

	ह.स.क.क. HSCC					
	Design & Engineering Department				LINE ITEM No. 1	
	PROJECT: Construction of Water treatment Plant,LRSI, New Delhi					
	Name of Work: Bill of Quantity of Water Treatment Plant for Autoclave, LRSI, New Delhi					
Sl. No.	Description of Item	Unit	Qty.	Rate in Rs. (in figures)	Rate in Rs. (in words)	Amount in Rs. (in figures)
1	2	3	4	5	6	
1. 00	WATER TREATMENT PLANT					
	<p>Planning, Designing, Detailing, Manufacturing, Supplying, Erection, Testing and Commissioning of Water treatment plant for supply of treated water for use in Autoclave and other requirement of BSL Lab. comprising of filtration and pumps, R.O. system, D.M. plant and treated water storage tank 300 Its. capacity. The plant is to be installed on terrace floor of BSL Lab. and Raw water supply is available at terrace level including design and execution of all Civil, Structural, Electrical, Mechanical, Plumbing and processing, ancillary equipments & works etc required to complete the package, getting approval from HSCC/client etc.</p>					
	<p>The shop drawings & design of WTP shall also be prepared in such a way that it comprise of the following units of required size as per detail design requirements. The work has to be carried through authorised vendor, dealer/representative of approved make (Ion exchange, Pollucon technologies, AKAR Impex,Thermax, Aquaprocess, Fontus).</p>					

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i)	RAW WATER ANALYSIS (Preliminary)					
	Total Dissolved Solids: 600-1200 ppm					
	pH : 6.5-8.0					
	Total Hardness : 250-500 ppm					
	Total Alkalinity : 200-450 ppm					
	Silica : 10-30 ppm					
	Sulphate : 150-300 ppm					
	Chloride : 60-200 ppm					
ii)	R.O. System					
	Providing and fixing approved make & suitable model of R.O. plant 50 ltrs. Per hour flow rate having capacity to treat the raw water having TDS 1200 ppm and hardness upto 500 ppm with recovery of not less than 20%. The treated water should have TDS less than 90 ppm . The operating voltage to 230 volt AC +/- 10% alongwith required capacity pump and solenoid valves, dry run protection of pump, automatic tank level control, inbuilt auto flush timer for periodic flushing of membranes, over voltage and over current protection with switch mode power supply system complete in all respects including installation and fittings with the following provisions:					
	a) Online plated filter (high capacity type) minimum rating-50 microns (coarse filter)					
	b) 10 micron bacteriostatic activated carbon block					

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c)	10 micron polypropylene sediment pre filter with cartridge.					
d)	3 Nos. of reverse osmosis memberane with 0.0001 micron pore size energy saving poly amide type					
e)	Storage tank for treated R.O. water of 100 lts. Capacity					
iii)	DEMINERALISATION PLANT					
	Supply, installation & testing and commissioning of DM unit vertical floor mounted fabricated with Fibre reinforced Plastic (FRP)/LDPE vessels with single lever operated multiport valve with built in ejector, regeneration tank, piping interconnections, conductivity meter at outlet minimum resin quantity 30 ltrs. in cation vessel and 50 ltrs. in anion vessel.					
	Flow rate = 50 litres/hour (minimum), 500LPH (maximum)					
	Total dissolved solids at outlet < 5 ppm					
	Electrical conductivity at outlet < 30 ms/cm					
a)	DM Plant feed Pump : horizontal monobloc single / multi stage pump with complete anticorrosive construction with suitable motor complete with NRV at discharge, of suitable capacity - One no.					
b)	Treated water storage tank (Sintex HDPE double layered tank) of capacity 300 Ltrs.					

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iv)	PANEL & PIPING AND ANCILLARY EQUIPMENT					
a)	Suitable electrical panel for all above item and its requirement for interconnection with existing system along with cable, including starter/MCB for all pumps, necessary controls and earthing etc. complete in all respect.					
b)	All plumbing pipe line fitting (CPVC-SDR-11) and valve for above item and connecting the same with existing system etc. required to complete the work.					
c)	Civil foundation and allied civil work required to make the system functional.					
	Complete W.T.P as mentioned above including testing, training and trial run till comissioning of W.T.P.	Job	1.00			
2.00	Operation and maintenance including operating equipment, chemical and manpower after complete installation of equipment W.T.P.	Month	3.00			
3.00	Construction including provision of all material, at terrace, of a suitable enclosure to protect against weather/rain/sabotage/theft/unauthorised approach etc. of Pump, motor and Panels and other equipment of suitable design and material as approved by HSCC according to site conditions.	Job	1.00			

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