

Abstract of Estimate for Proposed components for strengthening and extension of water supply distribution network of Naigarhi town under Amrut 2.0		
S. No.	Particular	Cost (In Lacs)
	INTAKE WELL AND RAW WATER PUMPS	
1.0	Construction of Intake Well and Raw water pump house odda Nallah in Naigarhi for design capacity of 1.60 MLD alongwith Providing and installation of pump sets for pumping of 1.30 MLD raw water for Stage-I. Here a circular intake well is considered with diameter 5.00 meters and height 16 meters including pumphouse of 5.00 m height is considered having average wall thickness 350 mm.	110.61
	RAW WATER PUMPING MAIN	
2.0	Providing and Laying of Raw water pumping Main of 150 mm DI-K-9 having length of 6157 meter from proposed Intake well at Odda Nallah to proposed water treatment plant in Naigarhi town.	104.24
	WATER TREATMENT PLANT	
3.0	Partial construction of WTP of capacity 1.60 MLD (50% cost)	46.07
	FEEDER NETWORK	
4.0	Providing, Laying and Jointing of 150 mm diameter DI K-7 Class pipe for strengthening and extension of water supply Feeder network having total length of 7513 m of Naigarhi water supply arrangement.	148.92
	OVER HEAD SERVICE RESERVOIR	
5.0	Construction of 1 No. RCC overhead Service Reservoir having capacity of 1 no.100 KL, 18.00 m for effective distribution of water in Nagar Parishad, Naigarhi.	18.56
	DISTRIBUTION NETWORK	
3.0	Providing, Laying and Jointing of 110 mm to 225 HDPE PN-6 class distribution network pipe line having total length of 54956 meter for strengthening and extension of water supply system of Naigarhi town.	383.57
	PLC SCADA	
6.0	Supply and Installation of PLC SCADA	24.00
	HOUSE SERVICE CONNECTION	
7.0	Providing / Shifting House service connections for 500 Nos. of Domestic Water Connection	15.00
	HT FEEDER	
8.0	HT feeder and Electric sub station at Intake well and WTP.	24.15
	Transformer	
9.0	100KVA	14.95
Total cost for Proposed Components for Extension and Strengthening of Distribution Network of Naigarhi		890.08
Total cost for Proposed Components for Extension and strengthening of Distribution Network of Naigarhi inclusive of Goods and Services Tax @18% (GST)		1050.29
TOTAL COST OF PROJECT		1050.29
Note:		
1.0 All costs are inclusive of Good & Service Tax (GST @18%).		
2.0 Road cutting/dismantling has been considered as per actual survey carried out during the month of march 2022.		
3.0 Estimate has been prepared on UADD SOR 2021.		


1.1 Construction of Intake Well and Raw water pumphouse on odda Nallah for design capacity of 1.60 MLD alongwith Providing and installation of pump sets for pumping of 1.30 MLD raw water for Stage-I. Here a circular intake well is considered with diameter 5.00 meters and height 17 meters including pumphouse of 6.00 m height is considered having average wall thickness 350 mm.						
PHASE 1 - Intake at odda Nallah						
S.No.	Remarks	Description	Qty.	Unit	Rate	Amount (In Lacs)
1.0		Civil work for Intake & raw water pump house				
(i)	Item no. 15.26.5(a) VOL (i)	Providing constructing coffer dam in river basin/dam storages as per type design including excavation, filling the middle portion with B.C. soil (in gunny bags if required). Providing impervious/ semlpervious materials on both side of B.C. soil (in gunny bags if required) including ramming, compacting to the satisfaction of Engineer-in-charge, till the completion of works including dismantling coffer dam after completion of works including disposing off the material as directed by the Engineer-in-charge.	600.00	Cum	719.00	4.31
(ii)	Item no.18.14.4 VOL (i)	Plain cement concrete Mix M-15 (1 cement : 2 sand : 4 aggregate) below the pipe line having metal of maximum size 12mm 200mm thick in foundation	13.61	Cum	4755.00	0.65
		2.5*2.5*0.2*10 (column footing of approach bridge)				
		3.14*3.00*2*0.15 (Intake Pcc)				
(iv)	Item No.18.18.2 VOL (i)	Reinforced cement concrete work with mix M-25 (1 cement :1 sand:2 aggregate) including the cost of centering & shuttering and the cost of steel reinforcement but including vibration, finishing, curing and cleaning having maximum size of metal as 20 mm for walls of Intake well & approach bridge of 60m.	799.71	Cum	5980.00	47.82
		M 25				
		Wall thickness 400 mm upto 0-5 m (3.14x6.4x5x0.4)				
		Wall thickness 350 mm upto 5-10 m (3.14x6.35x5x0.35)				
		Wall thickness 300 mm above 10 m (3.14x6.3x10x0.30)				
		Top and Bottom Slab (3.14x0.30x3*2x2)				
		Bridge (50m)				
		Deck Slab (50m) (50x0.30x2.5)				
		Columns (10 Nos.) (10x3.14x0.30x3x21)				
		Beam (0.30x0.30x50x14)				
		Footing (10nos.) Footing-(2.5x2.5x10x0.50)				
		Intake well Raft Foundation (1.5*3.14*10*10)				
(v)	Item no. 18.34 VOL (i)	Reinforcement for R.C.C. work including straighting, cutting, bending, placing in position and binding it all complete with HYSD bars @80kg/cum of concrete.	63976.58	Kg	66.00	42.22
(vi)	Non-SOR	Supplying and installation of 2 Nos. Deep Well vertical Turbine pumps for pumping of raw water from Proposed Intakewell on Tamas River with 1working and 1 stand-by having total discharge capacity of 0.019 m ³ /sec, head of 50 m having100% stand by with all necessary electrical and mechanical accessories rating 15KW each as per Phase-I requirement. Job includes providing and installing all necessary electrical mechanical accessories of pumping unit complete in all respect.	30.00	KW	22000	6.60
(vii)	Item no. 21.16.5 VOL (i)	Pumping out water caused by springs, tides or river seepage, broken water mains or drains or well or the like dewatering of Intake well having 6m diameter.	1	nos.	300000.00	3.00
	Item no. 21.16.6 VOL (i)	Approach bridge having length of 50m	50	RM	2000	1.00
(viii)	Lumpsum	Providing, EOT Crane, Gantry, Ports etc.				5.00
Total cost for construction of Intake Well at Odda nallah along with provision for Raw Water Pumps and Motor Sets.						110.61

Detailed estimate for construction of treatment plant of 1.60 MLD capacity along with Clear water Pumps for 1.60MLD and all necessary electrical and mechanical equipment for clear water pump house as required for next 15 years.						
S.No.	ITEM	Description	Qty.	Rate	Unit	Amount (In Lacs)
1.0	Lumsum	Supplying and installation of Centrifugal pumps for pumping of clear water from treatment plant to OHTs in Churhat having required discharge 15 LPS and 55.00 M pumping head having 100% stand by with all necessary electrical and mechanical accessories. Job includes providing and installing all necessary electrical mechanical accessories of pumping unit complete in all respect.	Each	148350.00	KW	2.97
		a) 2 nos. 15 kw (One working and One Stand By)				
3.0	UADD SOR 2021 Vol (i) 22.1	Designing (structurally, hydraulically & aesthetically), providing, Constructing and commissioning Water Treatment Plant of 1.60 MLD Production capacity in 22 hour operation with aeration, chemical storage, chemical mixing arrangement, coagulation, sedimentation, rapid gravity filtration, back wash water storage tank, disinfection with chlorination, treated water storage for 60 minutes capacity, wash water recovery plant including sludge drawing bed, clear water pump house, water analysis laboratory, administrative block, security cabin, landscaping, lighting, compound wall (100 m x 100 m, hight 2 m) including cost of process design, cost of all civil, mechanical, electrical and instrumentation works, equipment, construction, installation as per Specifications etc. all complete	1.35	86.2	MLD	43.10
Total Cost for Construction of Water Treatment Plant along with sump well and pump house						₹ 46.07
Total cost of Goods and Services Tax (GST) @18%						₹ 8.29
Total Cost for Construction of Water Treatment Plant along with sump well and pump house inclusive of Goods and Services Tax (GST) @12%						₹ 54.36

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1.3 Estimate for Providing, Laying and Jointing of 110 mm to 355 mm diameter HDPE PN-6 pipe for strengthening of water supply distribution network of Naigarhi.						
S. No.	MF UADD SOR(2021) ITEM	Particulars	Qty	Unit	Rate on SOR (2021)	Amount (In Lacs)
1	Vol. (i) 7.1	Providing, Laying, Jointing & field testing of High Density Polyethylene pipes, (HDPE) conforming to IS 4984/ 14151/ 12786/ 13488 with necessary jointing material like mechanical connector of jointing pipes by heating to the ends of pipes with the help of Teflon coated electric mirror/ heater to the required temperature and then pressing the ends together against each other, to form a monolithic & leak proof joint by thermosetting process. It may be required to be done with Jack/Hydraulic Jacks/ Butt fusion machine. (50 mm & above fusion jointed & below 50mm mechanical jointed) for Distribution Network				
		110 mm dia	42839.00	Rm	354.00	151.65
		125 mm dia	140.00	Rm	460.00	0.64
		140 mm dia	16.00	Rm	572.00	0.09
		160 mm dia	473.00	Rm	743.00	3.51
		200 mm Dia.	498.00	Rm	1151.00	5.73
		225 mm Dia.	2602.00	Rm	1457.00	37.91
		Total Distribution Network pipe line length	46568.00			199.54
		Total Pipe line length	54956.00			4.99
2.0	Lump Sum	Add 2.5 % for specials i.e. Electro Fusion Coupler, Equal Tee, Reducer and Elbow 90 Deg etc.				
3.0	Vol (i) 14.2	Providing & fixing of Cast iron double flanged sluice valves as per I.S.:14846-2000 fitted with cast iron cap including jointing & testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete (PN 1.0)	30	Nos	4153.00	1.25
	14.2.4	100 mm dia	2	Nos	6747.00	0.13
	14.2.6	150 mm dia	3	Nos	11243.00	0.34
	14.2.7	200 mm dia				
		Total	35.00			
3.0	Vol (i) 17.21	Road Gully Chambers :- Construction of Brick masonry road gully chambers with brick work in cement mortar 1:5 (1 cement: 5 course sand) and 12mm plaster 1:3 including foundation in cement concrete grade M-5 (Nominal Mix) with stone aggregate 40mm nominal size including precast reinforced cement concrete top cover and frame.				
	17.21.3	Chamber 110 x 50 x 77.5cm with 500x450 mm horizontal and 450x100 mm vertical gratings both.	55	Each	7414.00	4.08
2.0	vol (i) 18.2.1	Earth work in Excavation for pipe trench in all kind of soil in areas including dressing, watering and ramming and disposal of excavated earth lead upto 50 meters and lift upto 1 meters, disposal earth to be levelled neatly and dressed.	31737.09			
		Total Quantity of Excavation	31737.09	Cum	151.00	47.92
5.0	vol (i) 18.3.3	Filling with moorum for pipe bedding or over the pipe including supply of murrom, L x B x 0.100 Cum (40% of total length)	1209.03	Cum	720.00	8.71
6.0	Vol. (i)	Dismantling of flexible pavements and disposal of dismantled materials upto a lead of 1000 m, stacking serviceable and unserviceable material separately and as per relevant clause of section 200 (10% of the Total Length) (Taking Bituminous Road Thickness as 10 cms and Granular coarse thickness as 20 cms) (20% of the Total Length)				
	a)	Bituminous Course (L*0.55*0.10)	604.52	Cu.m	420.00	2.54
	b)	Granular Course (L*0.55*0.150)	906.77	Cu.m	378.00	3.43
7.0	Vol. (iii) 2.5	Dismantling of cement concrete pavements including breaking to pieces not exceeding 0.02 Cum in volume and stock piling at designed locations and disposal of dismantled material upto a lead of 1000 m, stacking of serviceable & unserviceable material separately and as per relevant clause of section 200 25% of total length (having Thickness of Road as 15cm and Width has been considered different for different diameter pipes)	1133.47	Cu.m	749.00	8.49
8.0	Vol. (i) 18.14.4	Cement concrete grade M-15 (Nominal Mix) with 20 mm maximum size of stone aggregate (25% of total length)	1133.47	Cu.m	4755.00	53.90


9.0	Vol. (iii) 6.1	Construction of Dry lean cement concrete Sub-base over a prepared subgrade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 26.5mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per MORTH Specifications Table 600-1, cement content not to be less than 150 kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with paver with electronic sensor/mechanical paver, compacting with 8-10 tonnes vibratory roller, finishing and curing and as per relevant clauses of section-601.(25% of total length)	755.65	Cu.m	2504.00	18.92
10.0	Vol. (i) 18.2.8	Filling available excavated earth in trenches, plinth sides of foundation in layers not exceeding 20 cms. In depth including consolidation of each layer by ramming watering, lead upto 50 m and lift upto 1m in all kind of soils				
		(Total excavated qty)	31737.09	Cu.m		
		Volume of Pipe	130.51	Cu.m		
		Volume of Concrete work	1889.11	Cu.m		
		Volume of moorum bedding	1209.03			
		Net qty of refilling	28508.43	Cu.m	89.00	25.37
14.0	Vol. (ii) 16.15.2	Carriage of material by mechinacal transport including loading unloading and stacking etc. Earth upto 1 km distance (15.% of net refilling)	4276.27	Cum	92.87	3.97
Total Cost for Laying of Proposed Distribution in Naigarhi						383.57
Note	Road Restoration of 10% BT,50% CC and 40% Kaccha Road has been considered in preparation of this estimate and as per the discussion with the officials of the Nagar Parishad, Naigarhi					


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1.4 Providing ,Laying , jointing of Raw water pumping Main from proposed Intake well at Odda Nallah to proposed water treatment plant in Naigarhi town.						
S. No	MP UADD SOR ITEM	Particulars	Qty	Unit	Rate	Amount (In Lacs)
1.0	vol (i) 4.3.5	Providing, Laying and jointing 150 mm DI pipe K-9 class flow diameter socket and spigot pipes including testing of joints cost of pipes and jointing materials complete as per IS 8329: 2000	5392.00	RM	1734.00	93.50
		Add 2.5 % for specials including civil structure for support valve chambers etc.				2.34
Total cost for Pipe Line						95.83
2.0	vol (i) 18.2.1	Earth work in Excavation for pipe trench in all kind of soil in areas including dressing, watering and ramming and disposal of excavated earth lead upto 50 meters and lift upto 1.50 meters, disposal earth to be levelled neatly and dressed				
		Taking total width of the trench as 0.4 + Outer Diameter of Pipe in metre, Length as 6157 metres & depth as 1 + Outer Diameter of Pipe in metres. For 150mm diameter Pipe DI K-9 for Pumping main pipe line	3113.88	Cu.m	151.00	4.70
3.0	vol (i) 18.3.3	Filling with moorum for pipe bedding or over the pipe including supply of murrom, L x 0.55 x 0.15 Cu.m 20 % of total length .	88.97	Cu.m	720.00	0.64
13.0	Vol. (i) 18.2.8	Filling available excavated earth in trenches, plinth sides of foundation in layers not exceeding 20 cms. In depth including consolidation of each layer by ramming watering, lead upto 50 m and lift upto 1.50 m in all kind of soils (Total excavated qty)	3114	Cu.m		
		Volume of Pipe	265	Cu.m		
		Net qty of refilling	2849	Cu.m	89.00	2.54
14.0	Vol. (ii) 16.15.2	Carriage of material by mechinacal transport including loading unloading and stacking etc.				
		Earth upto 1 km distance (20% of net refilling)	570	Cum	92.87	0.53
Total cost of work for laying of Raw Water Pumping Main						₹ 104.24

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
1.5 Estimate for Providing, Laying and Jointing of various diameter DI K-9 class pipe for strengthening of water supply Feeder network of Naigarhi						
S. No.	MP UADD SOR ITEM	Particulars	Qty	Unit	Rate on SOR	Amount (In Lacs)
1.0	Vol. (i) 4.1.3	Providing, laying and jointing socket & spigot centrifugally cast (Spun) Ductile Iron pressure pipes with inside cement mortar lining (class K-7) conforming to IS 8329/2000 with suitable Rubber Gasket (Push on) joints as per IS:5382/85 including testing of joint (laying conforming to IS 12288 : 1987) for feeder Pipe line for Porposed OHT				
		150 mm Dia. DI K-7	7513.00	Rm	1573.00	118.18
	LumpSum	Add 2.5% for specials including civil structure for support valve chambers etc.				2.95
2	Vol (i) 14.2	Providing & fixing of Cast iron double flanged sluice valves as per I.S.:14846-2000 fitted with cast iron cap including jointing & testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete (PN 1.0)				
	14.2.4	150 mm dia	4	Nos	6747.00	0.27
Total			4.00			
3	Vol (i) 17.21	Road Gully Chambers :- Construction of Brick masonry road gully chambers with brick work in cement mortar 1:5 (1 cement: 5 course sand) and 12mm plaster 1:3 including foundation in cement concrete grade M-5 (Nominal Mix) with stone aggregate 40mm nominal size Including precast reinforced cement concrete top cover and frame.5				
4	17.21.3	Chamber 110 x 50 x 77.5cm with 500x450 mm horizontal and 450x100 mm vertical gratings both.	4.00	Each	7414.00	0.30
2.0	vol (i) 18.2.1	Earth work in Excavation for pipe trench in all kind of soil in areas including dressing, watering and ramming and disposal of excavated earth lead upto 50 meters and lift upto 1 meters, disposal earth to be levelled neatly and dressed.				
		Taking total width of the trench as 0.4 + Average Diameter of Pipe in metre, Length as 7513 metres & depth as 0.9 +Average Diameter of Pipe in metres.(here it is considered that the road restoration of CC shall also provide cover)	4338.76			
Total Quantity of Excavation			4338.76	Cum	151.00	6.55
3.0	vol (i) 18.3.3	Filling with moorum for pipe bedding or over the pipe including supply of murrom, L x 0.55 x 0.1 Cu.m (40% of the Total Length)	165.29	Cu.m	720.00	1.19
4.0	UADD SOR 2021 Vol. (iii)	Dismantling of flexible pavements and disposal of dismantled materials upto a lead of 1000 m, stacking serviceable and unserviceable material separately and as per relevant clause of section 200 (20% of total length)				
	2.4 a	Bituminous Course (L*0.55*0.1)	82.64	Cu.m	420.00	0.35
	2.4 b	Granular Course (L*0.55*0.2)	165.29	Cu.m	378.00	0.62
5.0	Vol. (iii) 2.5	Dismantling of cement concrete pavements including breaking to pieces not exceeding 0.02 Cum in volume and stock piling at designed locations and disposal of dismantled material upto a lead of 1000 m, stacking of serviceable & unserviceable material separately and as per relevant clause of section 200 40% of total length (having Thickness of Road as 20cm and Width has been considered different for different diameter pipes) (L*0.65*0.15) 40% of total length	247.93	Cu.m	749.00	1.86


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6.0	Vol. (iii) 6.1	Construction of Dry lean cement concrete Sub-base over a prepared subgrade with coarse and fine aggregate conforming to IS: 383, the size of coarse aggregate not exceeding 26.5mm, aggregate cement ratio not to exceed 15:1, aggregate gradation after blending to be as per MORTH Specifications Table 600-1, cement content not to be less than 150 kg/cum, optimum moisture content to be determined during trial length construction, concrete strength not to be less than 10 Mpa at 7 days, mixed in a batching plant, transported to site, laid with paver with electronic sensor/mechanical paver, compacting with 8-10 tonnes vibratory roller, finishing and curing and as per relevant clauses of section- 601. Deduct from Item No.6.1 above if paver with Electronic sensor/ mechanical paver, is not used and laying is done by any other method. (Note :- The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laid work.) This item is to be executed with Prior written permission of Engineer-in-charge Deduct from Item No.6.1 above if static roller is used in place of vibratory roller (L*0.65*0.10) 30% of total length	123.96	Cu.m	2504.00	3.10
6.0	Vol. (iii) 6.6 & 6.7	Providing and laying Cement Concrete grade M-20 (Nominal mix 1:1.5:3) with 20 mm graded crushed stone aggregate, mixing shall be in mechanical mixer, laying with paver compacting by use of pin, plate / screed vibrators including form work by strong steel girders fixed by spikes, separation membrane 125 micron thick, l/c cutting of joints @ 4 to 5 m interval & filling it with hot applied bituminous sealant (without dowel bars). (max. thickness 20cm) Deduct from Item No.6.6 above if paver with electronic sensor is not used and laying, compaction is done by any other method (Note :- The acceptance criteria regarding level, thickness, surface regularity, texture finish, strength of concrete and all other quality control measures shall be the same as in case of machine laid work.) This item is to be executed with Prior written permission of Engineer-in-charge L x 0.1 5x0.65 Cu.m (30% of the Total Length)	185.95	Cu.m	5029.00	9.35
7.0	Vol. (i) 18.2.8	Filling available excavated earth in trenches, plinth sides of foundation in layers not exceeding 20 cms. In depth including consolidation of each layer by ramming watering, lead upto 50 m and lift upto 1m in all kind of soils				
		(Total excavated qty)	4338.76	Cu.m		
		Volume of Pipe	132.70	Cu.m		
		Volume of Concrete work	309.91	Cu.m		
		Net qty of refilling	3896.15	Cu.m	89.00	3.47
8.0	Vol. (ii) 16.15.2	Carriage of material by mechanical transport including loading unloading and stacking etc.				
		Earth upto 1 km distance (20.% of net refilling)	779.23	Cum	92.87	0.72
Total Cost for Laying of Feeder Network for strengthening and extension of Water supply system for 100% town coverage In Naigarhi Municipal area						148.92
Note:- Road Restoration of 30% CC, 20% BT and 50% Kaccha Road has been considered in preparation of this estimate as per actual survey carried out during the month of March, 2022 and as per the discussion with the officials of the Municipal Council Naigarhi						

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1.8 Estimate for Construction of Overhead Service Reservoir for strengthening of water supply distribution system of Naigarhi							
S. No.	MP UADD SOR ITEM	Particulars	No.	Qty	Unit	Rate on SOR	Amount (In Lacs)
1.0	Vol. (i) 24.1.21	Construction of 1 no. R.C.C. Overhead service reservoirs of 18 metres staging of design capacity 100 KL at Naigarhi in for effective distribution of water. The Staging of the tank will comprise of Columns, Bracing of RCC having storage tank as Intze type. The water tightness etc. complete has to be ensured by the contractor. Work also includes provision for inlet, outlet, scour & overflow pipes & valves for the above tank & provision for epoxy coating inside the tank & painting the tank with snowcem from Outside & writing the capacity of tank.	1	150.00	KLL	1856040.9	18.56
Total Cost for Construction of Overhead Service Reservoir in Naigarhi							18.56



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1.90 PLC- SCADA						
S.No.	Remarks / SOR	Particulars	Qty	Unit	Rate	Amount (In Lacs)
1.0	Lumpsum	Design and Installtion of SCADA PLC, Sufficient to Monitor the designated flows of Raw and Clear Water upto the Start of the DMA's (District Metering Area) of each Over Head Service Reservoir/ Ground Service Reservoir. (for Proposed System alongwith Integration with the existing SCADA unit)				
		a) Water Treatment Plant Inlet- Flow Transmitter (EMF) / Open Channel Flow Meter (OFM) V-Notch, Turbidity Meter (online) Raneg 1-2000 at inlet as per requirement, pH Meter (Online), level transmitter (LT) ultrasonic at back wash tank, pH, Turbidity, Residual Chlorine, analyzer at CWR, Chlorine leak detector in Chlorine room, Level Transmitter at CWR, flow transmitter, pressure transmitter at WTP outlet - Master Control Room PLC panel (Main) with central Modem, 2 Nos. Computers for SCADA operating work station and Engineering work station with redundancy, SCADA software-open platform communication (OPC) compatible for future upgradation, Air Conditioner, Printer, UPS, Electrical parameter shall be visible on SCADA such as Voltage, Current, power Factor.	1.00	Nos	1300000	13.00
		b) Intake well- RTU (Remote Terminal Unit)/ PLC Panel with Modem and Sim, Radar Level Transmitter, PT (pressure Transmitter) at Outlet or at each pumps, Flow Meter (EMF) Online UPS for backup and Voltage Protection, Actuators	1.00	Nos	500000	5.00
		c) Overhead Service Reservoir Flow Transmitter, Pressure transmitter at Inlet, Level Transmitter on ESR/GSR, Remote Terminal Unit (RTU)/PLC panel with UPS/LPU (Lightning Protection Unit) Modem, ORP - Oxidation, Reduction, Potential Analyzer	3.00	Nos	200000	6.00
Total Cost for Provision of PLC-SCADA						24.00
Total Cost for Provision of PLC-SCADA inclusive of Goods and Services Tax (GST) @18%						28.32



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1.10 Providing House Service Connection at Consumer end for Domestic Water Connection						
S. No.	MP UADD SOR ITEM	Particulars	Qty	Unit	Rate	Amount (In Rupees)
Providing and laying MDPE PE 80 blue pipe as per ISO 4427 having 20 mm diameter house service connections with all accessories as mentioned below.						
1.1	vol (i) -7.12.14	Providing & Supply of Electro Fusion Tapping Ferrule (Branch Tapping Saddle) female BSP threaded with SS 304 Insert fittings in accordance with BS EN 12201 : Part-3 suitable for drinking water with in black/blue colour manufactured from compounded PE80/PE 100 virgin polymer and compatible with PE80/PE100 pipes, in pressure rating SDR 11 with min PN 12.5 rated for water application and shall be inclusive of all cost such as testing, all taxes related to central, state & municipal, inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete. 110 x 20 mm	1	Each	1137.00	1137
1.2	vol (i) -7.13.5.1	Providing & Supply of Compression fittings, PN16 rated in conformation to ISO:14236-2000 and shall be tested as per ISO:3459, ISO : 3501 & ISO: 3503, suitable for drinking water & approved by WRAS, UKI KIWA etc., in food grade polypropylene and shall be inclusive of all cost such as testing, all taxes related to central, state & municipal, inspection charges, transportation up to site, transit insurance, loading, unloading, stacking etc. complete. Metal inserted Compression Female Threaded Adaptor with SS 304 Material (20 x 15mm)	1	Each	126.00	126
1.3	vol (i)-7.13.4.1	Compression 90 Deg. Elbow	1	Each	206.00	206
1.4	vol (i) -7.14.1	Providing & Supply of PVC Ball Valves in PN16 rating with one end compression using Blue colour compression nut in polypropylene material & other end with female threads conforming to ISO:4422-4, certified from WRAS UK/KIWA etc. suitable for food products & drinking water, female threads in accordance with ISO:7/BS:21/ IS: 554 and shall be inclusive of all cost such as testing, all taxes related to central, state & municipal, inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete. (20x15) PVC Ball Valve with Compression & Female Threads	1	Each	199.00	199
1.5	vol (i) -7.11.1.1	Providing and Supplying Blue MDPE pipes conforming to ISO 4427:1996 manufactured from virgin resin PE 80 Food grade compounded Raw Material having Blue Colour only with quality assurance certificate from quality agencies like WRAC/ CIPET (India)/ DVGW/KIWA/SPGN etc. for usage in Drinking Water System The cost shall include testing of all materials, all taxes Central, State, Municipal, inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete. PN 16 (SDR 9) (20mm)	5	Rm	38	190
1.6	vol 1-6.9.1	Brass Ferrule / NRV for (15mm Dia), tested to 21.09kg/sq.cm. i/c boring and tapping the main.	1	No.	416	416
1.7	vol (i) -18.2.1	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means 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	2.97	Cum	151.00	448
1.8	vol (i) -18.2.8	Filling available excavated earth in trenches, plinth sides of foundation in layers not exceeding 20cm. in depth including consolidation of each layer by ramming watering, lead up to 50m and lift up to 1.5m in all kinds of soils	2.97	Cum	89.00	264
Total Cost of Work for Providing 1 No. Domestic House Service Connection						2987
Total Cost of Work for Providing 1 No. Domestic House Service Connection						3000
						Amount (In Lacs)
Total Cost for Providing House service connections for 500 connections			500.00		3000	15.00
Total Cost for Providing House service connections for 500 connections inclusive of Goods and Services Tax (GST) @18%						17.70

11.13 Estimate For 1 KM of 33KV Line						
S. No	UADD SOR ITEM 2021	Particulars of Item of Work	Unit	Rate 2021	Qty	Amount 2021
I		II	III		V	
1.0		Supply of support for overhead line Rail pole of I.S.standard including welding, drilling of required hole etc. complete as required.				
	Vol-IV 13.2.6	H-Beam 152x152mm, Std weight 37.1 kg per meter	Mtr	1810.00	210	380100
2.0	Vol-IV 13.14	Erection of steel tubular or steel rail pole or H-Beam of length exceeding 10 meters but not exceeding 13 meters in cement concrete 1:3:6 (1 cement :3 coarse sand: 6 graded stone aggregate 40mm nominal size) foundation , base padding & muffing including excavation and refilling etc. as equired (4.55 bags of cement/cmt.)	Each	1855.00	16	29680
3.0	Vol-IV 15.13	Supplying, installing, testing of earth Coil (coil of 115 turns of 60mm dia, and 2.5 Mtrs. Lead of 4 mm G.I wire.	Each	241.00	16	3856
4.0	PWD SOR 2020(42.68)	Supplying and fixing 33/11/0.4 KV enamel coated danger board size 200x250mm with clamp on existing HT/LT structure / poles.	Each	158.00	20	3160
5.0	Vol-IV 13.33	Erection of angle iron/channel iron cross arm on existing pole etc. as required.	Kg	110.00	516	56760
6.0	PWD SOR 2020(42.5)	Supplying and drawing All Aluminium Alloy conductor (AAAC) of approved make confirming to IS 398-1979 Pt. IV, including binding at existing insulator, jointing, jumpering, tearing off, connecting etc. as required including clearing of obstacles (if any)				
	PWD SOR 2020(42.5.4)	AAAC 0.1 sq inch (100 Sq.mm Al. EQ.) - (Dog) by PWD SOR as this rate not given in UADD SOR	Km.	72079.00	3.10	223444.90
7.0	Vol-IV 13.81	Supplying and erection of 33kV pin insulator complete with large steel head G.I. pin, nut, washer etc. as required	Set	640.00	45	28800
8.0	Vol-IV 13.82	Supplying and erection of a set of three 11kV disc insulators for 33kV overhead lines with galvanised insulator fittings, ball and socket type, and complete with galvanised strain clamp, bolts, nuts, washers etc. as required.	Set	2132.00	8	17056
9.0	Vol-IV 13.62	Supplying and erection of galvanised stay set for 33kV overhead line complete with 19/20mm dia x 1.8 meters long stay rod, anchor plate of size 45cm x 45cm x 7.5mm thick, thimble, stay clamps, turn buckle (20mmx 600mm), 7/4.00mm dia G.I. stay wire and 33kV strain insulator etc. in cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40mm. nominal size) foundation including excavation and refilling etc. as required.	Set	2050.00	6	12300
10.0	Lump Sum	Miscellaneous works like taping by gride, two structure pole & pole height increase as side condition etc	lump sump	50000.00	1	50000
Total for 1 Km Line						805156.9
Total for 1 Km Line (In LA						8.05


 मुख्य नगर पालिका अधिकारी
 नगर परिषद् नईगढ़ी
 जिला रीवा (म.प्र.)

Calculation of estimate amount for 33/433 kV outdoor substation							
Used SOR- UADD ISSR (Vol. IV) In force from 01.08.2021							
Market rate - taken as per SOR of M.F.F.W.D & M.F.K.V.C.L w.e.f. 01.11.2020 & 2021-22 respectively							
S.No	ITEMS	UNIT	QUANTITY	Applied Item	SOR		Item No. & Page
					RATE	AMOUNT	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	DTR 33/0.4 kV BS EE-Level-2 Supplying, installing, testing and commissioning (reproducible)						
	100R.VA	each	1	1	276296	276296	
	125R.VA (LS)	each	1		0	0	
	160R.VA (LS)	each	1		365000	0	
	200R.VA	each	1		404723	0	
	215R.VA	each	1		691959	0	MPPWD Item No. 42.20 & 42.21 Page No. 176,177
	250R.VA (LS)	each	1		735000	0	
	400R.VA (LS)	each	1		843000	0	
	500R.VA	each	1		1011731	0	
	600R.VA	each	1		1143748	0	
	1000R.VA	each	1		1368847	0	
	1250R.VA	each	1		1559070	0	
	1600R.VA	each	1		1977223	0	
	2000R.VA	each	1		3054950	0	
	2500R.VA	each	1		3729348	0	
2	H-Beams 152 x 152 mm, 37.1 Kg./Mtr -11 mtr Long = 4083 kg	mtr	66		1810	119460	UADD Item No. 13.2 & page 68
3	channel of 100 X30 X30 kg/mtr	kg	936		48	45888	
4	ms 50*50*6mm angles 4.50 kg/mtr	kg	180		48	8640	UADD Item No. 13.58 Page 74
5	Supplying, installing, testing and commissioning of Lightning Arrestors 23kv gasless station type	each	3		11499	34497	UADD Item No. 13.123 page 88
6	33kV Polymer disc insulator	set	21		2152	44772	UADD Item No. 13.82 page 77
7	33kV Polymer pin insulator	set	6		640	3840	UADD Item No. 13.81 page 78
8	33kv 2pb C7/PT unit	nos	1		81232	81232	MPPWD Item No. 42.122 Page No.191
9	33kv 1pb C7/PT unit	nos	3		29043	87129	MPPWD Item No. 42.125.2 & 42.126.2 Page No.192
10	outdoor sub with complete structure and accessories	nos	1		176601	176601	MPEB SOR M-0201003
11	AAAC conductor DCC	km	0.08		72079	5766.32	MPPWD Item No. 42.5.4 Page No.163
12	33kv insulator	nos	6		24581	147486	MPEB SOR P-0201061
13	Supply & Erection of Stay set complete (galvanized) 19 mm Dia. * 1.8 meter long, stay rod anchor plate of size 300mm*300mm*6mm, thimble stay clamps, turn buckle (19mm dia*60 cm.), 7/4.00 mm dia G.I. Stay wire and strain insulator etc. in cement concrete 1:3:6(1 cement:3 coarse sand:6 graded stone aggregate 40 mm. Nominal size) foundation including excavation and refilling etc. as required	each	4		2000	8000	UADD Items No. 13.21 page No. 71
14	Erection of steel tubular or steel rail pole or H-beam of length exceeding 10 meters but not exceeding 13 meters in cement concrete 1:3:6(1 cement:3 coarse sand:6 graded stone aggregate 40 mm. nominal size) foundation, base padding & maffing including excavation and refilling etc. as required (4.55 bags of cement/cmt)	each	6		1855	11130	UADD Item No. 13.14 Page No. 71
15	Yard chain link fence	sq.mtr	180		876	157680	MPPWD Item No. 42.75 Page No.178
16	Warning Boards Enamelled Type 33kV	nos	4		164	656	UADD Item No. 9.11.2 Page No.49
17	Anti climbing devices	nos	6		116	696	MPPWD Item No. 42.66 Page No.174
18	Primer coat with aluminium paint, brushing complete with material and labour including preparation of surface	mtr	66		55	3630	UADD Item No. 13.80.3 page No. 77
19	140 auto gate	nos	1		53391	53391	MPEB SOR P-0001042
20	Construction of pedestal (plinth) for transformer	cu.mtr	5.12		7495	38374.4	MPPWD Item No. 42.87 Page No.179
21	Procedure to avoid grass in sub-station yard having Murrum/Hard soil. By laying stone crusher dust	sq.mtr	180		198	35640	MPEB SOR P-0001118
22	Earthing of substation	nos	1		50000	50000	comp sum
23	mat and belts	kg	50		50	2500	UADD Item No. 15.8 Page No.88
24	allied works	each	1		100000	100000	comp sum
Total (in Lacs)						14.95	


मुख्य नगर पालिका अधिकारी
नगर परिषद् नईगढ़ी
जिला रीवा (म.प्र.)

Expected Expenditure for Annual Running and Maintenance of Water Supply System of Naigarhi for first year after completion of proposed works (for Year 2026)					
S.No.	Description	Qty.	Rate in Rs.	Unit	Amount (In Lacs)
1.0	Estimated Energy Charges taking combined efficiency of Motor & Pumps @ 70% for Raw water and 80% for Clear water (For First Year Operation)				
(i)	Annual Electrical Charges for running pumps sets for raw water pumping from Intake Well to Water Treatment Plant (For 1.07MLD Discharge 50 meters pumping head and 22 hours/day)				
	$q = 1.07 \times 10^6 / (22 \times 3600 \times 1000) = 0.013$ cumecs				
	$KWH = q \times \text{Head} \times 9.81 / \text{pump efficiency}$				
	$KWH = 0.013 \times 50 \times 9.81 / 0.80 = 8.28$ KW say 10 KW				
	KWH for one year (22 hrs operation) = $10 \times 22 \times 365 = 80300$	80300			
(ii)	Annual Electrical Charges for running pumps sets for clear water pumping from water treatment plant to various OHT's (For 1.02 MLD Discharge 55 meters head and 22 hours/day)				
	$q = 1.02 \times 10^6 / (22 \times 3600 \times 1000) = 0.012$ cumecs				
	$KWH = q \times \text{Head} \times 9.81 / \text{pump efficiency}$				
	$KWH = 0.012 \times 55 \times 9.81 / 0.70 = 9.92$ KW Say 10 KW				
	KWH for one year (22 hrs operation) = $10 \times 22 \times 365 = 80300$	80300			
	Total Electrical Consumption	160600	8.00	KW	12.85
2.0	Consumption of Chemicals :				
(i)	Annual Alum consumption at the rate of 25 mg/l for 8 months and 50 mg/l for 4 months for 1.02 MLD. Total requirement of alum				
	$30 \times (25 \times 8 + 50 \times 4) \times (1.02) \times 10^6 / (1000 \times 1000 \times 1000)$	12.24	18000.00	MT	2.20
(ii)	Lime 4 MT per MLD for 1.02 MLD	4.08	10000.00	MT	0.41
(iii)	Chlorine consumption @ 3.50 P.P.M. for 1.02 MLD				
	$1.02 \times 3.5 \times 30 \times 12 / 1000$	1.29	30000.00	MT	0.39
(iv)	Laboratory maintenance cost	L.S.	-	-	1.00
3	Maintenance of civil structures pumps etc.				
(i)	Intake well, raw water pump house, Clear water pump house & WTP & OHTs & existing WTP and existing Intake well @1 % of individual component cost	-	-	-	1.65
(ii)	Clear water and Raw water and Feeder Pumping Main & existing rising main @ 1/2 % of individual component	-	-	-	1.27
(iii)	Proposed & existing Distribution @ 1/2 % of individual component	-	-	-	1.92
4	Salary and wages				
(i)	1 Project manager @ Rs 50,000/pm	50,000			
(ii)	1 operator @ 14760 and 1 nonskilled staff @ Rs 12600/- for Intakewell	27,360			
(iii)	5 skilled/nonskilled staff for Water Treatment Plant				
	1 nonskilled staff @12600 for WTP	12,600			
	2 skilled staff @ 14760 for WTP	29,520			
	1 Electrician @ 17790 for WTP	17,790			
	1 Chemist @ 17790 for WTP	17,790			
(iv)	1 nonskilled staff @ Rs 12600/- for each OHT (4 Nos)	50,400			
(v)	1 valve man for Rising/Feeder main of 7.5 km @ Rs 14760/- for per 5 KM	14,760			
(vi)	5 Valve man for distribution main of 50km @ Rs 14760/- for 1 per 10.00 KM	73,800			
	Total expenditure on salary and wages for 12 Months	35,28,240			35.28
Total	Miscellaneous/Contingencies for Staff Establishment @10% of total salary	3,52,824			3.53
	Total O/M amount for 1 year Excluding Electrical Consumption Charges				60.49
Note:	Wages for Skilled, Semi Skilled and Un-Skilled workers has been considered as per order of Ministry of Labours and Employment Order: File No. 1/VDA(3)/2020-LS-II. Government of India, Ministry of Labour and Employment, Office of Chief Labour Commissioner, New Delhi, Dated: 08/05/2020				47.64
	Rate of Lime, Alum and Chlorine has been considered as per current market trends/Rate for bulk Supplies				