महाराष्ट्र जीवन प्राधिकरण

मुख्य अभियंता, पुणे प्रादेशिक विभाग पुणे,
नवीन प्रशासकीय इमारत, पुणे लष्कर पा.पु. केंद्र आवार,
४६३ स्टेव्हली रोड, सेंट मेरी चर्च शेजारी, कँप, पुणे-४११००१
दूरध्वनी : कार्यालयीन ०२०-२९७०६०६४ / २९७०६०६८
email : cemjppn@gmail.com

जा.क्र. मु.अ.पुणे /तां.शा.-२ / राज्य-दरसुची २०२३-२४/ ७५१ /२०२४ दिनांक २४.०१.२०२४

शुध्दीपत्रक क्र. ३

विषय :- मजीप्राच्या राज्य दरसुची सन २०२३-२४ मध्ये FBTec ® Technology for Sewage Treatment, Recycle and Reuse at source **या बाबीचा समावेश करण्याबाबत.**

संदर्भ :- (१) या कार्यालयाचे परिपत्रक जा. क्र. मु.अ.(पुणे) तांशा-३/दरसुची २०२३-२४ /१५८० दि. २८/०६/२०२३.

(२) अधीक्षक अभियंता(मु),मजीप्रा, मुंबई यांचे पत्र क्र.मजीप्रा/सस/तांशा ३/१२६५ /२०२३ दि.११/१०/२०२३.

(३) या कार्यालयाद्वारे डॉकेट स्वरुपात (जा.क्र.मु.अ(पुणे)/तांशा-२/आधुनिक तंत्रज्ञान / FBTec/दरसूची समावेश/८३/२०२४ दि ११ जानेवारी २०२४) सादर केलेल्या प्रस्तावास, मा.सदस्य सचिव म.जी.प्रा.मुंबई यांची दि १६/१/२४ अन्वये सादर टिप्पणीस मिळालेली मान्यता

मजीप्रा राज्य दरसुची सन २०२३ - २४ ही अध्यक्ष, दरसुची समिती तथा मुख्य अभियंता, म. जी. प्रा. प्रादेशिक विभाग पुणे यांचेमार्फत संदर्भ क्र. १ अन्वये प्रसिध्द करण्यात आली असुन दि. २०/०६/२०२३ पासुन लागु करण्यात आलेली आहे.

संदर्भीय पत्र क्र.३ अन्वये, सदर राज्य - दरसुचीमध्ये FBTec ® Technology for Sewage Treatment, Recycle and Reuse at source चा समावेश करण्याबाबत निर्देश प्राप्त झाले आहहेत. त्यानुसार सन २०२३-२४ च्या राज्य - दरसुचीमध्ये या शुध्दीपत्रकाद्वारे सदर बाबीचा समावेश खालीलप्रमाणे करण्यात येत आहे.

Section J (I) Treatment Plant (WTP and STP)

Sr.No.	Description	Unit	Rate Rs. 2023 - 24	
			Complete	Labour
I	FBTec ® Technology FOR Sewage Treatment, Recycle and Reuse at source.			

1/8

	The plant shall treat raw sewage /domestic waste water. The raw sewage is piped to a collection tank called equalization tank. Client shall make Raw Sewage available at equalization tank. (Equalization Tank shall be provided by client) The Equalization tank will be provided with screening system at the inlet for further screening of the larger particles. Relatively clear sewage shall then be pumped to Bio Zone Tank. After the aeration / biological process, the treated sewage shall flow to the Tube Settler Unit (Settling Tank). The clear water from Tube Settler outlet shall be collected in Chlorine Contact Tank / Filter Feed Tank with chlorination being done with dosing pumps. The chlorinated water after adequate contact time shall be pumped through filter to remove suspended solids and stored in storage tank (By others) for reuse and disposal. Sludge from the setting tank shall be collected in the sludge holding tank.			
(i)	5 KLD Capacity	Job	13,00,000.00	
(ii)	50 KLD Capacity	Job	42,50,000.00	
(iii)	500 KLD Capacity	Job	1,80,00,000.00	
	NOTE: Above Rates Are Excluding GST.			
A	**Raw Sewage Characteristics**			
	Temperature - Ambient			
	pH - 6 – 9			
	BOD_5 - 350 ppm			
	COD - 550 ppm			
	TSS - 150 ppm			
	O & G - 5 ppm			
	TKN - 50 ppm			
	Ammonia - 40 ppm			
	Total Phosphorus - 10 ppm			
B	**Treated Water Characteristics**			
	Temperature - Ambient			

2/8

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	pH - - 6 - 9			
	BOD_5 - 10 ppm			
	COD - 100 ppm			
	TSS - 10 ppm			
	O & G < 1 ppm			
	TKN - 10 ppm			
	Ammonia < 5 ppm			
	Total Phosphorus - 5 ppm			
	Note: If raw sewage characteristics observed as per test are more critical than the mentioned in description (Table A) same shall be used for the design of sewage treatment plant (STP), otherwise raw sewage characteristics mentioned (Table A) shall be used.			
II	**FOLLOWING COMPONENTS ARE INCLUDED**	**Components**		
	1.Bar Screen Screening is unit operation that separate large floating material and /or on water. Found in different sizes. Screen size 6 mm. Screening prevents floating material entering in waste water treatment units and mains. **Note: For Plants above 500 KLD Automatic screens are provided.**	**1 Nos.**		
	2.Equalization Tank: (By Others) The equalization tank receives sewage from the bar screen chamber as well as the oil, grease and grit trap. In STPs, the equalization tank is the first collection tank. Its primary role is to acts as a buffer, collecting entering raw sewage at varying rates and passing it on to the reminder of the STP at a constant (average) flow rate. Sewage flows at a high pace during peak hours. The sewage is stored in the equalization tank and released during non-peak times when there is no or little incoming sewage.	**1 Nos.**		

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	The Average flow, peak flow duration and flow rates are important. The tank is design accordingly.			
	3.Sewage feed Pumps Sewage feed pumps are provided in the equalization tank to transfer sewage to bio zone tank. The sludge handling capacity is and accurate flows are important in this pump which is taken care of.			
	4. Air Blowers Blowers are provided in bio zone tank for aeration purpose. The essential function of aeration blowers is to fulfil oxygen demands and maintain the treatment process at the lowest possible costs. Air flow requirements are calculated considering not only the inlet BOD level but also the NH4 contents which is important in STP designs as it is directly related to smell and odour.	**2 Nos.**		
	5.Biozone Tank with fixed media for biological growth The biological treatment of BOD and complete nitrification of ammonical nitrogen shall takes place in this tank. This process consists of growth of different bacteria/ micro-organism on the fixed media. Microbiological growth occurs by utilizing organic compounds and ammonical nitrogen. The micro-organism absorbs and oxidizes organic contaminants via biological oxidation. The process utilises the nutrients in waste water (i.e. nitrogen and phosphorus) in addition to organic contaminants for healthy cell synthesis to occur. The denitrification shall also occur in this tank. The tanks are designed in such a way that the fixed media used for bacterial growth doesn't move at all. No media replacement is needed for 30 years or so.	**1 Nos.**		
	6.Tube Settler/Settling Tank Tube Settler shall remove the suspended solids from liquor with Suspended Solids overflown from bio zone tank. The solids shall be and the supernatant shall overflow	**1 Nos.**		

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4/8

	into chlorine contact tank. The sludge shall settle at the hopper bottom of tank of clarifier. The settling tank is provided with parallel plates to enhance the settling in lesser space.			
	7.Chlorine Contact Tank (CCT) Chlorine Contact Tank is used to disinfect water. This helps control the speed and flow of the water within the tank. For the water to be considered treated, the water must be in contact with the chemicals for predetermined time. (30min)	**1 Nos.**		
	8.NaOCl Dosing System Doing pump system will then be dosed with chlorine (sodium hypochlorite) at a specified rate to help kill off any bacteria ,viruses or parasites within the water.	**1 Nos.**		
	9.Sludge Holding Tank (SHT) Sludge Holding Tanks provide storage of biosolids and can serve as a location for thickening before further processing or disposal. Mixing uniform sludge concentration, prevents sludge stratification, and ensures a homogenous feed to dewatering equipment.	**1 Nos.**		
	10.Filter Feed Pumps Filter Feed pumps are used to pump the filter water from chlorine contact tank to pressure sand filter.	**2 Nos.**		
	11. Pressure Sand Filter (PSF) The PSF unit is provided to remove suspended solids. The water is entered from the top and exit through the grades of media. During the course of filtration, bed is compacted raising the differential pressure across the unit. To clean the media, backwash of the filter is done at regular interval. a. Pebble Size (25 – 50 mm): One-layer; 100 to 200 mm at the bottom; depending on vessel size.	**1 Nos.**		

5/8

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	b. Pebble Size (12 – 25 mm): One-layer; 200 to 300 mm depending on the vessel size. c. Pebble Size (6 – 12 mm): One-layer; 200 to 300 mm depending on the vessel size. d. Fine Sand: One-layer 100 to 20(depending on the vessel size at the Top			
	12. Sludge Disposal Pumps Sludge disposal pumps is used to transfer sludge from sludge holding tank to further process. **Note: Pumps are provided in plants with capacity more than 200 KLD.**	**1 Nos.**		
	13.Electrical Panel We offer Electrical panel that is designed for the distribution of power, main incoming and motor control panels.	**1 Nos.**		
	14.Instrumentation & Control A. Level Switches These devices equip electrodes to detect liquid levels. Level switches are provided in equalization tank for sewage transfer pumps and Chlorine contact tank for filter feed pumps B. Rotameter Provided to measuring the continues flow range of water. Note: Rota meter provided up to 40 KLD units.	**2 Nos.**		

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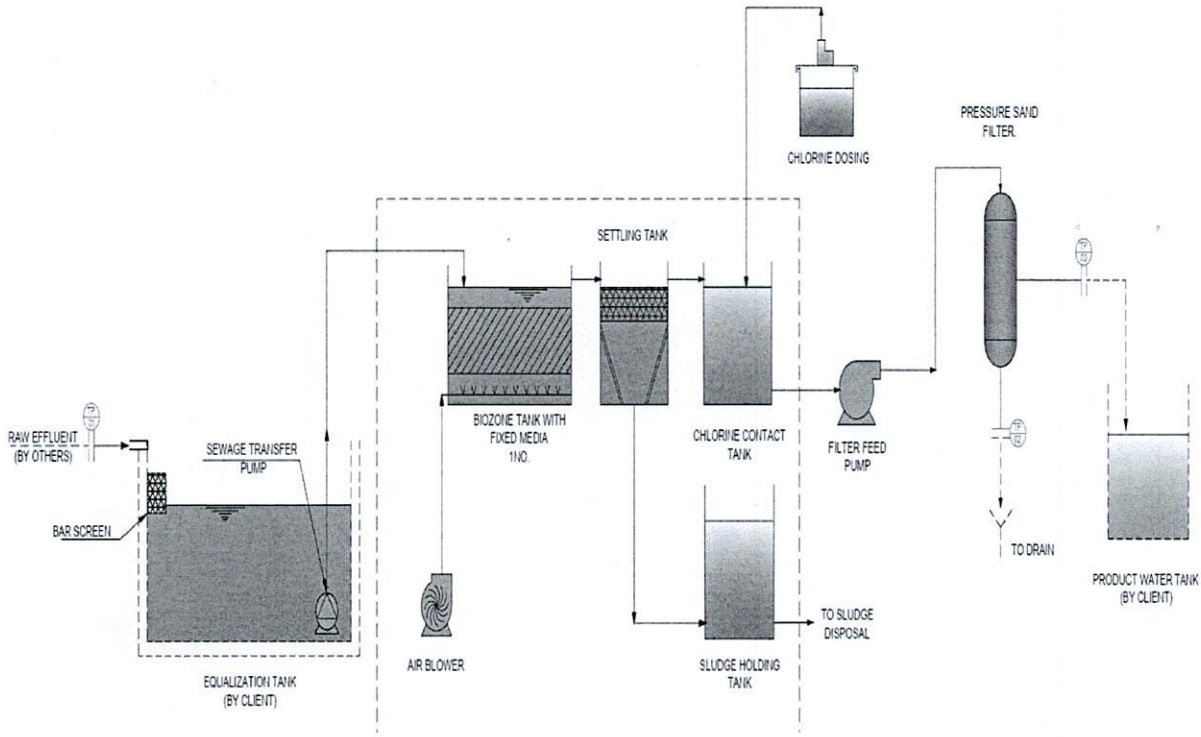
Process Flow Diagram:



List of Equipment's

Sr.No.	Description	Make
1.	Process Tank	IWTPL
2.	Sewage feed Pump	CRI, Grundfos , Aguasol or equivalent
3.	Air Blowers	KPT, Aquaastar or equivalent
4.	Bio zone media	Cooldeck or equivalent
5.	Tube Settler media	Cooldeck or equivalent
6.	Filter Feed Pump	CRI, Grundfos , Aguasol or equivalent
7.	Dosing Pump	Edose or equivalent
8.	Dosing Tank	UKL or equivalent

7/8

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9.	Pressure Sand Filter	Pentair or equivalent
10.	Electrical Panel	IWTPL
11.	UPVC piping	Astral, Effast or equivalent

Footprints and Power Consumption

Capacity (KLD)	No. of Users (Range) or population	Area reqd in meters (Excluding Equalization tank)	Power Consumption (kW.Hr/day)	Electrical Specs
5	40 to 60	2.2x1.2x1.5(ht)	30	Single Phase
50	450 to 550	8.5x1.8x2.4(ht)	105	Three Phase
500	4750 to 5200	20 x 15 x 3.0(ht)	612	Three Phase

Note: Prefabricated units can be adjusted as per space availability.

Note:

1. Recommanded Equalization Tank Capacities (By Client)

SN	CAPACITY (KLD)	Equalization Tanks Capacities (in m^3)	
		MIN	MAX
1.	5	1	3
2.	50	4	12
3.	500	42	126

Note: Design of Equalization Tank is based on considering of following parameter
For MIN - Peak flow is 2 times avg. Flow and Peak duration is 2 hrs.
For MAX - Peak flow is 3 times average. Flow and Peak duration is 3 hrs.

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28.9.24

(रा.सा.राहाणे)
अध्यक्ष दरसुची समिती तथा,
मुख्य अभियंता,
मजीप्रा प्रादेशिक विभाग पुणे.

प्रत : मा.सदस्य सचिव, मजीप्रा मुंबई यांना माहितीसाठी सविनय सादर.

प्रत : मुख्य अभियंता, मजीप्रा ठाणे/नाशिक/औरंगाबाद/अमरावती/नागपुर यांना माहिती व पुढील कार्यवाहीसाठी.

प्रत : अधीक्षक अभियंता (मुख्यालय) / अधीक्षक अभियंता, मध्यवर्ती नियोजन,संकल्पचित्र व सनियंत्रण कक्ष, मजीप्रा मुंबई यांना माहितीसाठी.

प्रत : उप अभियंता, अद्ययावत तंत्रज्ञान कक्ष, मजीप्रा, मुंबई याना माहीतीसाठी व मजीप्राच्या संकेतस्थळावर Upload करण्यासाठी.

8/8