifty one Thousand Four Hundred) only

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Chief Engineer (Design)
Public Health Engineering Dept.
Bihar, Patna

Estimate no.- 1

MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE					
S. NO.	Particulars	Quantity	unit	Rate	Amount
1	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soil and rock in rural area for installation of pump set with Hydraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/I.				
	(i) Up to 50 mtrs depth below GL	50	P/M	Rs 729.52	Rs.36,476.00
	(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)	24	P/M	Rs.921.70	Rs.22,120.80
3	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/I.	1	Each	Rs.51.01	Rs.51.01
4	Supplying all tools labors and equipments and doing washing flushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/I.	2.5	P/Hr	Rs.649.40	Rs.1,623.50
5	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/I.	1	Each	Rs.256.40	Rs.256.40
TOTAL					Rs.95,242.91

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE		1.00 M	x	1.00 M	x	0.75 M deep
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<u>S.O.R. No.</u>	<u>Particulars</u>	<u>No.</u>	<u>L</u>	<u>W</u>	<u>H</u>	<u>Qty.</u>	<u>Unit</u>	<u>Rate</u>	<u>Amount</u>
<u>1</u>	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
<u>2</u>	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
<u>3</u>	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
<u>4</u>	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
<u>5</u>	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
<u>6</u>	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
<u>7</u>	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
<u>8</u>	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
<u>9</u>	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70 Kg/M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
<u>10</u>	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
<u>11</u>	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
						Say	Rs.13,210.00		

Sub Est. No 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	150.00	0.30	1.10 =	49.50
	63mm dia Pipe	150.00	0.30	1.10 =	49.50
	50mm dia Pipe	300.00	0.30	1.10 =	99.00
	40mm dia Pipe	400.00	0.30	1.10 =	132.00
		330.00	M ³		
	Add 5% extra for fittings =	16.50	M ³		
1B	Provision for PCC road cutting and its restoration	346.50	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	11.25	M ³	P/M ³	Rs.4,428.80
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties. (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	339.57	M ³	P/M ³	Rs.74.50
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	10.00	M	P/M	Rs.239.81
	75mm dia Pipe	150.00	M	P/M	Rs.239.81
	63mm dia Pipe	150.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	300.00	M	P/M	Rs.89.99
	40mm dia Pipe	400.00	M	P/M	Rs.59.78
	40mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.59.78
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
	50mm dia Pipe	2	Nos.	Each	Rs.811.40
	40mm dia Pipe	4	Nos.	Each	Rs.613.90

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.				
	Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	40mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.3,90,355.94

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 2 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A]	<p>Supply Installation, commissioning and testing of single phase 2 H.P. submersible pump set having discharging capacity 2.5 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackies installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 40 mm dia x 3 mtrs long medium class G.I column pipe both end threaded and one end socketed- 6(six)nos</p> <p>(ii) 1x3x1.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 40 mm dia union socket- 1(one) no.</p> <p>(iv) 50 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 40 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 40 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 40 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for 125 mm dia T/Well – 1(one) no.</p> <p>(ix) 40 mm dia x 50 mm dia reducer socket –1(one) no.</p>	1 (one) job	p/job	Rs.30,500.00	Rs.30,500.00

[B]	Supply installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control panel operated on 220 V, 3 phase, 50 c/s for 2 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 95-272 V range single phase 5 KVA automatic voltage stabilizer make-Sen & Pandit/ Vertex/ISI marked if any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make - 1(one) no.	1 (one) job	p/job	Rs.28,500.00	Rs.28,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth, providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with salt, charcoal, etc. as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.64,403.00

Sub Est. No. 5

Estimate for the work - House service connection						
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00	
	Total				Rs.1,513.41	
	Say				Rs.1,513.00	

Total Nos. of House Holds=

100 Nos. @ Rs.1,513.00 Rs.1,51,300.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 = 8.208				
	For fixing Ladder				
	1 1.00 0.50 0.275 = 0.138				
	8.346	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.				
	base of footing				
	4 1.20 1.20 0.10 = 0.576				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.626	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.				
	base of footing				
	4 1.20 1.20 = 5.760				
	Landing Platform				
	1 1.00 0.50 = 0.500				
	6.260	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.				
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 = 0.576				
	For Grouting at base plate				
	4 0.20 0.20 0.050 = 0.008				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.634	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring,shuttering,finishing and reinforcement-All work upto plinth level				
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 = 1.200				
	Column below GL				
	4 0.20 0.20 0.85 = 0.136				

S.N.	Particulars						Quantity	Unit	Rate	Amount
	Column above GL									
	4	0.20	0.20	0.25	=	0.040				
						1.376	1.376 M ³	P/M ³	Rs.4,530.30	Rs. 6,233.69
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.									
	16	1.00	0.30		=	4.800				
	16	0.20	0.85		=	2.720				
	16	0.20	0.25		=	0.800				
						8.320	8.320 M ²	P/M ²	Rs.169.00	Rs. 1,406.08
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.									
	8 mm to 16 mm for steel									
	Total Reinforcement.									
	@0.80% of Vol. Of Concrete						86.00 Kg.	P/Kg.	Rs.56.00	Rs. 4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead									
						2.086	2.086 M ³	P/M ³	Rs.74.50	Rs. 155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg									
						4.2624	4.2624 Kg	P/kg	Rs.73.60	Rs. 313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:									
	New steel work (two or more coats)									
	Frame work									
	0.5	14.00	3.00		=	21.000				
	0.5	3.50	3.50		=	6.125				
						27.125	27.13 M ²	M ²	Rs.63.60	Rs. 1,725.15
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.									
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)						203 Nos.	%0 nos.	Rs.606.10	Rs. 123.04
	(b) Coarse Sand (100 Km. lead)						0.860 M ³	P/M ³	Rs.1,221.09	Rs. 1,050.14
	(c) Stone Chips (150 Km. lead)						1.730 M ³	P/M ³	Rs.1,746.29	Rs. 3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)						0.720 M ³	P/M ³	Rs.217.23	Rs. 156.41
									TOTAL	Rs.1,28,521.72
									say	Rs.1,28,500.00

7/11/17

An. Saurabh



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 11.111 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.4,72,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making femle connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.11,00,060.21
Add 1% Contingency		Rs.11,000.60
G. TOTAL		Rs.11,11,060.81
Say		Rs.11,11,100.00

(Rs. Eleven Lakh Eleven Thousand One Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.11,11,100.00 (Rs. Eleven Lakh Eleven Thousand One Hundred) only

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3/4/17

Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,637.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumigarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials labours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials labours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
TOTAL					Rs.1,65,744.45
Say					Rs.1,65,744.00

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. Bed surface		1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70	Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

WATER SUPPLY DISTRIBUTION SYSTEM										
S.N.	Particulars					Quantity	Unit	Rate	Amount	
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.									
	75mm dia Pipe	195.00	0.30	1.10	=	64.35				
	63mm dia Pipe	195.00	0.30	1.10	=	64.35				
	50mm dia Pipe	390.00	0.30	1.10	=	128.70				
	40mm dia Pipe	520.00	0.30	1.10	=	171.60				
	Add 5% extra for fittings =					429.00 M ³				
						21.45 M ³				
						450.45 M ³				
1B	Provision for PCC road cutting and its restoration					14.63 M ³	P/M ³	Rs.230.50	Rs.1,03,828.73	
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.						P/M ³	Rs.4,428.80	Rs.64,793.34	
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm2 and 10 Kg/cm2 suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.					441.44 M ³	P/M ³	Rs.74.50	Rs.32,887.35	
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)									
	75mm dia Pipe from PVC Tank to Distribution main					14.00 M	P/M	Rs.239.81	Rs.3,357.34	
	75mm dia Pipe					195.00 M	P/M	Rs.239.81	Rs.46,762.95	
	63mm dia Pipe					195.00 M	P/M	Rs.168.77	Rs.32,910.15	
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)									
	50mm dia Pipe					390.00 M	P/M	Rs.89.99	Rs.35,096.10	
	40mm dia Pipe					520.00 M	P/M	Rs.59.78	Rs.31,085.60	
	50mm dia Pipe from T/well to PVC Tank					12.00 M	P/M	Rs.89.99	Rs.1,079.88	
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).									
	75mm dia Pipe					3 Nos.	Each	Rs.1,351.60	Rs.4,054.80	
	63mm dia Pipe					2 Nos.	Each	Rs.1,351.60	Rs.2,703.20	
	50mm dia Pipe					3 Nos.	Each	Rs.811.40	Rs.2,434.20	
	40mm dia Pipe					3 Nos.	Each	Rs.613.90	Rs.1,841.70	

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsized) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.				
	Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	2.678 CuM	CuM	Rs.4,724.40	Rs.12,649.58
	8 1.10 0.35 3.08	27.72 SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.4,72,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well - 1(one) no.</p> <p>(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
Total Say					Rs.1,513.41
Total Nos. of House Holds=					Rs.1,513.00
150 Nos. @					Rs.2,26,950.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
	All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 = 8.208				
	For fixing Ladder				
	1 1.00 0.50 0.275 = 0.138				
	8.346	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.				
	base of footing				
	4 1.20 1.20 0.10 = 0.576				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.626	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.				
	base of footing				
	4 1.20 1.20 = 5.760				
	Landing Platform				
	1 1.00 0.50 = 0.500				
	6.260	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.				
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 = 0.576				
	For Grouting at base plate				
	4 0.20 0.20 0.050 = 0.008				
	Landing Platform				
	1 1.00 0.50 0.10 = 0.050				
	0.634	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level				
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 = 1.200				
	Column below GL				
	4 0.20 0.20 0.85 = 0.136				

S.N.	Particulars					Quantity	Unit	Rate	Amount
	Column above GL								
	4	0.20	0.20	0.25	=	0.040			
						1.376			
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					1.376 M ³	P/M ³	Rs. 4,530.30	Rs. 6,233.69
	16	1.00	0.30		=	4.800			
	16	0.20	0.85		=	2.720			
	16	0.20	0.25		=	0.800			
						8.320			
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					8.320 M ²	P/M ²	Rs. 169.00	Rs. 1,406.08
	8 mm to 16 mm tor steel								
	Total Reinforcement.								
	@0.80% of Vol. Of Concrete					86.00 Kg.	P/Kg.	Rs. 56.00	Rs. 4,816.00
9-2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead					2.086 M ³	P/M ³	Rs. 74.50	Rs. 155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg					4.2624 Kg	P/kg	Rs. 73.60	Rs. 313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:								
	New steel work (two or more coats)								
	Frame work								
	0.5	14.00	3.00		=	21.000			
	0.5	3.50	3.50		=	6.125			
						27.125			
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					27.13 M ²	M ²	Rs. 63.60	Rs. 1,725.15
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)					203 Nos.	%0 nos.	Rs. 606.10	Rs. 123.04
	(b) Coarse Sand (100 Km. lead)					0.860 M ³	P/M ³	Rs. 1,221.09	Rs. 1,050.14
	(c) Stone Chips (150 Km. lead)					1.730 M ³	P/M ³	Rs. 1,746.29	Rs. 3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)					0.720 M ³	P/M ³	Rs. 217.23	Rs. 156.41
	TOTAL								Rs. 1,28,521.72
	say								Rs. 1,28,500.00

1/2/17

Am. Shrivastava



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 10.977 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125 mm x75mmX 125m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,52,506.32
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.4,72,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.10,86,822.53
Add 1% Contingency		Rs.10,868.23
G. TOTAL		Rs.10,97,690.76
Say		Rs.10,97,700.00

(Rs. Ten Lakh Ninety seven Thousand Seven Hundred) only

Note:

no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.

ii) Water quality testing of source should be done after construction of Tube well.

iii) Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.10,97,700.00 (Rs. Ten Lakh Ninety seven Thousand Seven Hundred) only

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[Signature] 3/4/17

Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Sub Est. No. 1

CONSTRUCTION OF 125MM X 75MM DIA & 125M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.1	(a) 300mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
24.2.1.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.441.10	Rs.15,438.50
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	69.0 M	P/M	Rs.328.50	Rs.22,666.50
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e) 125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
	(d) 125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing				
24.6	tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
4b	Carriage of Pea Gravel from Dhalbhumigarh (taken at distance 400km.)	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
5	Development of tube well in accordance with IS : 2800				
24.12	(part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	5 Hrs.	Each	Rs.649.40	Rs.3,247.00
6	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.1,52,506.32

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.053 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.00	Rs.1,179.06
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cicc & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x	70	Kg/		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
				M3					
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.25
									Rs.629.01
									<u>Rs.13,209.27</u>
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe 195.00 0.30 1.10 =	64.35			
	63mm dia Pipe 195.00 0.30 1.10 =	64.35			
	50mm dia Pipe 390.00 0.30 1.10 =	128.70			
	40mm dia Pipe 520.00 0.30 1.10 =	171.60			
		429.00 M ³			
	Add 5% extra for fittings =	21.45 M ³			
		450.45 M ³	P/M ³	Rs.230.50	Rs.1,03,828.73
1B	Provision for PCC road cutting and its restoration	14.63 M ³	P/M ³	Rs.4,428.80	Rs.64,793.34
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				
		441.44 M ³	P/M ³	Rs.74.50	Rs.32,887.35
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties. (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.				
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00 M	P/M	Rs.239.81	Rs.3,357.34
	75mm dia Pipe	195.00 M	P/M	Rs.239.81	Rs.46,762.95
	63mm dia Pipe	195.00 M	P/M	Rs.168.77	Rs.32,910.15
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00 M	P/M	Rs.89.99	Rs.35,096.10
	40mm dia Pipe	520.00 M	P/M	Rs.59.78	Rs.31,085.60
	50mm dia Pipe from T/weli to PVC Tank	12.00 M	P/M	Rs.89.99	Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
	0.298	2.678	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)				
	8 1.10 0.35 3.08	27.72	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5				Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000	Ltrs.	P/Ltr.	Rs.6.60
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				Rs.33,000.00
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.4,72,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos (ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs. (iii) 50 mm dia union socket- 1(one) no. (iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no. (v) 50 mm dia G.I Elbow—1(One) no. (vi) 50 mm dia M.S. clamps—2(Two) Pairs. (vii) 50 mmx 250 mm long G.I nipple- 1(One) no. (viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake - 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE

S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for water application rates are inclusive of, taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover including boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00
Total Nos. of House Holds=		150 Nos. @		Rs.1,513.00	Rs.2,26,950.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including ridding of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing	4	1.20	1.20	1.425 = 8.208
	For fixing Ladder	1	1.00	0.50	0.275 = 0.138
					8.346
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
	base of footing	4	1.20	1.20	0.10 = 0.576
	Landing Platform	1	1.00	0.50	0.10 = 0.050
					0.626
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
	base of footing	4	1.20	1.20	= 5.760
	Landing Platform	1	1.00	0.50	= 0.500
					6.260
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing	4	1.20	1.20	0.100 = 0.576
	For Grouting at base plate	4	0.20	0.20	0.050 = 0.008
	Landing Platform	1	1.00	0.50	0.10 = 0.050
					0.634
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of entring, shuttering, finishing and reinforcement-All work upto plinth level	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing	4	1.00	1.00	0.30 = 1.200
	Column below GL	4	0.20	0.20	0.85 = 0.136



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME
FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 11.546 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 125 mm x75mmX 125m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.2,08,868.82
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.4,72,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.11,43,185.03
Add 1% Contingency		Rs.11,431.85
G. TOTAL		Rs.11,54,616.88
Say		Rs.11,54,600.00

(Rs. Eleven Lakh Fifty four Thousand Six Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.11,54,600.00 (Rs. Eleven Lakh Fifty four Thousand Six Hundred) only

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3/4/17

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3/4/17

Chief Engineer (Design)
Public Health Engineering Departu
Bihar, Patna

Sub Est. No. 1
CONSTRUCTION OF 125 MM X 75MM DIA & 125M DEEP TUBE WELL
(For Rocky strata including Boulders)

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer -in-charge, upto 90 metre depth below ground level. (Rocky strata including Boulders)				
24.1.1.1	(a) 300mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
24.2.1.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.881.20	Rs.30,842.00
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge.				
	(b) 125 mm nominal size dia	30.0 M	P/M	Rs.462.50	Rs.13,875.00
24.3.5	(b) 75 mm nominal size dia	69.0 M	P/M	Rs.328.50	Rs.22,666.50
24.4.5	(c) 75 mm dia U.P.V.C. strainer	21.0 M	P/M	Rs.420.30	Rs.8,826.30
3	Providing all materials, tools & labours and fixing the following fittings etc. all complete as per specification & direction of E/I.				
	(a) 125 mm dia P.V.C. well cap	1 No.	Each	Rs.166.60	Rs.166.60
	(b) 125 mm dia center guide	4 Nos.	Each	Rs.100.00	Rs.400.00
	(c) 75 mm dia center guide	6 Nos.	Each	Rs.75.00	Rs.450.00
	(d) 75 mm dia P.V.C. pipe shoe plug	1 No.	Each	Rs.185.00	Rs.185.00
	(e) 125mm x 75 mm dia P.V.C. Reducer	1 No.	Each	Rs.475.00	Rs.475.00
24.14.1	(d) 125mm dia M.S.Clamp	1 No.	Each	Rs.974.60	Rs.974.60
4a	Providing all materials, labours, & equipments for fixing tubewell with peagravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tubewell etc. all complete as per direction of E/I.				
24.6	Carriage of Pea Gravel from Dhalbhumigarh (taken at distance 400km.)	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
4b	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
5	Supplying all materials and labours for arrangement for additional water required during the drilling period for 40 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I..	5 Hrs.	Each	Rs.649.40	Rs.3,247.00
6		1 No.	Each	Rs.4,500.00	Rs.4,500.00
TOTAL					Rs.2,08,868.82

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70 Kg/M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10	=
	63mm dia Pipe	195.00	0.30	1.10	=
	50mm dia Pipe	390.00	0.30	1.10	=
	40mm dia Pipe	520.00	0.30	1.10	=
		429.00	M ³		
	Add 5% extra for fittings =	21.45	M ³		P
1B	Provision for PCC road cutting and its restoration	450.45	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	14.63	M ³	P/M ³	Rs.4,428.80
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	441.44	M ³	P/M ³	Rs.74.50
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
	50mm dia Pipe	3	Nos.	Each	Rs.811.40
	40mm dia Pipe	3	Nos.	Each	Rs.613.90

S.N.	Particulars	Quantity	Unit	Rate	Amount						
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.										
	Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50						
	Brick work (1:4) in foundation										
		2	1.10	0.25	0.35	0.193					
		2	0.60	0.25	0.35	0.105					
						0.298	2.678	CuM	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)										
		8	1.10		0.35	3.08	27.72	SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5										Rs.6,847.08
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.										
		5000	Ltrs.	P/Ltr.						Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.										
	50mm dia	2	Nos.	each						Rs.250.00	Rs.500.00
	75mm dia	1	No.	each						Rs.400.00	Rs.400.00
											</

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make - 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.				Rs.93,603.00	

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE

S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00

Total Nos. of House Holds=

150 Nos. @

Rs.1,513.00

Rs.2,26,950.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 =				8.208
	For fixing Ladder				
	1 1.00 0.50 0.275 =				0.138
					8.346
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
	base of footing				
	4 1.20 1.20 0.10 =				0.576
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.626
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
	base of footing				
	4 1.20 1.20 =				5.760
	Landing Platform				
	1 1.00 0.50 =				0.500
					6.260
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 =				0.576
	For Grouting at base plate				
	4 0.20 0.20 0.050 =				0.008
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.634
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 =				1.200
	Column below GL				

S.N.	Particulars						Quantity	Unit	Rate	Amount
	4	0.20	0.20	0.85	=	0.136				
	Column above GL									
	4	0.20	0.20	0.25	=	0.040				
						1.376				
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.						1.376 M ³	P/M ³	Rs.4,530.30	Rs. 6,233.68
	16	1.00	0.30		=	4.800				
	16	0.20	0.85		=	2.720				
	16	0.20	0.25		=	0.800				
						8.320				
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.						8.320 M ²	P/M ²	Rs.169.00	Rs. 1,406.08
	8 mm to 16 mm tor steel									
	Total Reinforcement.									
	@0.80% of Vol. Of Concrete						86.00 Kg.	P/Kg.	Rs.56.00	Rs. 4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead						2.086 M ³	P/M ³	Rs.74.50	Rs. 155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg						4.2624 Kg	P/kg	Rs.73.60	Rs. 313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:									
	New steel work (two or more coats)									
	Frame work									
	0.5	14.00	3.00		=	21.000				
	0.5	3.50	3.50		=	6.125				
						27.125				
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.						27.13 M ²	M ²	Rs.63.60	Rs. 1,725.15
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)						203 Nos.	%0 nos.	Rs.606.10	Rs. 123.04
	(b) Coarse Sand (100 Km. lead)						0.860 M ³	P/M ³	Rs.1,221.09	Rs.1,050.14
	(c) Stone Chips (150 Km. lead)						1.730 M ³	P/M ³	Rs.1,746.29	Rs.3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)						0.720 M ³	P/M ³	Rs.217.23	Rs. 156.41
	TOTAL									Rs.1,28,521.72
	say									Rs.1,28,500.00

2/14/17

Am [Signature]



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 150 HOUSE HOLDS

ESTIMATED COST-- Rs. 10.399 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 150 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no. 3)	Rs.4,72,053.21
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.2,26,950.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no. 6)	Rs.1,28,500.00
TOTAL		Rs.10,29,559.12
Add 1% Contingency		Rs.10,295.59
G. TOTAL		Rs.10,39,854.71
Say		Rs.10,39,900.00

(Rs. Ten Lakh Thirty nine Thousand Nine Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.10,39,900.00 (Rs. Ten Lakh Thirty nine Thousand Nine Hundred) only

[Signature]
31/9/17

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31/9/17

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3.4.17
Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Estimate no.- 1

MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE

S. NO.	Particulars	Quantity	unit	Rate	Amount
1	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soll and rock in rural area for installation of pump set with Hydaraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/I.				
	(i) Up to 50 mtrs depth below GL	50	P/M	Rs.729.52	Rs.36,476.00
	(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)	24	P/M	Rs.921.70	Rs.22,120.80
3	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/I.	1	Each	Rs.51.01	Rs.51.01
4	Supplying all tools labors and equipments and doing washing fiushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/I.	2.5	P/Hr	Rs.649.40	Rs.1,623.50
5	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/I.	1	Each	Rs.256.40	Rs.256.40
TOTAL					Rs.95,242.91

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering C.P. (1:3) with 5% Cico & neat cement	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
S.O.R. No. 13.17.1	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70 Kg/M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43

Say Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	75mm dia Pipe	195.00	0.30	1.10 =	64.35
	63mm dia Pipe	195.00	0.30	1.10 =	64.35
	50mm dia Pipe	390.00	0.30	1.10 =	128.70
	40mm dia Pipe	520.00	0.30	1.10 =	171.60
		429.00	M ³		
	Add 5% extra for fittings =	21.45	M ³		
		450.45	M ³		
1B	Provision for PCC road cutting and its restoration	14.63	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.				Rs.1,03,828.73
					Rs.64,793.34
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	441.44	M ³	P/M ³	Rs.74.50
					Rs.32,887.35
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	75mm dia Pipe	195.00	M	P/M	Rs.239.81
	63mm dia Pipe	195.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	390.00	M	P/M	Rs.89.99
	40mm dia Pipe	520.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				Rs.1,079.88
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
	50mm dia Pipe	3	Nos.	Each	Rs.811.40
	40mm dia Pipe	3	Nos.	Each	Rs.613.90
					Rs.4,054.80
					Rs.2,703.20
					Rs.2,434.20
					Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount						
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.										
	Work for additional depth	9 Nos.	Each	Rs.5,807.50	Rs.52,267.50						
	Brick work (1:4) in foundation										
		2	1.10	0.25	0.35	0.193					
		2	0.60	0.25	0.35	0.105					
						0.298	2.678	CuM	CuM	Rs.4,724.40	Rs.12,649.58
	Plaster (1:3)										
		8	1.10		0.35	3.08	27.72	SqM	SqM	Rs.128.20	Rs.3,553.70
6	Carriage 10% of item 5										
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.										Rs.6,847.08
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.	5000	Ltrs.	P/Ltr.						Rs.6.60	Rs.33,000.00
	50mm dia	2	Nos.	each						Rs.250.00	Rs.500.00
	75mm dia	1	No.	each						Rs.400.00	Rs.400.00
										TOTAL	Rs.4,72,053.21

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter (approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well – 1(one) no.</p> <p>(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE									
S.No.	Description				Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of, taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.								
	MDPE Pipe 20mm dia nominal bore				6.00	PM	Rs.19.97	Rs.119.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall								
18.7.1	15 mm nominal bore				1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil								
2.8.1	6.00	0.30	0.60	1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead								
2.26					1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover including boring and tapping the main:								
18.20.1	15mm nominal bore				1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)				1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :								
18.15.1	15mm nominal bore				1	Each	Rs.273.00	Rs.273.00	
	Total							Rs.1,513.41	
	Say							Rs.1,513.00	
Total Nos. of House Holds=					150 Nos.	@	Rs.1,513.00	Rs.2,26,950.00	

Sub Est. No. 6										
3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK										
S.N.	Particulars					Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.									
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.					1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00	
2 2.8.1	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including rearing of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil									
	base of footing									
	4	1.20	1.20	1.425	=	8.208				
	For fixing Ladder									
	1	1.00	0.50	0.275	=	0.138				
						8.346				
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.					8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64	
	base of footing									
	4	1.20	1.20	0.10	=	0.576				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.626				
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.					0.626 M ³	P/M ³	Rs.204.40	Rs.127.95	
	base of footing									
	4	1.20	1.20		=	5.760				
	Landing Platform									
	1	1.00	0.50		=	0.500				
						6.260				
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.					6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79	
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.20	1.20	0.100	=	0.576				
	For Grouting at base plate									
	4	0.20	0.20	0.050	=	0.008				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.634				
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level					0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61	
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.00	1.00	0.30	=	1.200				
	Column below GL									

S.N.	Particulars						Quantity	Unit	Rate	Amount	
-	4	0.20	0.20	0.85	=	0.136					
	Column above GL										
	4	0.20	0.20	0.25	=	0.040					
						1.376					
7- 5.9.1	Centring and shuttering including strutting,propping etc. and removal of form for.						1.376 M ³	P/M ³	Rs.4,530.30	Rs. 6,233.68	
	16	1.00	0.30		=	4.800					
	16	0.20	0.85		=	2.720					
	16	0.20	0.25		=	0.800					
						8.320					
8- 5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete. 8 mm to 16 mm tor steel Total Reinforcement. @0.80% of Vol. Of Concrete						8.320 M ²	P/M ²	Rs.169.00	Rs. 1,406.08	
					=	86.00 Kg.	P/Kg.	Rs.56.00	Rs. 4,816.00		
9 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of oundations etc. in layers not exceeding 20 cm in depth; consolidating each deposited layer by ramming and watering lead						2.086 M ³	P/M ³	Rs.74.50	Rs. 155.43	
10 10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg						4.2624 Kg	P/kg	Rs.73.60	Rs. 313.71	
11- 13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade: New steel work (two or more coats) Frame work										
	0.5	14.00	3.00		=	21.000					
	0.5	3.50	3.50		=	6.125					
						27.125					
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.						27.13 M ²	M ²	Rs.63.60	Rs. 1,725.15	
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)						203 Nos.	%0 nos.	Rs.606.10	Rs. 123.04	
	(b) Coarse Sand (100 Km. lead)						0.860 M ³	P/M ³	Rs.1,221.09	Rs. 1,050.14	
	(c) Stone Chips (150 Km. lead)						1.730 M ³	P/M ³	Rs.1,746.29	Rs. 3,021.08	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lea						0.720 M ³	P/M ³	Rs.217.23	Rs. 156.41	
							TOTAL			Rs.1,28,521.72	
							say			Rs.1,28,500.00	

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME

FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 12.426 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department
ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD
HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm X 90m deep Gravel packed T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,65,744.00
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,26,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.12,30,249.09
Add 1% Contingency		Rs.12,302.49
G. TOTAL		Rs.12,42,551.58
Say		Rs.12,42,600.00

(Rs.Twelve Lakh Forty two Thousand Six Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.12,42,600.00 (Rs.Twelve Lac Forty two Thousand Six Hundred) only

[Signature]
5/4/17

[Signature]

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3.4.17

Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

(Sub Estimate - 1)

(A) Construction of 150mm X 90m deep Gravel packed T/W					
S. No.	Particulars	Quantity	Unit	Rate	Amount
1	Transportation of machine, equipments including all accessories etc.	1 No.	Each	Rs.1,010.00	Rs.1,010.00
2	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
	400mm dia bore from GL to 90.0M	90 Mtr.	P/M	Rs.529.30	Rs.47,537.00
3A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	(a) 150 mm nominal size dia	59 M	P/M	Rs.615.30	Rs.36,302.70
3B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
	150 mm nominal size dia	30.0 M	P/M	Rs.554.30	Rs.16,629.00
4	Supplying fitting & fixing the following Fitting of approved make and specification at work site complete job.				
	(a) 150mm center guide Nos. in each T/W	9 Nos.	Each	Rs.150.00	Rs.1,350.00
	(b) 150 mm dia well plug	1 No	Each	Rs.205.10	Rs.205.10
	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No	Each	Rs.1,031.10	Rs.1,031.10
5	Supplying 3mm to 6 mm Well washed assorted pea gravel and doing surrounding around the annular space between bore hole & 125mm pipe uniformity up to the depth 10 mtr. below G.L all work complete as per direction of E/I.	11 M ³	P/M ³	Rs.917.00	Rs.10,087.00
6	Carriage of Pea gravel from Dhalbhumgarh (taken av distance 400Km)	11 M ³	P/M ³	Rs.4,336.54	Rs.47,701.94
7	Supplying all materials laobours and equipments to seal T/W up to the depth of 12 mtr below G.L. by Sticky clay to prevent contamination from surface from all complete job as per direction of E/I.	1 Item	Each	Rs.51.01	Rs.51.01
8	Supplying all materials laobours and equipments including 150mm dia G.I. Cap /C.I. Cap over the casing of 150mm dia T/W properly all complete.	1 No.	Each	Rs.205.10	Rs.205.10
9	Carriage of necessary equipment & materials.	1 No.	Each	Rs.287.50	Rs.287.50
10	Supplying all tools equipments & labour for flushing washing and developing the T/W to give clean & clear water and all complete job as per direction of E/I.	5 H	P / H	Rs.649.40	Rs.3,247.00
TOTAL					Rs.1,65,744.45
Say					Rs.1,65,744.00

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.C. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
						0.338 M ³ x 70 Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%								
								Total	Rs.12,580.41
									Rs.629.02
									<u>Rs.13,209.43</u>
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe 70.00 0.30 1.10 =	23.10			
	75mm dia Pipe 140.00 0.30 1.10 =	46.20			
	63mm dia Pipe 210.00 0.30 1.10 =	69.30			
	50mm dia Pipe 420.00 0.30 1.10 =	138.60			
	40mm dia Pipe 560.00 0.30 1.10 =	184.80			
		462.00	M ³		
	Add 5% extra for fittings =	23.10	M ³		
		485.10	M ³		
1B	Provision for PCC road cutting and its restoration	15.75	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.			P/M ³	Rs.4,428.80
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	475.40	M ³	P/M ³	Rs.74.50
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2	Nos.	Each	Rs.2,016.50
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
	50mm dia Pipe	3	Nos.	Each	Rs.811.40
	40mm dia Pipe	3	Nos.	Each	Rs.613.90

S.N.	Particulars	Quantity	Unit	Rate	Amount						
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.										
	Work for additional depth	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50						
	Brick work (1:4) in foundation										
		2	1.10	0.25	0.35	0.193					
		2	0.60	0.25	0.35	0.105					
						0.298	3.273	CuM	CuM	Rs.4,724.40	Rs.15,460.60
	Plaster (1:3)										
		8	1.10		0.35	3.08	33.88	SqM	SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5										Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.										
		5000 Ltrs.	P/Ltr.	Rs.6.60							Rs.33,000.00
	50mm dia	2 Nos.	each	Rs.250.00							Rs.500.00
	75mm dia	1 No.	each	Rs.400.00							Rs.400.00

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well – 1(one) no.</p> <p>(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with folowing accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked if any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&Tmake – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE

S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs. 119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs. 138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00

Total Nos. of House Holds=

200 Nos. @

Rs.1,513.00

Rs.3,02,600.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including re-siding of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 =				8.208
	For fixing Ladder				
	1 1.00 0.50 0.275 =				0.138
					8.346
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.	8.346 M ³	P/M ³	Rs.230.50	Rs. 1,923.64
	base of footing				
	4 1.20 1.20 0.10 =				0.576
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.626
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
	base of footing				
	4 1.20 1.20 =				5.760
	Landing Platform				
	1 1.00 0.50 =				0.500
					6.260
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3 (1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 =				0.576
	For Grouting at base plate				
	4 0.20 0.20 0.050 =				0.008
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.634
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1.5:3 (1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 =				1.200
	Column below GL				



GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME
FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 12.690 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

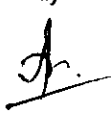
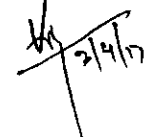


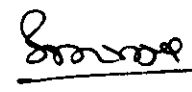
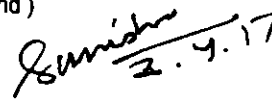
S.N.	Description	Total Amount
1	Construction of 150mm x100mmx125m deep T/W etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.1,91,907.72
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) . necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,26,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.12,56,412.81
Add 1% Contingency		Rs.12,564.13
G. TOTAL		Rs.12,68,976.94
Say		Rs.12,69,000.00

(Rs. Twelve Lakh Sixty nine Thousand) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.12,69,000.00 (Rs. Twelve Lakh Sixty nine Thousand) only

Chief Engineer (Design)
Public Health Engineering Departure
Bihaar, Patna

Sub Estimate- 1

CONSTRUCTION OF 150MM X 100MM DIA & 125M DEEP TUBE WELL

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (All types of soil)				
24.1.1.2	(a) 350mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.413.50	Rs.12,405.00
24.1.1.1	(b) 300mm dia bore from 30.0m to 60.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.378.00	Rs.11,340.00
24.2.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.441.10	Rs.15,438.50
2A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.3.2	(a) 150 mm nominal size dia	30.0 M	P/M	Rs.615.30	Rs.18,459.00
24.3.1	(b) 100 mm nominal size dia	60.0 M	P/M	Rs.444.20	Rs.26,652.00
2B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.4.1	100 mm nominal size dia	30.0 M	P/M	Rs.468.80	Rs.14,064.00
3	Supplying the following fittings & fixing the same in position as per approved lowering assembly and strata chart including providing all equipments and welding the same on process of lowering the assay etc. all complete as per S/D of E/I.				
24.13.2	(a) 150 mm dia well cap	1 No.	Each	Rs.205.10	Rs.205.10
24.14.2	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No.	Each	Rs.1,031.10	Rs.1,031.10
	(c) 150 mm dia center guide	4 Nos.	Each	Rs.150.00	Rs.600.00
	(d) 100 mm dia center guide	6 Nos.	Each	Rs.100.00	Rs.600.00
	(e) 150 mm x 100 mm dia 6mm wall thickness MS reducer	1 No.	Each	Rs.500.00	Rs.500.00
24.15.1	(f) 100mm dia & 6mm thick M.S. well shoe plug	1 No.	Each	Rs.205.60	Rs.205.60
4a	Providing all materials, labours, & equipments for fixing tube well with pea gravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tube well etc. all complete as per direction of E/I.				
24.6	Carriage of Pea Gravel from Dalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
4b	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82
24.12		24 Hrs.	Each	Rs.649.40	Rs.15,585.60

S.No.	Description	Qty.	Unit	Rate	Amount
6	Transportation of drilling plants, developing equipments & all other required tools and M/c by and suitable mechanical means including all cost of loading, unloading, placing at work site and back after completion of work as per S/D of E/I	1 No.	Each	Rs.9,200.00	Rs.9,200.00
7	Supplying all materials and labours for arrangement for additional water required during the drilling period for 70 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I.	1 No.	Each	Rs.7,000.00	Rs.7,000.00
TOTAL					Rs.1,91,907.72

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE	1.00 M	x	1.00 M	x	0.75 M deep
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S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
7	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
		0.338 M ³ x		70 Kg/M ³		23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe 70.00 0.30 1.10 =	23.10			
	75mm dia Pipe 140.00 0.30 1.10 =	46.20			
	63mm dia Pipe 210.00 0.30 1.10 =	69.30			
	50mm dia Pipe 420.00 0.30 1.10 =	138.60			
	40mm dia Pipe 560.00 0.30 1.10 =	184.80			
		462.00 M ³			
	Add 5% extra for fittings =	23.10 M ³			
1B	Provision for PCC road cutting and its restoration	485.10 M ³	P/M ³	Rs.230.50	Rs.1,11,815.55
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	15.75 M ³	P/M ³	Rs.4,428.80	Rs.69,753.60
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	475.40 M ³	P/M ³	Rs.74.50	Rs.35,417.15
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00 M	P/M	Rs.239.81	Rs.3,357.34
	90mm dia Pipe	70.00 M	P/M	Rs.340.84	Rs.23,858.80
	75mm dia Pipe	140.00 M	P/M	Rs.239.81	Rs.33,573.40
	63mm dia Pipe	210.00 M	P/M	Rs.168.77	Rs.35,441.70
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00 M	P/M	Rs.89.99	Rs.37,795.80
	40mm dia Pipe	560.00 M	P/M	Rs.59.78	Rs.33,476.80
	50mm dia Pipe from T/well to PVC Tank	12.00 M	P/M	Rs.89.99	Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve,with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:5:10(1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominalsize) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.				
	Work for additional depth	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
		0.298	3.273 CuM	CuM	Rs.4,724.40
	Plaster (1:3)				Rs.15,460.60
	8 1.10 0.35 3.08	33.88 SqM	SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,26,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well - 1(one) no.</p> <p>(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

[B]	Supply installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make – 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.				Rs.93,603.00	

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE					
S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of, taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs. 1 19.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall				
18.7.1	15 mm nomonal bore	1.0	PM	Rs.138.70	Rs.138 70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
Total Say					Rs.1,513.41
Total Nos. of House Holds=					Rs.1,513.00
200 Nos. @					Rs.3,02,600.00

Sub Est. No. 6										
3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK										
S.N.	Particulars					Quantity		Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.									
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.					1490 Kg		P/Kg	Rs.69.20	Rs.1,03,108.00
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil									
	base of footing									
	4	1.20	1.20	1.425	=	8.208				
	For fixing Ladder									
	1	1.00	0.50	0.275	=	0.138				
						8.346				
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.					8.346 M ³		P/M ³	Rs.230.50	Rs.1,923.64
	base of footing									
	4	1.20	1.20	0.10	=	0.576				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.626				
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.					0.626 M ³		P/M ³	Rs.204.40	Rs.127.95
	base of footing									
	4	1.20	1.20		=	5.760				
	Landing Platform									
	1	1.00	0.50		=	0.500				
						6.260				
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.					6.260 M ²		P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3 (1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.20	1.20	0.100	=	0.576				
	For Grouting at base plate									
	4	0.20	0.20	0.050	=	0.008				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.634				
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level					0.634 M ³		P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1:5:3 (1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.00	1.00	0.30	=	1.200				

S.N.	Particulars					Quantity	Unit	Rate	Amount
	Column below GL								
	4	0.20	0.20	0.85	=	0.136			
	Column above GL								
	4	0.20	0.20	0.25	=	0.040			
						1.376			
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.					1.376 M ³	P/M ³	Rs. 4,530.30	Rs. 6,233.69
	16	1.00	0.30		=	4.800			
	16	0.20	0.85		=	2.720			
	16	0.20	0.25		=	0.800			
						8.320			
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.					8.320 M ²	P/M ²	Rs. 169.00	Rs. 1,406.08
	8 mm to 16 mm for steel								
	Total Reinforcement.								
	@0.80% of Vol. Of Concrete					86.00 Kg.	P/Kg.	Rs. 56.00	Rs. 4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead					2.086 M ³	P/M ³	Rs. 74.50	Rs. 155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg					4.2624 Kg	P/kg	Rs. 73.60	Rs. 313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:								
	New steel work (two or more coats)								
	Frame work								
	0.5	14.00	3.00		=	21.000			
	0.5	3.50	3.50		=	6.125			
						27.125			
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.					27.13 M ²	M ²	Rs. 63.60	Rs. 1,725.15
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)					203 Nos.	%0 nos.	Rs. 606.10	Rs. 123.04
	(b) Coarse Sand (100 Km. lead)					0.860 M ³	P/M ³	Rs. 1,221.09	Rs. 1,050.14
	(c) Stone Chips (150 Km. lead)					1.730 M ³	P/M ³	Rs. 1,746.29	Rs. 3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)					0.720 M ³	P/M ³	Rs. 217.23	Rs. 156.41
	TOTAL								Rs. 1,28,521.72
	say								Rs. 1,28,500.00

24/1/17

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME
FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 13.256 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 150mm x100mmx125m deep T/W for rocky strata etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.2,48,003.22
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size) , necessary excavation, foundation concrete 1:2:4(1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3coarse sand) 12 mm thick with 5% cico fnished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,26,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.13,12,508.31
Add 1% Contingency		Rs.13,125.08
G. TOTAL		Rs.13,25,633.39
Say		Rs.13,25,600.00

(Rs. Thirteen Lakh Twenty five Thousand Six Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.13,25,600.00 (Rs. Thirteen Lakh Twenty five Thousand Six Hundred) only

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3.4.17

Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Sub Estimate-1
CONSTRUCTION OF 150MM X 100MM DIA & 125M DEEP TUBE WELL
(For Rocky strata including Boulders)

S.No.	Description	Qty.	Unit	Rate	Amount
1	Boring/drilling bore well of required dia for casing/strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer-in-charge, upto 90 metre depth below ground level. (Rocky strata including Boulders)				
24.1.1.2	(a) 350mm dia bore from G.L. to 30.0M	30.0 M	P/M	Rs.859.70	Rs.25,791.00
24.1.1.1	(b) 300mm dia bore from 30.0 m to 60.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
	(c) 300mm dia bore from 60M to 90.0M	30.0 M	P/M	Rs.833.10	Rs.24,993.00
24.2.1	(d) 300mm dia bore from 90.0M to 150.0M	35.0 M	P/M	Rs.881.20	Rs.30,842.00
2A	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.3.2	(a) 150 mm nominal size dia	30.0 M	P/M	Rs.615.30	Rs.18,459.00
24.3.1	(b) 100 mm nominal size dia	60.0 M	P/M	Rs.444.20	Rs.26,652.00
2B	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC (UPVC) medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge.				
24.4.1	100 mm nominal size dia	30.0 M	P/M	Rs.468.80	Rs.14,064.00
3	Supplying the following fittings & fixing the same in position as per approved lowering assembly and strata chart including providing all equipments and welding the same on process of lowering the assay etc. all complete as per S/D of E/I.				
24.13.2	(a) 150 mm dia well cap	1 No.	Each	Rs.205.10	Rs.205.10
24.14.2	(b) 150 mm dia M.S. Clamp 1.6 M long (one Pair)	1 No.	Each	Rs.1,031.10	Rs.1,031.10
	(c) 150 mm dia center guide	4 Nos.	Each	Rs.150.00	Rs.600.00
	(d) 100 mm dia center guide	6 Nos.	Each	Rs.100.00	Rs.600.00
	(e) 150 mm x 100 mm dia 6mm wall thickness MS reducer	1 No.	Each	Rs.500.00	Rs.500.00
24.15.1	(f) 100mm dia & 6mm thick M.S. well shoe plug	1 No.	Each	Rs.205.60	Rs.205.60
4a	Providing all materials, labours, & equipments for fixing tube				
24.6	well with pea gravel of Dalbhumigarh to size 4mm to 8mm approx. as suitable for strata including carriage washing, placing and packing the same in position around the tube well etc. all complete as per direction of E/I.				
4b	Carriage of Pea Gravel from Dalbhumigarh (taken av distance 400km.)	9.0 M ³	P/M ³	Rs.917.00	Rs.8,253.00
		9.0 M ³	P/M ³	Rs.4,336.54	Rs.39,028.82

S.No.	Description	Qty.	Unit	Rate	Amount
5 24.12	Development of tube well in accordance with IS : 2800 (part I) and IS: 11189, to establish maximum rate of usable water yield without sand content (beyond permissible limit), with required capacity air compressor, running the compressor for required time till well is fully developed, measuring yield of well by "V" notch method or any other approved method, measuring static level & draw down etc. by step draw down method, collecting water sample & getting tested in approved laboratory, disinfection of tubewell, all complete, including hire & labour charges of air compressor, tools & accessories etc., all as per requirement and direction of Engineer-in-charge.	24 Hrs.	Each	Rs.649.40	Rs. 15,585.60
6	Transportation of drilling plants, developing equipments & all other required tools and M/c by and suitable mechanical means including all cost of loading, unloading, placing at work site and back after completion of work as per S/D of E/I	1 No.	Each	Rs.9,200.00	Rs.9,200.00
7	Supplying all materials and labours for arrangement for additional water required during the drilling period for 70 Hrs & site clearance & leveling etc. And providing the soap duster etc. to staff engaged in drilling etc. all complete work as per specification & direction of E.I.	1 No.	Each	Rs.7,000.00	Rs.7,000.00
TOTAL					Rs.2,48,003.22

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE									
1.00 M x 1.00 M x 0.75 M deep									
S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs.230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs.204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs.253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	BWork in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering C.P. (1:3) with 5% Cico & neat cement	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs.291.00	Rs.916.65
S.O.R. No.	Internal face	2	1.00	1.00	1.00	4.00 M ²			
13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
						0.338 M ³ x 70 Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00
10	Lifting Ring of 10mm dia Rod						4 No.	Each	Rs.30.00
11	Carriage of materials 5%								Rs.120.00
								Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe 70.00 0.30 1.10 =	23.10			
	75mm dia Pipe 140.00 0.30 1.10 =	46.20			
	63mm dia Pipe 210.00 0.30 1.10 =	69.30			
	50mm dia Pipe 420.00 0.30 1.10 =	138.60			
	40mm dia Pipe 560.00 0.30 1.10 =	184.80			
		462.00 M ³			
	Add 5% extra for fittings =	23.10 M ³			
1B	Provision for PCC road cutting and its restoration	485.10 M ³	P/M ³	Rs.230.50	Rs.1,11,815.55
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	15.75 M ³	P/M ³	Rs.4,428.80	Rs.69,753.60
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	475.40 M ³	P/M ³	Rs.74.50	Rs.35,417.15
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00 M	P/M	Rs.239.81	Rs.3,357.34
	90mm dia Pipe	70.00 M	P/M	Rs.340.84	Rs.23,858.80
	75mm dia Pipe	140.00 M	P/M	Rs.239.81	Rs.33,573.40
	63mm dia Pipe	210.00 M	P/M	Rs.168.77	Rs.35,441.70
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00 M	P/M	Rs.89.99	Rs.37,795.80
	40mm dia Pipe	560.00 M	P/M	Rs.59.78	Rs.33,476.80
	50mm dia Pipe from T/well to PVC Tank	12.00 M	P/M	Rs.89.99	Rs.1,079.88
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2 Nos.	Each	Rs.2,016.50	Rs.4,033.00
	75mm dia Pipe	3 Nos.	Each	Rs.1,351.60	Rs.4,054.80
	63mm dia Pipe	2 Nos.	Each	Rs.1,351.60	Rs.2,703.20
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70

S.N.	Particulars	Quantity	Unit	Rate	Amount
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.				
	Work for additional depth	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
					0.298
	Plaster (1:3)	3.273	CuM CuM	Rs.4,724.40	Rs.15,460.60
	8 1.10 0.35 3.08	33.88	SqM SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.				
		5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
				TOTAL	Rs.5,26,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00
	(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos				
	(ii) 1x3x2.5 mm ² flat copper conductor submersible cable -40 (forty) mtrs.				
	(iii) 50 mm dia union socket- 1(one) no.				
	(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.				
	(v) 50 mm dia G.I Elbow—1(One) no.				
	(vi) 50 mm dia M.S. clamps—2(Two) Pairs.				
	(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.				
	(viii) Tube well cap for T/Well - 1(one) no.				

	(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter control pannel operated on 220 V, 3 phase , 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make - 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.					Rs.93,603.00

Sub Est. No. 5

Estimate for the work - House service connection

SUB-ESTIMATE

S.No.	Description	Qty	Unit	Rate	Amount
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% &CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.				
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.119.82
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall!				
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil				
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:				
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00
5	Providing and fixing brass bib cock of approved quality :				
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00
	Total				Rs.1,513.41
	Say				Rs.1,513.00
Total Nos. of House Holds=		200 Nos.	@	Rs.1,513.00	Rs.3,02,600.00

Sub Est. No. 6

3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK

S.N.	Particulars	Quantity	Unit	Rate	Amount
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.				
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.				
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and ramming of bottoms, lift upto 1.5 m including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.	1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00
	All Kinds of soil				
	base of footing				
	4 1.20 1.20 1.425 =				8.208
	For fixing Ladder				
	1 1.00 0.50 0.275 =				0.138
					8.346
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.	8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64
	base of footing				
	4 1.20 1.20 0.10 =				0.576
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.626
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.	0.626 M ³	P/M ³	Rs.204.40	Rs.127.95
	base of footing				
	4 1.20 1.20 =				5.760
	Landing Platform				
	1 1.00 0.50 =				0.500
					6.260
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.	6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.20 1.20 0.100 =				0.576
	For Grouting at base plate				
	4 0.20 0.20 0.050 =				0.008
	Landing Platform				
	1 1.00 0.50 0.10 =				0.050
					0.634
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level	0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61
	1:1.5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)				
	base of footing				
	4 1.00 1.00 0.30 =				1.200

S.N.	Particulars						Quantity	Unit	Rate	Amount	
	Column below GL										
	4	0.20	0.20	0.85	=	0.136					
	Column above GL										
	4	0.20	0.20	0.25	=	0.040					
						1.376					
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.						1.376 M ³	P/M ³	Rs. 4,530.30	Rs. 6,230.30	
	16	1.00	0.30		=	4.800					
	16	0.20	0.85		=	2.720					
	16	0.20	0.25		=	0.800					
						8.320					
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.						8.320 M ²	P/M ²	Rs. 169.00	Rs. 1,406.00	
	8 mm to 16 mm for steel										
	Total Reinforcement.										
	@0.80% of Vol. Of Concrete						86.00 Kg.	P/Kg.	Rs. 56.00	Rs. 4,816.00	
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead						2.086 M ³	P/M ³	Rs. 74.50	Rs. 155.40	
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg						4.2624 Kg	P/kg	Rs. 73.60	Rs. 313.71	
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:										
	New steel work (two or more coats)										
	Frame work										
	0.5	14.00	3.00		=	21.000					
	0.5	3.50	3.50		=	6.125					
						27.125					
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.						27.13 M ²	M ²	Rs. 63.60	Rs. 1,725.15	
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)						203 Nos.	%0 nos.	Rs. 606.10	Rs. 123.04	
	(b) Coarse Sand (100 Km. lead)						0.860 M ³	P/M ³	Rs. 1,221.09	Rs. 1,050.14	
	(c) Stone Chips (150 Km. lead)						1.730 M ³	P/M ³	Rs. 1,746.29	Rs. 3,021.08	
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lead)						0.720 M ³	P/M ³	Rs. 217.23	Rs. 156.41	
	TOTAL									Rs. 1,28,521.72	
	say									Rs. 1,28,500.00	

12/11/17

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GOVERNMENT OF BIHAR

PUBLIC HEALTH ENGINEERING DEPARTMENT

MODEL ESTIMATE

FOR

CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME
FOR A WARD HAVING 200 HOUSE HOLDS

ESTIMATED COST-- Rs. 11.713 Lac

2017-18

GOVERNMENT OF BIHAR
Public Health Engineering Department

ABSTRACT OF COST

NAME OF WORK:- CONSTRUCTION OF RURAL PIPED WATER SUPPLY SCHEME FOR WARD HAVING 200 HOUSE HOLDS

S.N.	Description	Total Amount
1	Construction of 200/165 mm dia. 90 Mtr deep Drilled High Yield Tubewell By DTH RIG Machine with Blue casing U.P.V.C. Pipe etc. all complete and as per direction of E/I. (As per sub Estimate no.- 1)	Rs.95,242.91
2	Constructing masonry Chamber 100x100x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for Tube Well, and RCC top slab 1:1.5:3 mix (1 cement : 1.5 coarse sand : 3 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:2:4 (1 cement : 2 fine sand : 4 graded stone aggregate 20 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick with 5% cico finished with a floating coat of neat cement, out side plastering with cement mortar 1:4 (1 cement : 4 coarse sand) 12 mm thick complete as per standard specifications & direction of E/I. (As per sub Estimate no.- 2)	Rs.13,210.00
3	Providing and Laying Distribution network of High Density Polyethylene pipe (HDPE pipe) including 5000 liter PVC tank installed at 3M high MS staging etc all complete as per direction of E/I. (As per sub Estimate no.- 3)	Rs.5,26,592.09
4	Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I. (As per sub Estimate no.- 4)	Rs.93,603.00
5	Providing house connection for each house hold including supplying all materials, labours, tools and making ferrule connection with 20 mm dia MDPE and 15mm CPVC Pipes with all fittings etc all complete. (As per sub Estimate no.- 5)	Rs.3,02,600.00
6	Providing and erecting 3 M high staging of suitably designed MS section of angle, channel etc. as per drawing attached. (As per sub Estimate no.- 6)	Rs.1,28,500.00
TOTAL		Rs.11,59,748.00
Add 1% Contingency		Rs.11,597.48
G. TOTAL		Rs.11,71,345.48
Say		Rs.11,71,300.00

(Rs. Eleven Lakh Seventy one Thousand Three Hundred) only

Note:

- This model estimate has been prepared in the light of Guidelines of PRD, Bihar memo no. 6278 dt.23.09.2016. This estimate may not ensure standard pressure in the distribution network. Hence on the spot change in staging of storage tank may be required.
- Water quality testing of source should be done after construction of Tube well.
- Road cutting cost may increase or decrease as per local condition.

Technical approval accorded for Rs.11,71,300.00 (Rs. Eleven Lakh Seventy one Thousand Three Hundred) only

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Chief Engineer (Design)
Public Health Engineering Department
Bihar, Patna

Estimate no.- 1

MODEL ESTIMATE OF CONSTRUCTION OF 200/165 MM DIA. 90 MTR DEEP DRILLED HIGH YIELD TUBEWELL BY DTH RIG MACHINE WITH BLUE CASING U.P.V.C. PIPE

S. NO.	Particulars	Quantity	unit	Rate	Amount
1	Drilling of 200mm x 165mm x 125 meter deep borewell in all kinds of soil and rock in rural area for installation of pump set with Hydraulic DTH Rig machine, all complete including supplying all materials, tools, drilling rig, Air Compressor and equipments, as well as fuel, lubricants and cost of transportation of Rig machine and other vehicles up to the site etc all complete as per specification and direction of E/I.				
	(i) Up to 50 mtrs depth below GL	50	P/M	Rs.729.52	Rs.36,476.00
	(ii) Beyond 50 mtrs. Up to 90 Mtrs.	40	P/M	Rs.867.88	Rs.34,715.20
2	Supplying, assembling, lowering and fixing in vertical position in bore well, unplasticized PVC (UPVC) medium well casing (CM) pipe of required dia, conforming to IS: 12818, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer -in-charge. (200mm dia)	24	P/M	Rs.921.70	Rs.22,120.80
3	Supplying labour, cement and calcium chloride or betonites solution and equipments for grouting to casing pipe as per specification and direction of E/I.	1	Each	Rs.51.01	Rs.51.01
4	Supplying all tools labors and equipments and doing washing flushing & developing of drilled tube well to give clean and clear water (min. 2.50 Hours)all complete as per direction of E/I.	2.5	P/Hr	Rs.649.40	Rs.1,623.50
5	Supplying labors and equipments including 200 mm dia M.S. Cap & Fitting & Fixing over the tube well properly and taking out as per direction of E/I.	1	Each	Rs.256.40	Rs.256.40
TOTAL					Rs.95,242.91

(Sub Estimate - 2)

Analysis of Chamber for TW

Supplying materials, labours and constructing chamber of following dimension having 250mm thick wall in C.M. (1:4) including 12mm C.P. (1:3) with punning inside, R.C.C. cover slab with C.I. Surface box, 20mm dia foot rest at 150mm interval 10mm dia lifting ring etc. all complete.

SIZE									
1.00 M x 1.00 M x 0.75 M deep									
S.O.R. No.	Particulars	No.	L	W	H	Qty.	Unit	Rate	Amount
1	Earth work in excavation	1	1.75	1.75	1.0	3.063 M ³	P/M ³	Rs 230.50	Rs.705.91
S.O.R. No. 2.8									
2	Sand filling	1	1.75	1.75	0.075	0.230 M ³	P/M ³	Rs 204.40	Rs.46.95
S.O.R. No. 2.28									
3	Brick flat soling	1	1.75	1.75		3.063 M ²	P/M ²	Rs 253.80	Rs.777.26
S.O.R. 11.72									
4	P.C.C. (1:2:4) in foundation	1	1.75	1.75	0.10	0.306 M ³			
S.O.O. 4.1.3									
5	B/Work in (1:4) C.M.	2	2.50	0.25	0.75	0.306 M ³	P/M ³	Rs.3,850.50	Rs.1,179.22
S.O.R. No. 6.1.12/1						0.938 M ³	P/M ³	Rs.4,724.40	Rs.4,429.13
6	R.C.C. Cover slab(1:1.5:3)	1	1.50	1.50	0.15	0.338 M ³	P/M ³	Rs.5,139.70	Rs.1,734.65
S.O.R. No. 5.2.2 & 5.9.3									
7	shuttering	2	1.50	1.50	0.15	3.15 M ²	P/M ²	Rs 291.00	Rs.916.65
	C.P. (1:3) with 5% Cico & neat cement								
S.O.R. Internal face		2	1.00	1.00	1.00	4.00 M ²			
No. 13.17.1	Bed surface	1	1.00	1.00		1.00 M ²			
+13.36.1						5.00 M ²	P/M ²	Rs.166.30	Rs.831.50
8	C.P. (1:4) out side of wall	2	1.50	1.50	0.75	4.5 M ²	P/M ²	Rs.114.70	Rs.516.15
S.O.R. No. 13.11.2									
9	8mm dia T.S. Rod								
S.O.R. No. 5.22.7A									
			0.338 M ³ x	70	Kg/M ³	23.625 Kg.	P/Kg	Rs.56.00	Rs.1,323.00
10	Lifting Ring of 10mm dia Rod					4 No.	Each	Rs.30.00	Rs.120.00
11	Carriage of materials 5%							Total	Rs.12,580.41
									Rs.629.02
									Rs.13,209.43
								Say	Rs.13,210.00

Sub Est. No. 3

WATER SUPPLY DISTRIBUTION SYSTEM

S.N.	Particulars	Quantity	Unit	Rate	Amount
1A	Earthwork in excavation over areas (exceeding 30 cm in depth 1.5 in width as well as 10 sqm on plan) including disposal of excavated earth lead upto 50m and lift upto 1.5m, disposal earth to be levelled and neatly dressed.				
	90mm dia Pipe	70.00	0.30	1.10 =	23.10
	75mm dia Pipe	140.00	0.30	1.10 =	46.20
	63mm dia Pipe	210.00	0.30	1.10 =	69.30
	50mm dia Pipe	420.00	0.30	1.10 =	138.60
	40mm dia Pipe	560.00	0.30	1.10 =	184.80
		462.00	M ³		
	Add 5% extra for fittings =	23.10	M ³		
1B	Provision for PCC road cutting and its restoration	485.10	M ³	P/M ³	Rs.230.50
2	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	15.75	M ³	P/M ³	Rs.4,428.80
					Rs.1,11,815.55
3	Providing and laying High Density Polyethylene pipe (HDPE pipe) of 20 mm to 225 mm OD and pressure 6.0 Kg/cm ² and 10 Kg/cm ² suitable for water supply which is available in all standard, like ISI-4984/1995 and various grades like PE-80, PE-100 including required specials. Rates are inclusive of , all taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete as per direction of Engineer-in-charge.	475.40	M ³	P/M ³	Rs.74.50
					Rs.35,417.15
3A	HDPE pipe of materials grade PE100- PN10 (dia in mm)				
	75mm dia Pipe from PVC Tank to Distribution main	14.00	M	P/M	Rs.239.81
	90mm dia Pipe	70.00	M	P/M	Rs.340.84
	75mm dia Pipe	140.00	M	P/M	Rs.239.81
	63mm dia Pipe	210.00	M	P/M	Rs.168.77
3B	HDPE pipe of materials grade PE100- PN8 (dia in mm)				
	50mm dia Pipe	420.00	M	P/M	Rs.89.99
	40mm dia Pipe	560.00	M	P/M	Rs.59.78
	50mm dia Pipe from T/well to PVC Tank	12.00	M	P/M	Rs.89.99
4	Providing and fixing brass gate valve with C.I. wheel of approved quality (screwed end).				
	90mm dia Pipe	2	Nos.	Each	Rs.2,016.50
	75mm dia Pipe	3	Nos.	Each	Rs.1,351.60
	63mm dia Pipe	2	Nos.	Each	Rs.1,351.60
					Rs.4,033.00
					Rs.4,054.80
					Rs.2,703.20

S.N.	Particulars	Quantity	Unit	Rate	Amount
	50mm dia Pipe	3 Nos.	Each	Rs.811.40	Rs.2,434.20
	40mm dia Pipe	3 Nos.	Each	Rs.613.90	Rs.1,841.70
5 18.33	Constructing masonry Chamber 60x60x75 cm inside, in brick work in cement mortar 1:4 (1 cement : 4 coarse sand) for sluice valve, with C.I. surface box 100mm top diameter, 160 mm bottom diameter and 180 mm deep (inside) with chained lid and RCC top slab 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20mm nominal size), necessary excavation, foundation concrete 1:5:10 (1 cement : 5 fine sand : 10 graded stone aggregate 40 mm nominal size) and inside plastering with cement mortar 1:3 (1 cement : 3 coarse sand) 12 mm thick, finished with a floating coat of neat cement complete as per standard specifications & direction of E/I.	11 Nos.	Each	Rs.5,807.50	Rs.63,882.50
	Work for additional depth				
	Brick work (1:4) in foundation				
	2 1.10 0.25 0.35 0.193				
	2 0.60 0.25 0.35 0.105				
				0.298	
	Plaster (1:3)	3.273 CuM	CuM	Rs.4,724.40	Rs.15,460.60
	8 1.10 0.35 3.08	33.88 SqM	SqM	Rs.128.20	Rs.4,343.42
6	Carriage 10% of item 5				Rs.8,368.65
7 18.48	Providing and placing on terrace (at all floor levels) polyethylene water storage tank, ISI : 12701 marked, with cover and suitable locking arrangement and making necessary holes for inlet, outlet and overflow pipes but without fittings and the base support for tank.	5000 Ltrs.	P/Ltr.	Rs.6.60	Rs.33,000.00
8	Providing and fixing PTMT extension nipple for water tank pipe, fittings of approved quality and colour.				
	50mm dia	2 Nos.	each	Rs.250.00	Rs.500.00
	75mm dia	1 No.	each	Rs.400.00	Rs.400.00
	TOTAL				Rs.5,26,592.09

Sub Est. No. 4

Model estimate for supply, installation & commissioning of single phase 3 H.P. submersible motor pump set with all accessories including extension of L.T. line from nearest source up-to pumping station.

Sl. No.	Particulars	Quantity	Unit	Rate	Amount
1	2	3	4	5	6
[A.]	<p>Supply Installation, commissioning and testing of single phase 3 H.P. submersible pump set having discharging capacity 3.35 lps at a total head of 35 meter(approx) of KSB/ Kirloskar or equivalent make with all accessories & fittings etc including loading unloading and transportation of the pump set to the work site with all required labour, materials, tools and tackles installation, testing & commissioning as per standards specifications and direction of E/I.</p> <p>(i) 50 mm dia x 3 mtrs long medium class G.I column pipe both end thread and one end socketed- 6(six)nos</p> <p>(ii) 1x3x2.5 mm² flat copper conductor submersible cable -40 (forty) mtrs.</p> <p>(iii) 50 mm dia union socket- 1(one) no.</p> <p>(iv) 65 mm dia x 250 mm long G.I. nipple- 1 (one) no.</p> <p>(v) 50 mm dia G.I Elbow—1(One) no.</p> <p>(vi) 50 mm dia M.S. clamps—2(Two) Pairs.</p> <p>(vii) 50 mmx 250 mm long G.I nipple- 1(One) no.</p> <p>(viii) Tube well cap for T/Well – 1(one) no.</p>	1 (one) job	p/job	Rs.42,700.00	Rs.42,700.00

	(ix) 50 mm dia x 65 mm dia reducer socket -1(one) no.				
[B]	Supply Installation, commissioning and testing of floor mounted outdoor type L.T feeder pillar single phase starter controll pannel operated on 220 V, 3 phase, 50 c/s for 3 HP Submersible pump set made of MS sheet (minimum 2 mm thick) duly spray power coated painting with following accessories made of M.S sheet (minimum 2mm thick) duly spray powder coated painting with following accessories (i) 90-220 V range single phase 7.5 KVA automatic voltage stabilizer make- Sen & Pandit/ Vertex/ISI marked If any. 1 No. (ii) Suitable single phase starter control panel for above motor of BCH /L&T make - 1(one) no.	1 (one) job	p/job	Rs.45,500.00	Rs.45,500.00
[C]	Supplying & fitting 2.5 mm ² copper service cable from power point from nearest source up-to pumping station..	20 mtrs	P/Mt	Rs.130.00	Rs.2,600.00
[D]	Providing all materials and labour required for doing earthing station with G.I earth pipe of 40 mm dia x 4.5 mtrs 20fts. long G.I pipe including accessories excavation of earth , providing masonry enclosure with cover plate having locking arrangement and watering pipe etc.with salt, charcoal,etc.as per IE & IS specification.	1 job	p/job	Rs.2,803.00	Rs.2,803.00
Total Rs.				Rs.93,603.00	

Sub Est. No. 5

Estimate for the work - House service connection

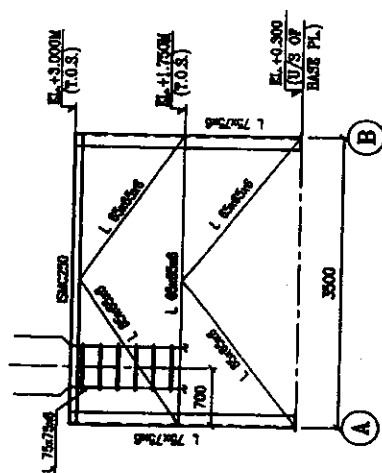
SUB-ESTIMATE						
S.No.	Description	Qty	Unit	Rate	Amount	
1A	Providing and fixing MDPE (PE 80 GradeCompound) pipes PN-12.5 (12.5kg/Sqcm) as per ISO 4427 and specification for waterapplication rates are inclusive of , taxes and duties (Exise duty @12.50% & CST @2% against Form 'C'), labour cess, contractor profit and overhead charges all complete asper direction of Engineer-in-charge.complete.					
	MDPE Pipe 20mm dia nominal bore	6.00	PM	Rs.19.97	Rs.1 19.82	
1B	Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings, including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer in Charge. Internal work - Exposed on wall					
18.7.1	15 mm nominal bore	1.0	PM	Rs.138.70	Rs.138.70	
2	Earth work in excavation in foundation trenches or drains(not exceeding 1.5 m in width or 10 sqm on plan) including dressing of sides and amming of bottoms, lift upto 1.5 m . including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All kinds of soil					
2.8.1	6.00 0.30 0.60 1.08	1.08	CuM	Rs.230.50	Rs.248.94	
3 2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead	1.06	CuM	Rs.74.50	Rs.78.85	
4	Providing and fixing brass ferrule with CI mouth cover incuding boring and tapping the main:					
18.20.1	15mm nominal bore	1	Each	Rs.254.10	Rs.254.10	
	Providing and fixing P.P. Black service Saddle (Brass threaded)	1	Each	Rs.400.00	Rs.400.00	
5	Providing and fixing brass bib cock of approved quality :					
18.15.1	15mm nominal bore	1	Each	Rs.273.00	Rs.273.00	
	Total				Rs.1,513.41	
	Say				Rs.1,513.00	
Total Nos. of House Holds=		200 Nos. @		Rs.1,513.00	Rs.3,02,600.00	

Sub Est. No. 6										
3 M HIGH STEEL STRUCTURE STAGING FOR 5000 LITER PVC TANK										
S.N.	Particulars					Quantity	Unit	Rate	Amount	
1 10.3	Structural steel work riveted or bolted in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved primer all complete.									
	8M high staging with GI enclosure to house electric switch panel of suitably designed MS section of angle, channel, etc. as per drawing attached.									
2 2.8.1	Earth work in excavation in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan) including re-sing of sides and ramming of bottoms, lift upto 1.5 m. including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m. All Kinds of soil					1490 Kg	P/Kg	Rs.69.20	Rs.1,03,108.00	
	base of footing									
	4	1.20	1.20	1.425	=	8.208				
	For fixing Ladder									
	1	1.00	0.50	0.275	=	0.138				
						8.346				
3- 2.28	Supplying and filling in plinth with local sand and under floors including watering, ramming consolidating and dressing complete.					8.346 M ³	P/M ³	Rs.230.50	Rs.1,923.64	
	base of footing									
	4	1.20	1.20	0.10	=	0.576				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.626				
4- 11.72	Providing designation of 100A Brick flat Soling joints filled with local sand including cost of watering, taxes & royalty all complete as per specification & direction of E/I.					0.626 M ³	P/M ³	Rs.204.40	Rs.127.95	
	base of footing									
	4	1.20	1.20		=	5.760				
	Landing Platform									
	1	1.00	0.50		=	0.500				
						6.260				
5 4.1.2	Providing and laying in position cement concrete of specified grade excluding the cost of centring and shuttering-all work upto plinth level.					6.260 M ²	P/M ²	Rs.253.80	Rs.1,588.79	
	1:1.5:3(1 Cement :1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.20	1.20	0.100	=	0.576				
	For Grouting at base plate									
	4	0.20	0.20	0.050	=	0.008				
	Landing Platform									
	1	1.00	0.50	0.10	=	0.050				
						0.634				
6 5.1.2	Providing and laying in position specified grade of reinforced cement concrete excluding the cost of centring, shuttering, finishing and reinforcement-All work upto plinth level					0.634 M ³	P/M ³	Rs.4,373.20	Rs.2,772.61	
	1:1:5:3(1 cement: 1.5 coarse sand:3 graded stone aggregate 20 mm nominal size)									
	base of footing									
	4	1.00	1.00	0.30	=	1.200				

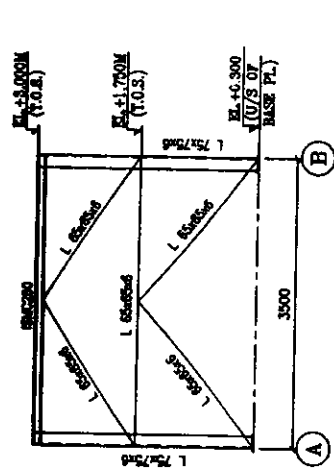
S.N.	Particulars					Quantity	Unit	Rate	Amount
	Column below GL								
	4	0.20	0.20	0.85	=	0.136			
	Column above GL								
	4	0.20	0.20	0.25	=	0.040			
						1.376	M ³	P/M ³	Rs 4,530.30
7-5.9.1	Centring and shuttering including strutting, propping etc. and removal of form for.								Rs 6,233.69
	16	1.00	0.30		=	4.800			
	16	0.20	0.85		=	2.720			
	16	0.20	0.25		=	0.800			
						8.320	M ²	P/M ²	Rs 159.00
8-5.22	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.								Rs 1,406.08
	8 mm to 16 mm tor steel								
	Total Reinforcement.								
	@0.80% of Vol. Of Concrete					86.00 Kg.	P/Kg.	Rs 56.00	Rs 4,816.00
9-2.26	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20 cm in depth: consolidating each deposited layer by ramming and watering lead					2.086 M ³	P/M ³	Rs 74.50	Rs 155.43
10-10.19	Providing and fixing anchor bolt of 12 mm dia and 0.60 Mtr length embedded in R.C.C pedestal all complete as per direction of Engineer in charge. @4x2x0.5328kg					4.2624 Kg	P/kg	Rs 73.60	Rs 313.71
11-13.82.1	Painting with ready mixed paint of approved brand and manufacture in all shades to give an even shade:								
	New steel work (two or more coats)								
	Frame work								
	0.5	14.00	3.00		=	21.000			
	0.5	3.50	3.50		=	6.125			
						27.125	M ²	M ²	Rs 63.60
12	Carriage of the following materials from quarry to work site including loading, unloading and staking at work site as per specification & direction of E/I.								Rs 1,725.15
	(a) Bricks (7 Km. Pucca & 1 Km. Kachha lead)					203 Nos.	%0 nos.	Rs 606.10	Rs 123.04
	(b) Coarse Sand (100 Km. lead)					0.860 M ³	P/M ³	Rs 1,221.09	Rs 1,050.14
	(c) Stone Chips (150 Km. lead)					1.730 M ³	P/M ³	Rs 1,746.29	Rs 3,021.08
	(d) Local Sand (2 Km. Pucca & 1 Km. Kachha lea					0.720 M ³	P/M ³	Rs 217.23	Rs 156.41
								TOTAL	Rs 1,28,521.72
								say	Rs 1,28,500.00

3/12/17

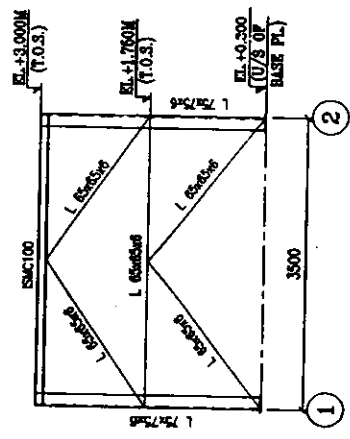
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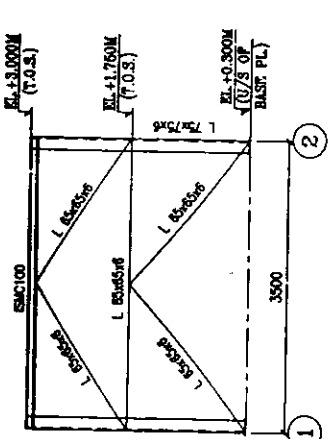
ELEVATION ON AXIS 1



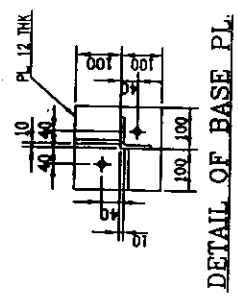
ELEVATION ON AXIS 2



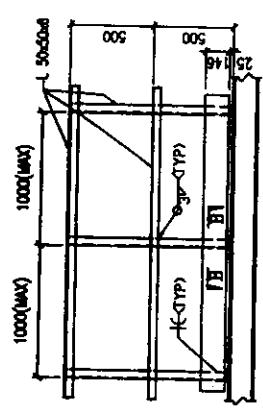
ELEVATION ON ROW A



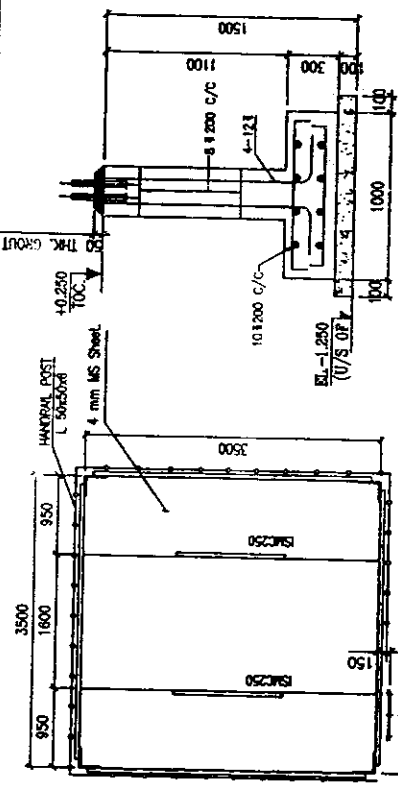
ELEVATION ON ROW B



DETAIL OF BASE PL.

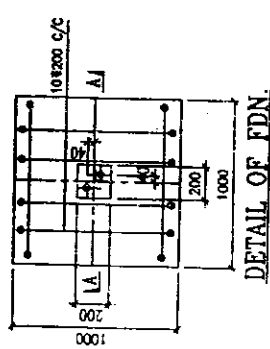


HANDRAIL

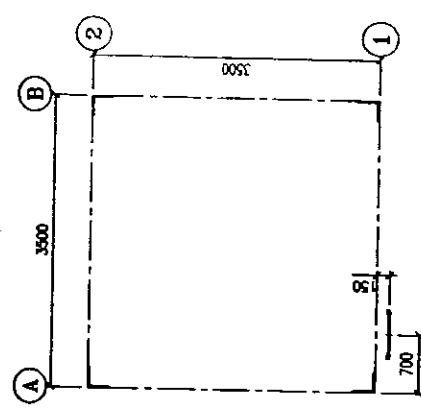


SECTION A-A

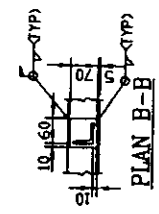
PLAN AT LEVEL EL.+3.000m (T.O.S.)



DETAIL OF EDN



PLAN AT EL.+0.300M (U/S OF BASE PL.)



PLAN B-B

Signature
 20/11/2017
 Chief Engineer (Design)

Public Health Engineering Department
 Bihar, Patna

