

Name of Work :- Development Of Permanent Campus Of Nu Rajgir.						
Subject :- QUANTITY DETAILS for understanding the scope of works and schedule of the quantity The execution rate will be as per the quoted price by the bidders and order details accorded by the University.						
SI.NO.	DSR 2014 (civil)	DESCRIPTION	UNIT	QTY	Unit Rate in INR	TOTAL AMOUNT
	A	#REF!				
1	MR-1	<p>Filter Feed Pumps - Supply, installation , testing & commissioning Single/multistage monoblock pumping set with SS AISI 316 stage casing, AISI SS 316 impellers, SS Suction chamber, SS 316 Pump shaft, steel base plate, carbon mechanical shaft seal and suction and discharge casing as per IEC standards, connected to TEFC Ventilated induction motor of 2 pole, 2900 RPM, suitable for 400/440 Volts, 3 phase, 50 Hz A.C. supply with glycerin filled pressure gauge , vibration elimination pads, dry run protection etc. complete with base and frame, nuts,anchors and bolts. The pump should be rated at the premium efficiency rating of IE. The pump inclosure to be minimum IP 55 rated and insulation class to be F.</p> <p>All valves, RCC foundations shall be paid seperately under relevant heads as per requirement and as per instructions . The vender shall submit performance curve, GA drawing and technical data sheet to the consultant prior to installation. The head versus discharge curve shall be on the rising side. The item is including termination of cables on motor. The pump shall be capable to work with a negative suction of upto 5 mtr. without any lag in the efficiency and in cyclic operation with auto switching feature after every 5 hours.</p> <p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 5 LPS each pump Head : 30 M</p>	Set	1	3,13,126	3,13,126.09
1.1	MR-2	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 1.5 LPS each pump Head : 30 M</p>	Set	5	1,65,960	8,29,800.99
1.2	MR-3	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 1.2 LPS each pump Head : 30 M</p>	Set	4	1,50,998	6,03,993.33
1.3	MR-4	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 1 LPS each pump Head : 30 M</p>	Set	1	1,55,444	1,55,443.97
2	MR-5	<p>Hydropneumatic Pumps for Water Transfer - Supply, Installation, Testing And Commissioning Of Fixed speed Compact Self Contained Skid Mounted Hydropneumatic System As Follows: a. Vertical, In-Line, Multistage, centrifugal pumps with SS-304 casing and impeller and SS-316 shaft, CI base & head TEFC motor (with mechanical seal) (Vendor to submit performance curves and technical catalog of the proposed model for review & information) The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head. b. External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms should be displayed in the controller. System should be equipped with dry running protection - Quantity : 1 No. (BMS compatible with RS 485 port) . c. Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, pressure transducers, control wiring and any other necessary imports etc. (list to be provided by the vendor). d. Precharged polyethelene diaphragm pressure vessel (500 Litre) with food grade membrane, charging connection, connected to outlet header with necessary flanges, gaskets, isolating valves, nuts/bolts etc complete.</p>	Set	1	15,40,352	15,40,351.62

3	MR-6	<p>Hydropneumatic Pumps for Water Transfer - Supply, Installation, Testing And Commissioning Of Compact Self Contained Skid Mounted Hydropneumatic System As Follows: a. Vertical, In-Line, Multistage, centrifugal pumps with SS-304 casing and impeller and SS-316 shaft, CI base & head TEFC motor (with mechanical seal) (Vendor to submit performance curves and technical catalog of the proposed model for review & information) The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head.</p> <p>b. External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms should be displayed in the controller. System should be equipped with dry running protection - Quantity : 1 No. (BMS compatible with RS 485 port) . c. Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, pressure transducers, control wiring and any other necessary imports etc. (list to be provided by the vendor). d. Precharged polyethelene diaphragm pressure vessel (500 litre) with food grade membrane, charging connection, connected to outlet header with necessary flanges, gaskets, isolating valves, nuts/bolts etc complete.</p>	Set	2	9,23,742	18,47,483.77
3.1	MR-7	<p>e. Set of accessories such as pressure switches, pressure transducers, inter</p>	Set	3	8,59,127	25,77,380.58
3.2	MR-8	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 2.5 LPS each pump Head : 45 M</p>	Set	2	7,98,865	15,97,730.99
3.3	MR-9	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 2.2 LPS each pump Head : 45 M</p>	Set	2	7,98,865	15,97,730.99
3.4	MR-10	<p>Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 2 LPS each pump Head : 45 M</p>	Set	1	7,44,353	7,44,352.80
4	MR-11	<p>Hydropneumatic Pumps for Irrigation Water Transfer - Supply, Installation, Testing And Commissioning Of Compact Self Contained Skid Mounted Hydropneumatic System As Follows: a. Vertical, In-Line, Multistage, centrifugal pumps with SS-304 casing and impeller and SS-316 shaft, CI base & head TEFC motor (with mechanical seal) (Vendor to submit performance curves and technical catalog of the proposed model for review & information) The pump shall be selected for performance at best efficiency point. However, the pump selection shall be suitable for performance with set point @ + 20% of the rated head. b. External Pump mounted or wall mounted microprocessor PID controller and frequency inverter integrated in a single body or as separate components with pressure sensor transmitter minimum two lined LCD display, diodes to indicate pump ready, pump running and fault and capable to communicate with other controllers following MODBUS-RTU or BACNET Class-2 protocol through RS485 port. System should be capable to compensate for frictional losses at lower flows. All alarms should be displayed in the controller. System should be equipped with dry running protection - Quantity : 1 No. (BMS compatible with RS 485 port) . c. Complete (Skid mounted wall mounted / floor mounted) electrical control panel comprising of all accessories such as PLCs, pressure switches, pressure transducers, control wiring and any other necessary imports etc. (list to be provided by the vendor). d. Precharged polyethelene diaphragm pressure vessel (500 litre) with food grade membrane, charging connection, connected to outlet header with necessary flanges, gaskets, isolating valves, nuts/bolts etc complete.</p>	Set	5	8,98,984	44,94,921.44

5	MR-12	Submersible Centrifugal Non-clog Drainage Pump for Plant room drainage - Supply, installation, testing and commissioning of continuous duty submersible centrifugal non-clogging drainage pumps complete with SS AISI 304 impeller, CI Casing, SS Shaft , 3 phase motor with all necessary protection and mechanical seal etc. complete with all ancillaries including float type level controllers, electrical control panels fabricatd from 14 gauge CRCA sheet volt meter ammeter with selector switch, TPMCB, 5 VA CL : CTs, phase indicating lamps protected by 2 amp SP MCB, DOL starter, necessary wiring, cable alleys, earthing, interlocking, starter with Automatic float type level controller(low, mid and high level), providing of high level alarm, sequence timer, potential free contact to starter for connection to BAS, both pumps may run simultaneously at pre determind level. The pump shall be rated at premium efficiency rating of IE. The pump inclosure to be IP 68 rated and insulation class F. The item also includes sump pit lifting assembly suitable for 2 Nos. submersible drainage pumps in a sump of overall depth not more than 1.6 m, ready made electro – galvanized MS lifting chain, SS 316 pipe header complete with discharge manifold, flanges, tee, elbow etc. complete including SS 316 pipe upto the top of sump. The installation shall be complete with all necessary indigenous accessories as required to complete. (Cost to include suitable gun metal isolation valve, strainer on its suction line and gunmetal check valve and gunmetal isolation valve on its delivery line for each pump with end blind flanges as per approved shop drawings/documents and as per satisfaction of engineer in charge). Vendor to submit proposed pump model with duty curve. The first pump will	Each	1	2,52,512	2,52,512.14
5.1	MR-13	Nos. of Pumps : 2nos (1w+1s) Water Flow Rate : 2 LPS each pump Solid handling capacity: 10-12 mm Head : 15 M	Each	10	2,19,063	21,90,625.56
6	MR-14	Multi Grade Filter - Supply, installation , testing & commissioning of MSEP MultiGrade Filter with SS filter complete with initial charge with pebbles, anthracite, media , connecting with multiport valve (for controlling all operations for rinsing, backwashing, service etc under automated system linked with differential pressure transmitter and differential guage), glycerine filled pressure gauge at inlet, outlet and back wash (each with isolation cock), complete as required with sand blasted inside and outside, finished with 4-6 mm thick epoxy lining reinforced and including wiring and anunciation complete as required(Thinner plate for shell and dished ends not acceptable) including SS 304 piping complete as required and all other accessories required to make the system complete as per the specifications. Filtration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 200 mm coarse sand, 300mm fine sand and 300mm anthracite. Diameter- 1200 mm	Each	1	9,04,457	9,04,457.02
6.1	MR-15	Filtration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 150 mm coarse sand, 200mm fine sand and 200mm anthracite. Diameter- 600 mm	Each	5	4,29,234	21,46,169.20
6.2	MR-16	Filtration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 200 mm coarse sand, 200mm fine sand and 200mm anthracite. Diameter- 800 mm	Each	2	6,51,516	13,03,031.30
6.3	MR-17	Filtration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 100 mm coarse sand, 200mm fine sand and 200mm anthracite. Diameter- 500 mm	Each	3	3,98,574	11,95,722.84

7	MR-18	<p>Activated Carbon Filter - Supply, installation , testing & commissioning of MSEP Activated Carbon filter complete with initial charge with pebbles, anthracite, media , connecting with multiport valve (for controlling all operations for rinsing, backwashing, service etc under automated system linked with differential pressure transmitter and differential guage), glycerine filled pressure gauge at inlet, outlet and back wash (each with isolation cock), complete as required with sand blasted inside and outside, finished with 4-6 mm thick epoxy lining reinforced and including wiring and anunciation complete as required(Thinner plate for shell and dished ends not acceptable) including SS 304 piping complete as required and all other accessories required to make the system complete as per the specifications.</p> <p>Filteration Rate 14000L/Sqm/Hr , Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm , Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 200 mm coarse sand, 300mm fine sand and 600mm <u>activated carbon</u></p>	Each	1	9,65,776	9,65,776.14
7.1	MR-19	<p>Filteration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 150 mm coarse sand, 200mm fine sand and 500mm activated carbon. <u>Diameter- 600 mm</u></p>	Each	5	4,44,564	22,22,818.10
7.2	MR-20	<p>Filteration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 200 mm coarse sand, 200mm fine sand and 500mm activated carbon. <u>Diameter- 800 mm</u></p>	Each	2	6,74,510	13,49,020.64
7.3	MR-21	<p>Filteration Rate 14000L/Sqm/Hr Test pressure 6 Kg/Sq.cm Working pressure 3.5 Kg/Sq.cm Maximum pressure 4 Kg/Sq.cm Media Depth to be minimum 100 mm coarse sand, 200mm fine sand and 200mm activated carbon. Diameter- 500 mm</p>	Each	3	4,13,904	12,41,712.18
8	MR-22	<p>Providing, fixing, testing & commissioning of differential pressure transmitter for auto operation of filter backwash including control wiring upto panel and all other accessories required to make the system complete. Pressure Range: 0-10 bar Temperature : 0-85 degree celcius Output: 20 m A Supply: 24 V DC / others Turn down ratio: 1:100 / others</p>	Each	27	99,644	26,90,376.39
9	MR-23	<p>Supply, Installation, Testing and commissioning of DC operated stainless steel type solenoid multiport valve for auto operation of system this shall be inclusive of wiring and fixing of transformer or panel in main MCC panel for complete auto operation of system. Complete shall be rated to temperature of 85 Deg C and tested to a pressure not less than 15 Kg/Sq.cm.The installation includes all pipe fittings(valves, elbows, nipples etc.) and control circuitary (timers, relays, wires, etc) to complete the system as required.</p>	Each	27	76,649	20,69,520.30
10	MR-24	<p>Providing, fixing, testing & commissioning of differential pressure gauge fixed across Y-strainer at suction of transfer pump including control wiring upto panel and all other accessories required to make the system complete. <u>The range of Diiferential pressure gauge shall be 0-10 kg/cm²</u></p>	Each	22	22,995	5,05,882.74
11	MR-25	<p>Supplying, installing, testing and commissioning of chlorine dosing system consisting of one HDPE tank of 200 litres capacity with a positive displacement diphragm dosing pump having variable flowrate. The motor shall be suitable for operation at 240 V/Single phase/50 Hz. Supply. The pump shall be supplied complete with necessary agitator, polypropylene piping, valves, strainers, low level switch(Range 0-600mm) and injection fittings. The pump shall be speed & stroke control. (Pump to be with one working and one stand by assembly). Flow rate : 0-12 lph</p>	Each	2	1,22,638	2,45,276.48
11.1	MR-26	<p>Flow rate : 0-6 lph</p>	Each	10	76,649	7,66,489.00
12	MR-27	<p>Supplying, installing, testing and commissioning of Ph correction dosing system linked with ph monitoring device consisting of one HDPE tank of 200 litres capacity with a positive displacement diphragm dosing pump having variable flowrate of 0-10 lph. The motor shall be suitable for operation at 240 V/Single phase/50 Hz. Supply. The pump shall be supplied complete with necessary agitator, polypropylene piping, valves, strainers, low level switch(Range 0-600mm) and injection fittings. The pump shall be speed & stroke control. (Pump to be with one working and one stand by assembly) Flow rate : 0-10 lph</p>	Each	2	1,22,638	2,45,276.48
12.1	MR-28	<p>Flow rate : 0-6 lph</p>	Each	10	76,649	7,66,489.00

13		<p>Supply, Installation, Testing & Commissioning of Reverse Osmosis unit of following capacity to treat the raw water having TDS 1200 ppm and reducing TDS to 100ppm and hardness less than 50 ppm or as per WHO standards. The operating voltage to 230 volt AC +/- 10%. Potable water system components shall comply with Safe Drinking Water Act Amendments, the 1988 Lead Contamination Control Act and shall be to ANSI/NSF 61 Section 9. Contractor shall require to submit test report post installation of RO plant and cost shall be inclusive of 15 days training to engineer incharge.</p> <p>1. Pre and Post treatment Dosing System (each consisting of one HDPE tank of 200 litres capacity with a positive displacement diaphragm dosing speed & stroke control pump (1W + 1S) having variable flowrate of 0-6 lph. The motor shall be suitable for operation at 240 V/Single phase/50 Hz. Supply. The pump shall be supplied complete with necessary agitator, polypropylene piping, valves, strainers, low level switch(Range 0-600mm) and injection fittings.):</p> <p>a) Biocide dosing system for pre and Hypochlorite and soda ash post dosing and dosage rate 2-3 mg/l. b) Anti scalant dosing system for dosing downstream of MGF and ACF and dosage rate 5 mg/l. c) Acid dosing system in inlet of RO membrane and dosage rate 2 mg/l. d) SMBS dosing system for dechlorination at the inlet of RO membrane and dosage rate 5-10 mg/l. e) PH Correction Dosing system(NaOH) for maintaining the ph to drinking water standard. Dosage required will be 2 mg/l and shall be monitored and controlled in conjunction with the monitoring device.</p> <p>2. Reverse Osmosis System:</p> <p>a) High Pressure Pump(1W+1S): Vertical centrifugal Pump with low pressure switch for smooth operation, dry run protection of adequate capacity and head with SS AISI 316 stage casing, AISI SS 316 impellers, SS Suction chamber, SS 316 Pump shaft, steel base plate, carbon mechanical shaft seal and suction and discharge casing as per IEC standards, connected to TEFC Ventilated induction motor of 2 pole, 2900 RPM, suitable for 400/440 Volts, 3 phase, 50 Hz A.C. supply with glycerin filled pressure gauge, vibration elimination pads, dry run protection etc. complete with base and frame, nuts and bolts. The pump should be rated at the premium efficiency rating of IE. The pump enclosure to be minimum IP 54 rated and insulation class to be F. b) Reverse Osmosis Block comprising of micron filter and membrane encased inside pressure vessels. The membrane to be thin film composite in spiral wound construction and shall be in suitable numbers for the rated capacity of the RO Unit. Membrane material to be TFC Polyamide.RO Housing to FRP material with pressure rating of 250 psi.</p>				
13.1	MR-29	<p>The treatment station to be PLC based fully automated system. The item includes all necessary instruments like level indicators switches, solenoid valve at blending line, control cables etc to complete the system.</p> <p>a) 3000 LPH</p>	Each	2	30,65,956	61,31,912.00
13.2	MR-30	b) 2000 LPH	Each	3	27,59,360	82,78,081.20
14	MR-31	<p>Supplying, installing, testing and commissioning of Electronic ozonator 100-120 gram/hr. discharge capacity, completely in SS with electronic power supply inverter with latest ozone technology to generate high capacity ozone with minimum power consumption and minimum break down. The system to be with SS 316 electro polished ozone cell, SS 316 electro polished ozone injector(ejector) with SS 316 Non return valve, silicon / teflon tubing 1/4" x 5 meter. All contact parts to be either in SS 316 electro polished or teflon.</p>	Each	6	15,32,978	91,97,868.00
15	MR-32	<p>Supply, installation, testing and commissioning of the UV unit of required flow rate consisting of reactor, cabinet housing, cabinet cooling, treatment chamber, electrical panel, temperature safety control, lampout alert, UV radiometer along with UV monitoring system and UV monitoring readout panel (Intensity monitor required which shows the life cycle remaining since commissioning, Lamp replacement indicator, lamp failure indicator etc.). The UV Dosage should be > 30,000 uW – Sec / sq.cm. The lamps should be selected based upon the flow requirement of respective unit. The unit shall be complete with temperature safety control, lamp out alert circuit & UV radiometer with 4 – 20 mA output and auto cleaning feature. The treatment chamber shall be SS 316.</p> <p>a) 40000 LPH</p>	Each	1	12,26,382	12,26,382.40
15.1	MR-33	b) 10000 LPH	Each	2	3,83,245	7,66,489.00
15.2	MR-34	c) 7500 LPH	Each	2	2,48,342	4,96,684.87
15.3	MR-35	d) 5000 LPH	Each	1	2,34,699	2,34,698.93
15.4	MR-36	e) 3000 LPH	Each	3	1,97,907	5,93,722.38
15.5	MR-37	f) 2000 LPH	Each	2	1,97,907	3,95,814.92
16	MR-38	<p>Providing & fixing on line turbine type flow meter of following sizes with preamplifier & microprocessor based electronic flow meter mounted in plumbing plant room electrical control panel with the following features. Monitoring the total flow, Flow rate, high low arm batching and blending etc. Including electrical wiring from preamplifier to microprocessor based flow meter. Complete with all type of Plumbing & Electrical connections, accessories, wiring, conduits & supports complete with all respect. The signal from read out shall be 4-20 m.amps to be received on BAS.</p> <p>Flow Rate Range : upto 1000 LPM Temperature Range : upto 85 degree celcius. Pressure Range : upto 50 bar Material of construction: Stainless steel IP Rating: IP 67 for transmitter and IP 68 for sensor. Accuracy : 1 % on positive and negative side. 50 mm diameter</p>	Each	10	76,649	7,66,489.00
16.1	MR-39	65 mm diameter	Each	10	1,14,973	11,49,733.50
16.2	MR-40	80 mm diameter	Each	5	2,29,947	11,49,733.50

17	MR-41	Providing & fixing on line turbine type flow meter with preamplifier & microprocessor based electronic flow meter mounted in plumbing plant room electrical control panel with the following features. Monitoring the total flow, Flow rate, high low arm batching and blending etc. Including electrical wiring from preamplifier to microprocessor based flow meter. Complete with all type of Plumbing & Electrical connections, accessories, wiring, conduits & supports complete with all respect. The signal from read out shall be 4-20 m.amps to be received on BAS. Flow Rate Range : upto 2000 LPM Temperature Range : upto 85 degree celcius. Pressure Range : upto 50 bar Material of construction: Stainless steel IP Rating: IP 67 for transmitter and IP 68 for sensor. Accuracy : 1 % on positive and negative side. 80 mm diameter	Each	1	1,53,298	1,53,297.80
17.1	MR-42	150 mm diameter	Each	1	3,06,596	3,06,595.60
18	MR-43	Supplying, Installation, Testing and Commissioning of Water level indicators cum controllers of Stainless Steel Probe with Digital display panel for installation on storage tanks, and capable of providing 4 to 20 mA analog signal compatible with PLC signal inputs (probe should be provided with 20m cable with no connection joints in single run) and complete as per working requirements . All analog output from probe should be indicated in digital output panel placed in MCC panel and wiring should be done for interlocking , auto start / stop of pump complete as per specifications and as required. Including annunciation and indication panel with interlocking arrangement complete in accordance to specification with level indicator (for incoming line to raw tank and filter feed line to dom. tank , : High / Low Level Controller) etc with control cabling from field to MCC as required. Vender needs to submit IO summary prior to finalization for approval.	Each	37	38,324	14,18,004.65
19	MR-44	Supplying, Installation, Testing and Commissioning of online TDS meter suitable for fixing at domestic water treatment station for online monitoring of water quality at inlet and outlet, equipment shall be provided with Built in non-volatile memory,local display, Automatic Temperature, Compensation, Password Protected, IP - 67 rating, measuring following range , including cable termination for controlling and alarming complete as per specifications (cost of cabling and end termination shall be paid under relevant subhead) The device to be BMS compatible with relevant port for controlled operation form the main controlling panel of the plant room. 0 to 3000 ppm	Each	2	3,06,596	6,13,191.20
19.1	MR-45	0 to 1000 ppm	Each	20	1,53,298	30,65,956.00
20	MR-46	Supplying, Installation, Testing and Commissioning of online Ph meter suitable for fixing at domestic water treatment station for online monitoring of water ph level at outlet of treatment station, equipment shall be provided with Built-in non-volatile memory,local display, Automatic Temperature, Compensation, Password Protected, IP - 67 rating, measuring range 2 to 12 ph , including cable termination for controlling and alarming complete as per specifications (cost of cabling and end termination shall be paid under relevant subhead). The meter to be set at a range of 6.5 to 8 ph level with automatic linkage with the ph correction dosing system to control ph level. The device to be capable of raising an alarm when ph reduces below 6.5 and increases beyond 8.5. The device to be BMS compatible with relevant port for controlled operation form the main controlling panel of the plant room.	Each	22	1,53,298	33,72,551.60
21	MR-47	Supplying, Installation, Testing and Commissioning of active and free chlorine meter to be linked with SMBS dosing system for analysis of active chlorine(HOCl) or total free chlorine(HOCl + ClO-) comprising of transmitter, cable (10 mtr.), probe and flow through cell, PE Tubing drain etc complete in all respect suitable to work at 240 V AC, 50/60 Hz, measuring range 0.5 mg/l free chlorine, detection range < 10 ppb HOCl and 20 ppb free chlorine, response time < 90 seconds, Temperature range 0-45 oC with 20 mA isolated analog output, 4 dry contacts NO/NC(250VAC, 3A / 30VDC, 0.5A ohmic load max.) for high/low limits(programmable delay and hysteresis),system alarm with manual or automatic acknowledgement,timer programmable frequency and sequence). The transmitter to IP 65 rated. The electrodes to be silver anode and measuring cell to be PVC.	Each	6	3,06,596	18,39,573.60
22	MR-48	Supplying, Installation, Testing and Commissioning of following diameter electronic water meter with direct reading dial in KL with all internal parts in gunmetal or brass, flanged distance piece for easy removal in future, 100mm dia strainer, 100mm dia Bourden type glycerin filled pressure gauge and isolation cock complete in all respects.	Each	10	53,654	5,36,542.30
22.1	MR-49	65 mm dia water meter with 80 mm dia strainer & 100 dia bourden type glycerin filled pressure gauge	Each	5	68,984	3,44,920.05
22.2	MR-50	150 mm dia water meter with 100 mm dia strainer & 100 dia bourden type glycerin filled pressure gauge	Each	1	1,14,973	1,14,973.35
23	MR-51	Supplying, Installation, Testing and Commissioning of tanker inlet connection complete with of 150 mm diameter GI inlet piping, hose inlet connection, MS Cabinet enclosure (epoxy painted after fabrication), pad locking arrangement, inlet flexiblehose complete with all necessary arrangement.	Each	22	35,395	7,78,699.90
24	MR-52	Supply, installation , testing & commissioning of 150 mm diameter mosquito proof brass overflow grating for underground/overhead water tanks.	Each	32	7,079	2,26,530.88
25	MR-53	Supply, installation , testing & commissioning of 150 mm diameter insect vermin -proof coupling to vent pipes of underground tank/overhead tank with threaded or flanged joints, including M.S. flanges, nuts, bolts, 3mm thick rubber insertions complete.	Each	32	11,327	3,62,449.41
26	MR-54	Supply, installation , testing & commissioning of suitable flexible neoprene rubber expansion joint , single arch with integral rubber flanges with SRR drilled as per BS-10, Table-D, complete.	Each	20	5,365	1,07,308.46
26.1	MR-55	50mm dia	Each	30	6,898	2,06,952.03
26.2	MR-56	80mm dia	Each	22	8,891	1,95,607.99

26.3	MR-57	100mm dia	Each	10	9,964	99,643.57
26.3	MR-58	150mm dia	Each	2	13,030	26,060.63
27	MR-59	Domestic water supply (Plant room suction & delivery headers) -Providing, fixing, jointing and testing in position the following SCH 40/80 PVC pipe confirming to ASTM D -1785 and fittings as per ASTM D-2466/2467 whichever would be applicable as per pipes grade, cut to required lengths including all necessary fittings such as bends, tees, unions, reducers, flanges & plugs, expansion bellows etc. Threading, jointing, and making proper connections. Cutting hole in wall / floor / slab and making good the same. Cost shall be inclusive of supports for fixing of pipes complete as per specifications. Pipes and fittings upto 50mm dia shall be of Sch40 and higher dia pipes i.e. from 65mm dia to 200mm dia shall be of Sch 80. 15 mm dia nominal bore	Metre	162	283	45,873.90
27.1	MR-60	20 mm dia nominal bore	Metre	130	330	42,903.64
27.2	MR-61	25 mm dia nominal bore	Metre	218	375	81,671.31
27.3	MR-62	32 mm dia nominal bore	Metre	470	467	2,19,575.72
27.4	MR-63	40 mm dia nominal bore	Metre	235	565	1,32,802.76
27.5	MR-64	50 mm dia nominal bore	Metre	620	710	4,40,025.98
27.6	MR-65	65 mm dia nominal bore	Metre	240	916	2,19,840.17
27.7	MR-66	80 mm dia nominal bore	Metre	280	1,085	3,03,860.17
27.8	MR-67	100 mm dia nominal bore	Metre	195	1,473	2,87,209.50
27.9	MR-68	150 mm dia nominal bore	Metre	185	2,099	3,88,307.92
28	MR-69	Supply, installation , testing & commissioning of male/ female screwed end full way lever operated forged brass ball valve(PN 16) of brass body with forged brass ball & teflon seat tested to a pressure 24 Kg / sqcm with threaded joints complete as required. 20 mm nominal bore	Each	170	2,396	4,07,327.58
28.1	MR-70	25 mm nominal bore	Each	160	3,041	4,86,628.54
28.2	MR-71	32 mm nominal bore.	Each	105	4,157	4,36,530.82
28.3	MR-72	40 mm nominal bore	Each	52	5,419	2,81,792.02
28.4	MR-73	50 mm nominal bore	Each	198	8,329	16,49,076.56
29	MR-74	Supply, Installation, Testing and commissioning of slim seal type PN 16 C.I. Butterfly valve confirming to IS 13592 (Body : Grey Cast Iron, shaft : SS, Disc : SG Iron (Rilson coated), Liner : HT - EPDM) of approved make with PN 16 rating flange dimensions shall be confirming to IS 6392, washer, nuts & bolts. Rated to temperature of 85 Deg C and tested to a pressure not less than 24 Kg/Sq.cm. 65 mm nominal bore	Each	135	2,954	3,98,786.21
29.1	MR-75	80 mm nominal bore	Each	70	3,430	2,40,070.49
29.2	MR-76	100 mm nominal bore	Each	60	4,184	2,51,042.01
29.3	MR-77	150 mm nominal bore	Each	52	7,079	3,68,127.19
30	MR-78	Supply, installation , testing & commissioning of PN 16 dual plate check valve with CI Body, CS Disc, stainless steel stop pin, hing pin and spring and EPDM seal of approved quality (screwed end) including union, nipple, fixing on pipe complete as required and tested to a pressure not less than 24 Kg/Sq.cm. 50 mm nominal bore	Each	20	2,175	43,505.92
30.1	MR-79	65 mm nominal bore	Each	20	2,419	48,380.79
30.2	MR-80	80 mm nominal bore	Each	12	3,179	38,152.76
30.3	MR-81	100 mm nominal bore	Each	2	4,775	9,550.45
30.4	MR-82	150 mm nominal bore	Each	2	8,255	16,510.17
31	MR-83	Providing, fixing, testing and commissioning of CI Y' strainer for pressure of 16 kg / sq.cm with bronze perforated sheet basket including rubber gasket, flanges (test pressure of 24 kg / sqcm), nuts, bolts and washers, panting of the same complete as required and suitable for system pressure. 100 mm dia	Each	5	21,709	1,08,542.51
31.1	MR-84	150 mm dia	Each	15	39,733	5,95,998.85
31.2	MR-85	200 mm dia	Each	2	70,580	1,41,159.68
32	MR-86	Supply, installation , testing & commissioning of 3000 litre capacity SS water tank for drinking water storage , tank shall be provided with Inner layer SS316 + Outer Layer SS 304 of specified thickness, tank should be provided with inlet, outlet and vent/overflow connection, 50mm Puf Insulation , manhole cover 450mm dia, Inlet connection of water tank shall be of 25mm nominal bore, overflow/vent - 25mm nominal bore and outlet connection at bottom of tank of 40mm nominal bore. Cost of tank shall be inclusive of Angle stiffeners,stand leg, SS flanges connecting from water treatment facility and distribution system complete as per approved specifications. (contractor shall provide drawing to civil contractor for tank foundation) (Thickness of inner layer 0.8mm & outer layer .6mm)	Each	5	3,52,714	17,63,569.08
33	2.10.1.2	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m : Pipes, cables etc. exceeding 80 mm dia but not exceeding 300 mm dia.	Metre	55	272	14,955.34
34	2.6.1	Earth work in excavation by mechanical means (Hydraulic excavator)/manual means over areas (exceeding 30 cm in depth, 1.5 m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m. as directed by Engineer-in-charge. All kinds of soil	cum	7.04	152	1,069.43
35	19.6.2	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete : 150 mm diameter	Metre	55	430	23,661.87

36	18.33.1	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) , i/c 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 design : With common burnt clay F.B.S (see modular) bricks of class designation 7.5	Each	11	8,261	90,874.33
SUB TOTAL						910,97,324
	C	#REF!				
37	MR-87	Supply, installation , testing & commissioning of modular drinking water fountain having rated capacity 8.0 GPH suitable to deliver the normal/ cold water through tap along with basin , operation between 20-120 PSI, stainless steel finish with heavy duty galvanized steel with mountin frame, making connection with high efficiency chiller i/c Supply, installation , testing & commissioning of necessary hardware like stop valve, TRAP, pipe connector to <u>waste line and supply line (Excluding Civil work).</u>	Each	44	3,52,585	155,13,737
38	MR-88	Supply, installation , testing & commissioning of SS water tank for Hot water storage , tank shall be provided with inner layer SS316 + Outer layer SS 304 of specified thickness, tank should be provided with inlet, outlet and vent/overflow connection, 50mm Puf Insulation , manhole cover 450mm dia, Inlet connection of water tank shall be of 25mm nominal bore, overflow/vent - 25mm nominal bore and outlet connection at bottom of tank of 40mm nominal bore. Cost of tank shall be inclusive of Angle stiffeners,stand leg, SS flanges connecting from water treatment facility and distribution system complete as per approved specifications. (contractor shall provide drawing to civil contractor for tank foundation) (Thickness of inner layer 0.8mm & outer layer .6mm) Capacity: 2000 Litre(International centre)	Each	1	1,94,832	1,94,832
38.1	MR-89	Capacity: 2000 Litre(Campus Inn)	Each	1	1,94,832	1,94,832
38.2	MR-90	Capacity: 1000 Litre(Faculty Houses)	Each	34	1,12,952	38,40,382
38.3	MR-91	Capacity: 1000 Litre(Student Houses)	Each	22	1,12,952	24,84,953
38.4	MR-92	Capacity: 3000 Litre(Dining-student housing)	Each	1	3,52,714	3,52,714
39	MR-93	Supply, Installation, Testing and commissioning of DC operated stainless steel type solenoid valve for auto opening of drain valve of the flushing water storage tank at each building terrace after each 36 hours of non operation with adjustable range between 6-72 hr. The item includes supply installation testing and commissioning of flow switch in the suction line, wiring and fixing of transformer or panel in main MCC panel for complete auto operation of system. Complete shall be rated to temperature of 85 Deg C and tested to a pressure not less than 15 Kg/Sq.cm.The installation includes all pipe fittings(valves, elbows, nipples etc.) and control circuitary (timers, relays, wires, etc) to complete the system as required.	Each	67	1,53,298	102,70,953
SUB TOTAL						328,52,403
		#REF!				
40		Design, Fabrication,Supply, Installation, Testing and Commissioning of following type tested Wall mounted / Floor mounted(including base stand), 415V,3PH, 50Hz extensible and fully compartmentalized panels complying to IS 8623/93. The indoor panels shall be IP 42 and outdoor panels shall be IP 55 type.The Panel shall have proper space with required clearance for cables, incoming / outgoing switchgear, CTs, PTs, ammeter, Voltmeter, selector switches, Insulated and properly supported compartmentalized bus bars with heat shrinkable sleeves along with the other control circuit accessories within the panel and any other electrical component mentioned in the Panel SLD.The panel shall be fabricated out of CRCA not less than 2.0 mm thick for load bearing members and 1.6mm for the doors of LT panel.The Panel shall have seven tank pre treatment process comprising of degreasing, rinsing, de-rusting, rinsing, phosphatising, rinsing and passivation followed by powder coat painting having a paint thickness of 60 microns or as specified.The Panel shall be Dust/Vermin proof with earth studs as per the SLD and specifications. All Panels shall be BMS compatible and shall have HMI screen and PLC. Supply, installation testing and commissioning of Direct on line starter / Star-delta starters suitable for motors of air handling units/ Tertiary pumps of below mentioned capacities. The starter shall comprise of all necessary power and control equipments including Auto / Manual selector switch, Start/stop push butons, LED indications, Star contactor , delta contactor , timer relay contactor, electronic timer, potential free NO/NC contacts and necessary control wirings properly connected in fully usable state. Minimum utilization catagory for all contactors shall be AC3 and contactor shall be capable to withstand the steady state (full load) and starting inrush current. The starter shall have necessary protection device (MPCB +EOCR) whose settings and ratings shall be as per the type-2 co-ordination chart. The starter shall have inbuilt protection against overcurrent, short circuit and single phasing. All these starters shall be equipped with discharge resistors suitable for making the starter run under the closed transition state. All below mentioned starters shall be BMS compatible and additional contacts and wiring required for BMS integration shall be provided.				

40.1	MR-94	<p>Incoming : Surge arrester (1 No.) 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB (1 No.) 415V, 50Hz, 200A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.) Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, kVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,200/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 300 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 3.26kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 10.6kW star delta starter , 32A MPCB with OLR range 8-12.5A, 32A delta contactor and 9A star contactor-3 nos. 1.30kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 12 Nos.</p>	Each	1	15,32,978	15,32,978
40.2	MR-95	<p>Incoming : Surge arrester 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB (415V, 50Hz, 200A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.)Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, kVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,200/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 200 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 0.78kW Direct online starter , 3.2A MPCB with OLR range 2.2-3.2A, 12A contactor -3 nos. 3.91kW Direct online starter , 12.5A MPCB with OLR range 9-12.5A, 32A contactor -3 nos. 0.65kW Direct online starter , 2A MPCB with OLR range 1.4-2A, 9A contactor -3 nos. 1.49kW Direct online starter , 5A MPCB with OLR range 3.5-5A, 16A contactor -3 nos. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 20 Nos.</p>	Each	2	15,32,978	30,65,956
40.3	MR-96	<p>Incoming : Surge arrester 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB 415V, 50Hz, 160A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.)Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, kVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,160/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 200 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 0.98kW Direct online starter , 3.2A MPCB with OLR range 2.2-3.2A, 12A contactor -3 nos. 2.94kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 0.65kW Direct online starter , 2A MPCB with OLR range 1.4-2A, 9A contactor -3 nos. 1.49kW Direct online starter , 5A MPCB with OLR range 3.5-5A, 16A contactor -3 nos. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 20 Nos.</p>	Each	3	15,32,978	45,98,934

40.4	MR-97	<p>Incoming : Surge arrester 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB 415V, 50Hz, 160A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.)Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, KVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,160/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 200 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 0.98kW Direct online starter , 3.2A MPCB with OLR range 2.2-3.2A, 12A contactor -3 nos. 2.45kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 3.91kW Direct online starter , 12.5A MPCB with OLR range 9-12.5A, 32A contactor -3 nos. 0.65kW Direct online starter , 2A MPCB with OLR range 1.4-2A, 9A contactor -3 nos. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 15 Nos.</p>	Each	1	12,26,382	12,26,382
40.5	MR-98	<p>Incoming : Surge arrester 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB 415V, 50Hz, 160A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.)Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, KVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,160/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 200 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 1.30kW Direct online starter , 4A MPCB with OLR range 2.8-4A, 16A contactor -3 nos. 3.42kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 3.91kW Direct online starter , 12.5A MPCB with OLR range 9-12.5A, 32A contactor -3 nos. 0.82kW Direct online starter , 3.2A MPCB with OLR range 2.2-3.2A, 12A contactor -3 nos. Spare compartment Provision for 3 DOL starters and 3 Star/Delta starters. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 15 Nos.</p>	Each	1	12,26,382	12,26,382
40.6	MR-99	<p>Incoming : Surge arrester 2kVp,50kA rated surge arrester suitable fo both lightning and switching surges,complete with suitable protection fuse (inbuilt) along with suitable, FP, MCCB (Thermal magnetic based) and surge counter. MCCB 415V, 50Hz, 160A, 4P, 25kA for 1 sec rated , SCADA compatible MCCB breaker with microprocessor based inbuilt release having LSIG protection, potential free NO & NC contacts, undervoltage/shunt coils as required in addition to 4 spare NO and 4 spare NC contacts, door interlocking, and any other controls or interlocks as described in specifications or schedules complete as required.- 1No. Indication lamps (6 Nos.) LED type phase indication lamps suitable for 230V,50Hz AC (red, yellow, blue) - 1 Nos. LED type Indication lamps for breaker, suitable for 230V,50Hz AC supply (on, off, trip) - 1Nos. Metering (1 No.)Multifunction meter with inbuilt selector switch for measurement of current, voltage, power factor, KVA, kVAh, KVArh, KVAR, frequency, %THD (upto 15th order), THDi,THDv,KWHz (both line and phase) and maximum demand recording and indicating etc. complete as per specifications, compatibility to SCADA along with RS485 port along with 3Nos. , 415V ,160/5A, 15VA, CL-0.5 current transformer as required. Busbar (1 Set - 4P + E) Busbar made up of electrolytic grade high conductivity aluminium in rectangular cross section and suitable for 415V, FP, 50 Hz, 200 A, 25 kA for 1 sec of required length and cross sectional area. Outgoing : 0.78kW Direct online starter , 3.2A MPCB with OLR range 2.2-3.2A, 12A contactor -3 nos. 2.15kW Direct online starter , 8A MPCB with OLR range 5.5-8A, 16A contactor -3 nos. 3.91kW Direct online starter , 12.5A MPCB with OLR range 9-12.5A, 32A contactor -3 nos. 0.65kW Direct online starter , 2A MPCB with OLR range 1.4-2A, 9A contactor -3 nos. 40 Amp 4P MCB, 10 KA - 4 Nos. 16 Amp DP MCB, 10 KA - 15 Nos.</p>	Each	3	12,26,382	36,79,147
41	MR-100	<p>1.1 kV grade XLPE FRLS armoured power cables: Supplying following 1.1kV grade, XLPE insulated, FRLS type armoured cables suitable for 415V, 50Hz, AC system, with inner and outer PVC sheath, outer sheath provided with FRLS insulation, galvanised steel armouring (round or flat as mentioned) and with all components as mentioned in BOQ, specifications and schedule, complete as required. 4C X 10 sqmm copper conductor, 2XWY</p>	Meter	74	497	36,785
41.1	MR-101	4C X 4 sqmm copper conductor - 2XWY	Meter	1554.5	307	4,76,603
42	MR-102	<p>1.1 kV grade FRLS control cables: Supplying following 1.1kV grade, XLPE insulated, FRLS type control cables,suitable for 415V, 50Hz, AC system, with inner and outer PVC sheath, outer sheath provided with FRLS insulation and with all components as mentioned in BOQ, specifications and schedule, complete as required. 2C X 2.5 sqmm copper conductor</p>	Meter	550	137	75,586
42.1	MR-103	4C X 2.5 sqmm copper conductor - 2XWY	Meter	550	216	1,19,007

42.2	MR-104	6C X 2.5 sqmm copper conductor - 2XWY	Meter	110	300	32,968
42.3	MR-105	10C X 2.5 sqmm copper conductor - 2XWY	Meter	110	446	49,050
42.4	MR-106	12C X 2.5 sqmm copper conductor - 2XWY	Meter	55	627	34,462
42.5	MR-107	21C X 2.5 sqmm copper conductor - 2XWY	Meter	55	999	54,920
43	MR-108	1.1 kV grade cable laying: Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of following size on cable tray as required. Upto 35 sq. mm (clamped with 1mm thick saddle)	Meter	1628.5	23	37,447
44	MR-109	Supplying and making and termination with double compression brass gland and aluminum lugs for following size of PVC insulated and PVC sheathed /XLPE aluminum/Copper conductor cable of 1.1 KV grade of the following sizes as required The cost shall include the cost of crimping and all tools and accessories required to complete the job in full respect.	Each		696	-
44.1	MR-110	3C X 16 sqmm copper conductor - 2XWY 3C X 10 sqmm copper conductor, 2XWY	Each	8	450	3,598
44.2	MR-111	3C X 6 sqmm copper conductor, 2XWY	Each		340	-
44.3	MR-112	3C X 4 sqmm copper conductor, 2XWY	Each	168	209	35,088
44.4	MR-113	2C X 2.5 sqmm copper conductor - 2XWY	Each	66	166	10,936
44.5	MR-114	4C X 2.5 sqmm copper conductor- 2XWY	Each	44	202	8,883
44.6	MR-115	6C X 2.5 sqmm copper conductor - 2XWY	Each	22	244	5,361
44.7	MR-116	10C X 2.5 sqmm copper conductor - 2XWY	Each	22	244	5,361
44.8	MR-117	12C X 2.5 sqmm copper conductor - 2XWY	Each	22	209	4,595
44.9	MR-118	21C X 2.5 sqmm copper conductor - 2XWY	Each	22	341	7,505
45	4.6.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray (galvanisation thickness not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. 100 mm width x 50 mm depth x 1.6 mm thickness	Metre	55	526	28,922
45.1	4.6.2	150 mm width x 50 mm depth x 1.6 mm thickness	Metre	440	608	2,67,465
45.2	4.6.4	300 mm width x 50 mm depth x 1.6 mm thickness	Metre	110	848	93,268
46	4.7.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "bends" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. 100 mm width X 50 mm depth X 1.6 mm thickness	Each	22	985	21,678
46.1	4.7.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	99	1,177	1,16,538
46.2	4.7.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	11	1,745	19,197
47	4.8.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Tee" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. 100 mm width X 50 mm depth X 1.6 mm thickness	Each	11	1,135	12,484
47.1	4.8.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	11	1,177	12,949
47.2	4.8.4	300 mm width X 50 mm depth X 1.6 mm thickness	Each	11	2,044	22,488
48	4.10.1	Supplying and installing following size of perforated Hot Dipped Galvanised Iron cable tray "Reducer" (galvanisation not less than 50 microns) with perforation not more than 17.5%, in convenient sections, joined with connectors, suspended from the ceiling with G.I. suspenders including G.I. bolts & nuts, etc. as required. 100 mm width X 50 mm depth X 1.6 mm thickness	Each	11	1,923	21,148
48.1	4.10.2	150 mm width X 50 mm depth X 1.6 mm thickness	Each	11	2,398	26,375
48.2	4.10.3	300 mm width X 50 mm depth X 1.6 mm thickness	Each	11	3,563	39,191
		SUB TOTAL				170,09,637
D	#REF!					

49	MR-119	Submersible Centrifugal Non-clog Drainage Pump - Supply, installation, testing and commissioning of continuous duty submersible centrifugal non-clogging drainage pumps complete with CI Impeller, CI Casing, SS Shaft , 3 phase motor with all necessary protection and mechanical seal etc. complete with all ancillaries including float type level controllers, electrical control panels fabricated from 14 gauge CRCA sheet volt meter ammeter with selector switch, TPMCB, 5 VA CL : CTs, phase indicating lamps protected by 2 amp SP MCB, DOL starter, necessary wiring, cable alleys, earthing, interlocking, starter with Automatic float type level controller, provision of high level alarm, sequence timer, potential free contact to starter for connection to BAS, both pumps may run simultaneously at predetermined level. The pump shall be rated at premium efficiency rating of IE. The pump enclosure to be IP 68 rated and insulation class F. The item also includes sump pit lifting assembly suitable for 2 Nos. submersible drainage pumps in a sump of overall depth not more than 1.6 m, ready made electro – galvanized MS lifting chain, SS 316 pipe header complete with discharge manifold, flanges, tee, elbow etc. complete including SS 316 pipe upto the top of sump. The installation shall be complete with all necessary indigenous accessories as required to complete. (Cost to include suitable gun metal isolation valve, strainer on its suction line and gunmetal check valve and gunmetal isolation valve on its delivery	Set	1	31,66,703	31,66,703
49.1	MR-120	Nos. of Pumps : 4nos (3w+1s) (BALANCING TANK B TO KAMAL SAGAR-B) Water Flow Rate : 35 LPS each pump Solid handling capacity: 25-30 mm Head : 40 M	Set	1	31,66,703	31,66,703
49.2	MR-121	Nos. of Pumps : 3nos (2w+1s) (BALANCING TANK B TO KAMAL SAGAR-B) Water Flow Rate : 27 LPS each pump Solid handling capacity: 25-30 mm Head : 40 M	Set	1	23,27,658	23,27,658
50	MR-122	Providing, laying and jointing in position HDPE PE 100 PN 6.0 main line pipe conforming to IS: 4984 and suitable for the respective working pressure with all fittings complete. The jointing shall be butt fusion welding as per approved drawing and specification including excavation in all kind of soil, refilling, ramming, shoring, removing the excavated surplus material, providing adequate support to the pipe and making good the same complete as required. Rate shall include for dewatering necessary to execute the work. The pipe shall not be less than 1.0 m below ground level at any point. 250 mm dia nominal bore	Metre	1597	7,801	124,58,082
50.1	MR-123	200 mm dia nominal bore	Metre	65	6,442	4,18,703
50.2	MR-124	150 mm dia nominal bore	Metre	850	4,720	40,11,777
50.3	MR-125	100 mm dia nominal bore	Metre	150	3,542	5,31,245
51	MR-126	Supply, Installation, Testing and commissioning of slim seal type PN 16 Gear operated C.I. Butterfly valve conforming to IS 13592 (Body : Grey Cast Iron, shaft : SS, Disc : SG Iron (Rilson coated), Liner : HT - EPDM) of approved make with PN 16 rating flange dimensions shall be conforming to IS 6392, washer, nuts & bolts. Rated to temperature of 85 Deg C and tested to a pressure not less than 24 Kg/Sq.cm. 250 mm nominal bore	Each	10	15,991	1,59,908
51.1	MR-127	200 mm dia nominal bore	Each	4	12,103	48,410
51.2	MR-128	150 mm dia nominal bore	Each	20	7,079	1,41,587
51.3	MR-129	100 mm dia nominal bore	Each	5	4,184	20,920
53		Supply, erection, testing and commissioning of handling and hoisting equipment as per the technical specification in all pump houses.	Job	11	1,36,350	14,99,850
SUB TOTAL						279,51,547
E	#REF!					
52		Providing following manpower support to undertake the operation of the machineries installed at site : Min 3 Nos. certified electricians and 1 Nos. helper. However contractor may deploy more man power to ensure the smooth operation and pro rata calculation shall be performed on the basis of 3 No. electrician and 1 No. helper. The contractor has to maintain the service level agreement as stipulated in NIT. AMC for 1st year	Job	1	6,82,477	6,82,477
52.1		AMC for 2nd year	Job	1	6,82,477	6,82,477
SUB TOTAL						13,64,954