

Office of the Chief Engineer LSGD

Construction of a 2000 kgs / Day Bio Gas Plant MODAL ESTIMATE

Detailed Estimate

(Cost Index Applied for this estimate is 35.59%)

Sl No	Description	No	L	B	D	CF	Quantity	Remark
1 Biogas plant								
1	2.31 Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared							
	Site clearance	1	25.000	10.000			250.000	
							Total Quantity	250.000 sqm
							Total Deducted Quantity	0.000 sqm
							Net Total Quantity	250.000 sqm
							Say250.000 sqm @ Rs 13.82 / sqm	Rs 3455.00
2	2.7.1 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 disposal of excavated earth, lead up to 50 m and lift up to 1.5 m, disposed earth to be levelled and neatly dressed.Ordinary rock							
	Digester - above	0.785	8.400	8.400	5.900		326.799	3.14xhxh (3xR-h)
	Digester - bellow	3.14	1.950	1.950	(3*4.20 - 1.95)		127.160	
	Set tiling Tank	1	4.900	4.000	2.000		39.200	
	Oil squeezing TANK	1	4.000	4.000	2.000		32.000	
	Displacement Tank	1	6.100	4.600	3.000		84.180	
	Filter Tank	1	5.400	3.400	3.500		64.261	
							Total Quantity	673.600 cum
							Total Deducted Quantity	0.000 cum
							Net Total Quantity	673.600 cum
							Say673.600 cum @ Rs 387.78 / cum	Rs 261208.61
3	2.26.2 Extra for every additional lift 1.5 m or part there of in excavation / banking excavated or stacked materials.Ordinary or hard rock							
							Second lift - 1.50 m - 3.0 m	
	Digester - above	0.785	8.400	8.400	4.400		243.715	

	Digester - bellow	3.14	1.950	1.950	(3*4.20 - 1.95)		127.160	
	Set tiling Tank	1	4.900	3.400	0.300		4.998	
	Oil squeezing Tank	1	4.000	4.000	0.500		8.000	
	Displacement Tank	1	6.100	4.600	1.500		42.090	
	Filter Tank	1	5.400	3.400	2.000		36.720	
Third lift - 3.0 m - 4.50 m								
	Digester - above	0.785	8.400	8.400	2.900		160.630	
	Digester bellow	3.14	1.950	1.950	(3*4.20 - 1.95)		127.160	
	Filter Tank	1	5.400	3.400	0.500		9.180	
Forth lift 4.50 m - 6.0 m)								
	Digester - above	0.785	8.400	8.400	1.400		77.546	
	Digester bellow	3.14	1.950	1.950	(3*4.20 - 1.95)		127.160	
Total Quantity							964.359 cum	
Total Deducted Quantity							0.000 cum	
Net Total Quantity							964.359 cum	
Say964.359 cum @ Rs 178.33 / cum							Rs 171974.14	
4	60.2.2 Bailing out water Using 5HP Pump- Bailing out water with 5HP engine and pump set including conveyance to site and erection, cost of fuel, lubrication oil and other stores, pay of staff etc complete							
	5 H.P pump using	1	25.000		8.000		200.000	
Total Quantity							200.000 hour	
Total Deducted Quantity							0.000 hour	
Net Total Quantity							200.000 hour	
Say200.000 hour @ Rs 354.91 / hour							Rs 70982.00	
5	5.9.1 Centering and shuttering including strutting, etc. and removal of form for: Foundations, footings, bases of columns, etc for mass concrete							
	Plant bottom	1*3.14	9.500		0.300		8.949	
	Oil squeezing tank	1	13.200		0.250		3.300	
	Settling tank bottom	1	12.400		0.250		3.100	
	Displacement tank	1	18.600		0.250		4.650	
	Filter tank	1	14.800		0.250		3.700	

		Total Quantity					23.699 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					23.699 sqm	
		Say 23.699 sqm @ Rs 313.45 / sqm					Rs 7428.45	
6	60.7.1 DRY RUBBLE MASONRY _ Dry rubble without concrete levelling course masonry with good quality blasted rubble including packing to compactness to lines and levels cost and conveyance of all materials labour charges etc. complete as per direction of Departmental officers at site							
	Outer volume	3.14	1.950	1.950	(3*4.20 - 1.95)	127.160	outer volume - inner volume	
	Displacement tank	1	5.400	3.900	0.600	12.636		
	Settling tank	1	4.200	2.700	0.600	6.804		
	Squeezing tank	1	3.300	3.300	0.600	6.534		
	Filter tank	1	4.700	2.700	0.600	7.614		
	deduction							
	Digester inner volume	3.14	1.350	1.350	(3*3.60 - 1.35)	-54.079		
		Total Quantity					160.748 cum	
		Total Deducted Quantity					-54.079 cum	
		Net Total Quantity					106.669 cum	
		Say 106.669 cum @ Rs 3263.80 / cum					Rs 348146.28	
7	4.1.8 Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level:1:4:8 (1 cement : 4 coarse sand : 8 graded stone aggregate 40 nominal size)							
	Outer volume	3.14	1.350	1.350	(3*3.60 - 1.35)	54.080	outer volume - inner volume	
	Displacement tank	1	5.400	3.900	0.150	3.159		
	Settling tank	1	4.200	2.700	0.150	1.701		
	Squeezing tank	1	3.300	3.300	0.150	1.634		
	Filter tank	1	4.700	2.700	0.150	1.904		
	Inlet tank	1	1.200	1.200	0.100	0.144		
	Ring portion	3.14	9.300	0.300	0.150	1.315		

		deduction							
	Digester inner volume	3.14	1.200	1.200	(3*3.45 - 1.20)			-41.372	
								Total Quantity	63.937 cum
								Total Deducted Quantity	-41.372 cum
								Net Total Quantity	22.565 cum
								Say 22.565 cum @ Rs 6370.44 / cum	Rs 143748.98
8	5.1.2 Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level:1:1:5:3 (1 cement 1.5 coarse sand :3 graded stone aggregate 20 mm nominal size								
	Outer volume	3.14	1.200	1.200	(3*3.45 - 1.20)			41.373	outer volume - inner volume
	Displacement tank	1	5.200	3.900	0.120			2.434	
	Settling tank - bottom	1	4.200	2.700	0.120			1.361	
	Squeezing tank - bottom	1	3.300	3.300	0.120			1.307	
	Filter tank	1	4.700	2.700	0.120			1.523	
	Displacement tank wall	1	15.600	0.100	3.000			4.680	
	Intermediate belt and top belt for settling tank	2	11.800	0.200	0.100			0.472	
	Top belt for partition wall	3	2.000	0.200	0.100			0.120	
	Intermediate belt and top belt for squeezer	2	11.200	0.200	0.100			0.448	
	Intermediate belt and top belt for Filter tank	2	12.800	0.200	0.100			0.512	
	belt for partition wall	3*2	2.000	0.200	0.100			0.240	
	Cover slab settlement tank	1	3.900	2.400	0.100			0.936	
	Displacement tank slab	1	5.100	3.600	0.100			1.836	
	Filter tank slab	1	4.400	2.400	0.100			1.056	

	Ring portion	3.14	9.300	0.300	0.200		1.753	
	deduction							
	Digester inner volume	3.14	1.000	1.000	(3*3.25 - 1.00)		-27.475	
	Total Quantity						60.051 cum	
	Total Deducted Quantity						-27.475 cum	
	Net Total Quantity						32.576 cum	
	Say 32.576 cum @ Rs 8492.63 / cum						Rs 276655.91	
9	5.5 Reinforced cement concrete work in arches, archribs, domes, vaults, shells, folded plate and roofs having slope more than 15 up to floor five level excluding the cost of centering, shuttering, finishing and reinforcement with 1:1.5:3 (1 cement :1.5 coarse sand(Zone III) : 3 graded stone aggregate 20 mm nominal size)							
	Dome	2/3	3.140	3.550	3.550	3.55	93.654	2/3x3.14 x R x R x R
	Digester vertical wall	3.14	8.900	0.200	3.400		19.004	
	Deduction							
	Dome	2/3	3.140	3.350	3.350	3.35	-78.699	2/3x3.14 x r x r x r
	Total Quantity						112.658 cum	
	Total Deducted Quantity						-78.699 cum	
	Net Total Quantity						33.959 cum	
	Say 33.959 cum @ Rs 11321.25 / cum						Rs 384458.33	
10	5.9.9 Centering and shuttering including strutting, etc. and removal of form for:Arches, domes, vaults up to 6m span							
		3.14	26.950				84.623	
	Total Quantity						84.623 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						84.623 sqm	
	Say 84.623 sqm @ Rs 1885.05 / sqm						Rs 159518.59	
11	5.9.3 Centering and shuttering including strutting, etc. and removal of form for:Suspended floors, roofs, landings, balconies and access platform							
	Settling tank cover slab	1	12.600	0.100			1.260	

	Displacement tank cover slab	1	17.400	0.100			1.740	
	Filter tank	1	13.600	0.100			1.360	
	Total Quantity						4.360 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						4.360 sqm	
	Say 4.360 sqm @ Rs 762.57 / sqm						Rs 3324.81	
12	5.21 Extra for providing and fixing expanded metal mesh of size 20x60 mm and strands 3.25 mm wide 1.6 mm thick weighing 3.64 kg per sqm for encasing or rolled steel sections in beams, columns and grillages excluding cost of hangers.							
	Providing and fixing chicken mesh for single layer inside of oil squeezing	1	12.000		3.300		39.600	
	Total Quantity						39.600 sqm	
	Total Deducted Quantity						0.000 sqm	
	Net Total Quantity						39.600 sqm	
	Say 39.600 sqm @ Rs 488.48 / sqm						Rs 19343.81	
13	5.22.6 Steel reinforcement for R.C.C work including straightening, cutting, bending, placing in position and binding all complete upto plinth level Thermo - Mechanically Treated bars of grade Fe-500D or more							
	As per item No.8 = 32.576 cum	1	32.576			80.0	2606.080	
	As per item No.9 = 33.959 cum	1	33.959			80.0	2716.720	
	Total Quantity						5322.800 kilogram	
	Total Deducted Quantity						0.000 kilogram	
	Net Total Quantity						5322.800 kilogram	
	Say 5322.800 kilogram @ Rs 91.89 / kilogram						Rs 489112.09	
14	13.7.1 12 mm cement plaster finished with a floating coat of neat cement of mix:1:3 (1 cement : 3 fine sand)							
	Dome inside	3.14	22.900				71.906	
	Digester inside	3.14	8.500		3.140		83.807	
	Digester bottom	3.14	18.060				56.709	
	Dome outside	3.14	27.873		3.140		274.817	

	Digester outside	3.14	9.300			29.202	
	pocket inside	1	1.200		1.000	1.200	
	inside wall	1	3.200		2.500	8.000	
	settlement tank bottom	1	3.900	2.000		7.800	
	inside wall	1	11.000		2.500	27.500	
	out side wall	1	12.600		2.500	31.500	
	Displacement tank bottom	1	4.500		3.000	13.500	
	inside wall	1	15.000		3.000	45.000	
	out side	1	17.400		3.000	52.200	
	filter tank bottom	1	4.000	2.000		8.000	
	inside wall	4	5.700		3.000	68.400	
	out side	1	13.600		3.000	40.800	
	digester vertical wall inside	3.14	8.500		3.400	90.746	
	digester vertical wall outside	3.14	9.300		3.400	99.287	
	oil squeezing tank outer	1	13.600		3.000	40.800	
	oil squeezing tank inner 2 layer plastering ferro cement t nt	2	12.000		3.000	72.000	
	Inlet tank inner	1	4.000		1.000	4.000	
	Inlet tank outer	1	4.400		1.000	4.400	
					Total Quantity	1131.574 sqm	
					Total Deducted Quantity	0.000 sqm	
					Net Total Quantity	1131.574 sqm	
					Say 1131.574 sqm @ Rs 375.04 / sqm	Rs 424385.51	
15	13.23.1 Extra for plastering on circular work not exceeding 6 m in radius. In one coat						
	digester inside wall	3.14	8.500		3.400	90.746	
	digester outside wall	3.14	9.300		3.400	99.287	
					Total Quantity	190.033 sqm	

		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					190.033 sqm	
		Say190.033 sqm @ Rs 39.42 / sqm					Rs 7491.10	
16	13.25.1 Extra for plastering :Spherical ceiling							
	Dome inside	3.14	22.900				71.906	
		Total Quantity					71.906 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					71.906 sqm	
		Say71.906 sqm @ Rs 146.96 / sqm					Rs 10567.31	
17	6.4.1 Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in:Cement mortar 1:4 (1 cement : 4 coarse sand)							
	digester inside	3.14	8.600	0.100	3.400		9.182	
	digester outside	3.14	9.200	0.100	3.400		9.822	
	pocket portion	1	4.800	0.200	2.500		2.400	
	Displacement tank inner side	1	15.400	0.100	3.000		4.620	
	Displacement tank outer side	1	17.000	0.100	3.000		5.100	
		Total Quantity					31.124 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					31.124 cum	
		Say31.124 cum @ Rs 8592.76 / cum					Rs 267441.06	
18	50.6.1.4 Solid block masonry using pre cast solid blocks (Factory made) of size 30x20x20cm or nearest available size confirming to IS 2185 part I of 1979 for foundation and plinth with thickness 20cm and above in: CM 1:6 (1 cement : 6 coarse sand) etc complete							
	settling tank	1	11.800	0.200	2.300		5.428	
	oil squeezing tank	1	12.800	0.200	2.800		7.168	
	partition wall	3	2.000	0.200	2.400		2.880	
	filter tank	1	12.800	0.200	2.800		7.168	
	partition wall	3	2.000	0.200	3.000		3.600	
	Inlet tank	1	4.400	0.200	1.000		0.880	
		Total Quantity					27.124 cum	

		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					27.124 cum	
		Say 27.124 cum @ Rs 5562.24 / cum					Rs 150870.20	
19	6.10	Brick work in gauged arches in superstructure above plinth level and upto floor five level in cement mortar 1:3 (1 cement : 3 coarse sand) including centering and shuttering complete, for span up to 6 meters with common burnt clay F.P.S. (non modular) bricks of class designation 7.5.						
	Dome	3.14	23.780		0.100		7.467	
		Total Quantity					7.467 cum	
		Total Deducted Quantity					0.000 cum	
		Net Total Quantity					7.467 cum	
		Say 7.467 cum @ Rs 16903.00 / cum					Rs 126214.70	
20	13.44.1	Finishing walls with water proofing cement paint of required shade: New work (Two or more coats applied @ 3.84 kg/10 sqm)						
	Dome inside	3.14	22.900				71.906	
	Digester inside	3.14	8.500		3.140		83.807	
	Digester bottom	3.14	18.060				56.709	
	Dome outside	3.14	27.873		3.140		274.817	
	Digester outside	3.14	9.300				29.202	
	pocket inside	1	1.200		1.000		1.200	
	inside wall	1	3.200		2.500		8.000	
	settlement tank bottom	1	3.600	1.600			5.760	
	inside wall	4	4.500		3.000		54.000	
	out side wall	1	11.200		3.000		33.600	
	Displacement tank bottom	1	4.500		3.000		13.500	
	inside wall	1	15.000		3.000		45.000	
	out side	1	17.400		3.000		52.200	
	filter tank bottom	1	4.000	2.000			8.000	
	inside wall	4	5.700		3.000		68.400	
	out side	1	13.600		3.000		40.800	
	digester vertical wall inside	3.14	8.500		3.400		90.746	

	digester vertical wall outside	3.14	9.300		3.400		99.287	
		Total Quantity					1036.934 sqm	
		Total Deducted Quantity					0.000 sqm	
		Net Total Quantity					1036.934 sqm	
		Say1036.934 sqm @ Rs 100.38 / sqm					Rs 104087.43	
21	19.18.1 Supplying and fixing C.I with out frame for manholes:455 x 610 mm rectangular C.I cover (light duty) the weight of the cover to be no less than 23 kg							
		3					3.000	
		Total Quantity					3.000 each	
		Total Deducted Quantity					0.000 each	
		Net Total Quantity					3.000 each	
		Say3.000 each @ Rs 1459.30 / each					Rs 4377.90	
22	18.7.4 Providing and fixing Chlorinated Polyvinyl Chloride (CPVC) pipes, having thermal stability for hot & cold water supply, including all CPVC plain & brass threaded fittings including fixing the pipe with clamps at 1.00 m spacing. This includes jointing of pipes & fittings with one step CPVC solvent cement and testing of joints complete as per direction of Engineer -in-Charge. Internal work - Exposed on wall32 mm nominal outer dia pipes							
		1	200.000				200.000	
		Total Quantity					200.000 metre	
		Total Deducted Quantity					0.000 metre	
		Net Total Quantity					200.000 metre	
		Say200.000 metre @ Rs 528.73 / metre					Rs 105746.00	
23	2.25 Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.							
	As per item No.2	1	673.600				673.600	
	As per item No.3	1	964.359				964.359	
		Deductions						
	plant volume	1			84.000		-84.000	
		1			221.000		-221.000	
		1			57.000		-57.000	
	displacement tank	1	5.100	3.600	2.800		-51.408	

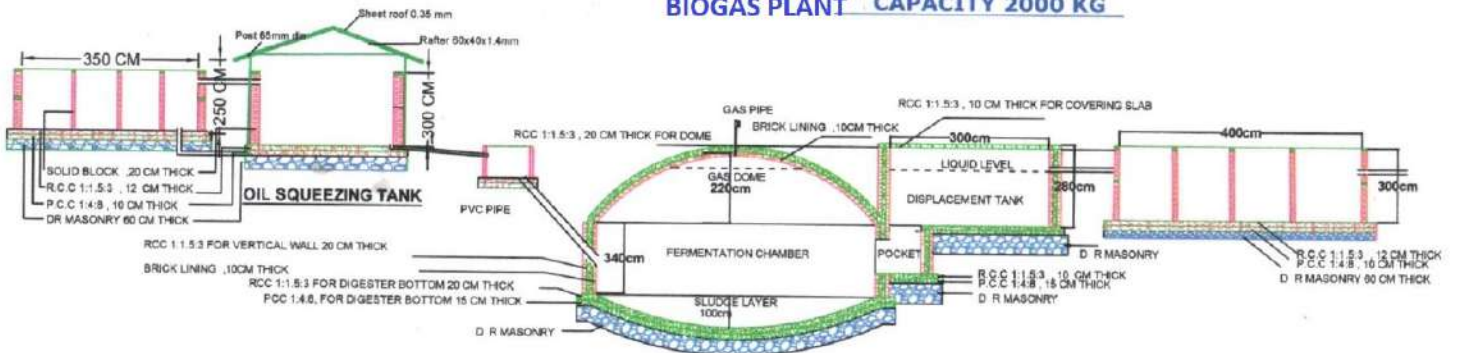
	settling tank	1	3.600	2.000	2.000		-14.400		
	oil squeezing tank	1	3.400	3.400	2.400		-27.744		
	filter tank	1	4.400	2.400	2.800		-29.568		
	DR	1	56.000	2.400	2.800		-376.320		
	Total Quantity						1637.959 cum		
	Total Deducted Quantity						-861.440 cum		
	Net Total Quantity						776.519 cum		
	Say 776.519 cum @ Rs 241.71 / cum							Rs 187692.41	
24	15.60 Disposal of building rubbish/ malba/ similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved								
		1	500.000				500.000		
	Total Quantity						500.000 cum		
	Total Deducted Quantity						0.000 cum		
	Net Total Quantity						500.000 cum		
	Say 500.000 cum @ Rs 152.79 / cum							Rs 76395.00	
25	50.18.9.10.1 Providing and fixing PVC pipes including jointing of pipes with one step pvc solvent cement, trenching , refilling & testing of joints complete as per direction of Engineer in Charge. 150 mm dia 6 Kgf/cm2								
	inner connection	1	24.000				24.000		
	conveying gray water	1	50.000				50.000		
	Total Quantity						74.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						74.000 metre		
	Say 74.000 metre @ Rs 844.12 / metre							Rs 62464.88	
26	50.18.9.19.1 Providing and fixing PVC pipes including fixing the pipe with clamps/ clips/ at 1.00 m spacing . This includes jointing of pipes with one step PVC solvent cement and testing of joints complete as per direction of Engineer-in-Charge 110 mm dia 6 Kgf/cm2 - External work- Exposed on wall								
	conveying gray water	1	25.000				25.000		
	Total Quantity						25.000 metre		
	Total Deducted Quantity						0.000 metre		
	Net Total Quantity						25.000 metre		
	Say 25.000 metre @ Rs 356.86 / metre							Rs 8921.50	

27	10.16.1 Steel work in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. Hot finished welded type tubes						
	post 50 mm dia G.I. pipe	6	4.500			5.03	135.810
	wall plate - 80x40x2.60m RHS	2	3.300			4.5	29.700
	Rafter - 60x40x2.60 mm RHS	4*2	2.200			3.69	64.944
	collar - 60x40x2.60 mm RHS	4*2	2.200			3.69	64.944
	purlin 25x25x2.6 mm SHS	4*2	3.900			1.69	52.728
	Total Quantity						348.126 kg
	Total Deducted Quantity						0.000 kg
	Net Total Quantity						348.126 kg
	Say 348.126 kg @ Rs 157.80 / kg						Rs 54934.28
28	13.61.1 Painting with synthetic enamel paint of approved brand and manufacture to give an even shade: Two or more coats on new work						
	post 50 mm dia G.I. pipe	6	4.000			0.2	4.800
	wall plate - 80x40x2.60m RHS	2	3.300			0.2	1.320
	Rafter - 60x40x2.60 mm RHS	4*2	2.200			0.2	3.520
	collar - 60x40x2.60 mm RHS	4*2	2.200			0.2	3.520
	purlin 25x25x2.6 mm SHS	4*2	3.900			0.1	3.120
	Total Quantity						16.280 sqm
	Total Deducted Quantity						0.000 sqm
	Net Total Quantity						16.280 sqm
	Say 16.280 sqm @ Rs 133.72 / sqm						Rs 2176.96
29	51.20 Providing and fixing pre-coated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.35 mm (+0.05%), total coated thickness with zinc coating 120 grams						

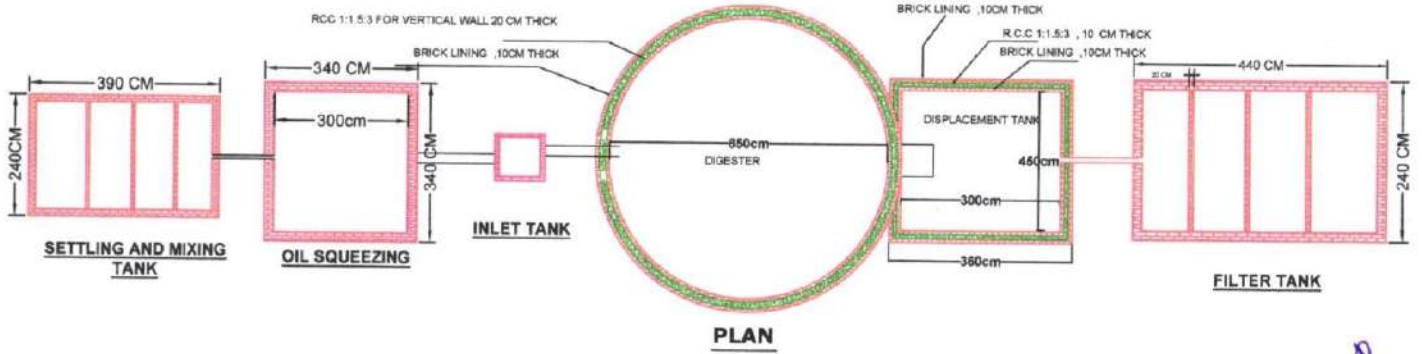
per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side. of the sheet and polyester top coat 15-18 microns.Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling/self tapping screws of size (5.5x55mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.								
	Sheet for oil squeezing tank	2	2.400	4.000			19.200	
	Ridge	1	3.600	1.000			3.600	
Total Quantity							22.800 sqm	
Total Deducted Quantity							0.000 sqm	
Net Total Quantity							22.800 sqm	
Say 22.800 sqm @ Rs 562.88 / sqm							Rs 12833.66	
SI No	Description	No	L	B	D	CF	Quantity	Remark
2 supplying & fixing Cow dung in to the plant 288.836 cu.m x 1300/cu.m								
Lump-Sum Total							Rs 375486.80	
SI No	Description	No	L	B	D	CF	Quantity	Remark
Remark	3 providing stove - 2 Nos x 5900							
Lump-Sum Total							Rs 11800.00	
SI No	Description	No	L	B	D	CF	Quantity	Remark
Remark	4 Providing Name Board							
Lump-Sum Total							Rs 5000.00	
Amount reserved for GST payments							Rs 780883.87	
Total							Rs 5119127.57	
Lumpsum for round off							872.43	
TOTAL							Rs 5119999.995515801	
Rounded Total							Rs 5120000.00	
Rupees Fifty One Lakh Twenty Thousand Only								

(Cost Index Applied for this estimate is 35.59%)

BIOGAS PLANT CAPACITY 2000 KG



SECTIONAL ELEVATION



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