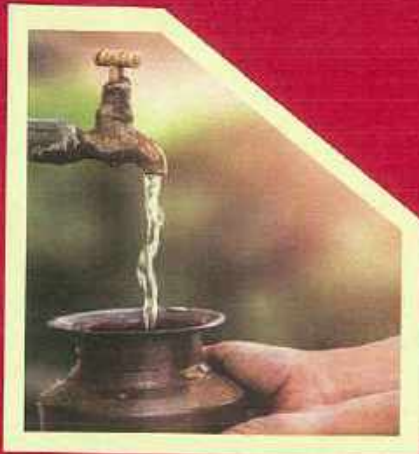
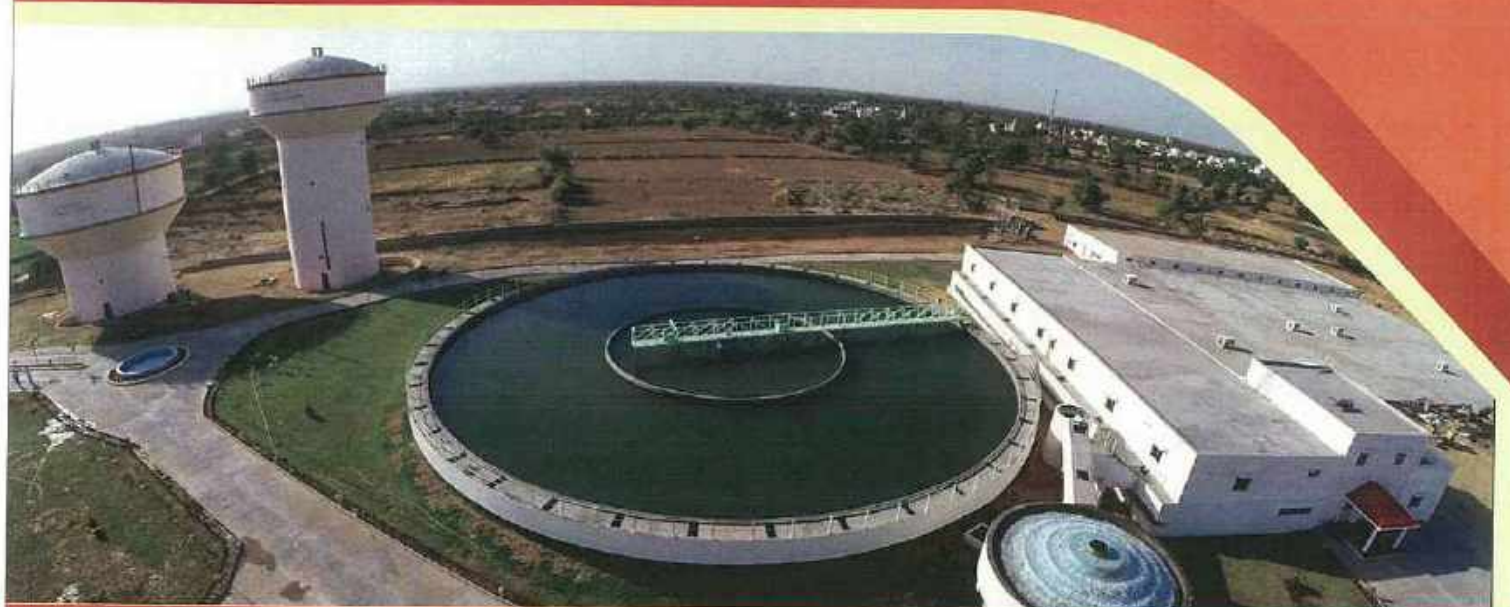




GUJARAT WATER SUPPLY & SEWERAGE BOARD



SCHEDULE OF RATES YEAR 2022-23





D. G. Ramchandani
Chief Engineer

Gujarat Water Supply & Sewerage Board
Narmada, Water Resources,
Water Supply and Kalpsar Department

Jalseva Bhavan, Opp. Air Force, Sector-10/A,
Gandhinagar - 382010.

Tel : 9978441101-05, Fax : 079 232 25972-79,

E-mail : gwssb.monicell@gmail.com, setechcell@gmail.com

No. Tech cell/ SOR/22-23/209

Date: 17/03/2022

To,

The Chief Engineer,

Zone-I/II/III/IV/V/Surat

Vadodara/Ahmedabad/Rajkot/

Bhuj/Junagadh/Surat

Subject: - Schedule of Rates- Civil – Year 2022-23

References:

1. Minutes of 293rd Board Meeting held on 05/03/2022, issued wide letter no.17 date.17/03/2022.
2. Approval of Chairman received on file on date: 17/03/2022

With reference to above subject, the Schedule of Rates- Civil- Year 2022-23 was approved by Board vide letter under reference.

Copy of Schedule of Rates- Civil- Year 2022-23, is available on board website.

This is for your information and implementation please.


(D.G. Ramchandani)
Chief Engineer

Copy respectfully submitted to:

1. The Chairman, GWSSB for information please
2. The Member Secretary, GWSSB for information please

Copy to:

1. The Additional Secretary (Projects), NWRWS & Kalpsar Department for information please
2. The Chief General Manager, GWIL, Gandhinagar for information please
3. The Chief Engineer, WASMO for information please
4. The Project Director, Urban cell, GWSSB, Gandhinagar for information please
5. The Chief Engineer, Material Cell for information please
6. The Chief Engineer, Mechanical for information please



GUJARAT WATER SUPPLY AND SEWERGE BOARD
Gandhinagar – 382010

Schedule of Rates 2022-23

I N D E X

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Gujarat Water Supply & Sewerage Board

Gandhinagar

Subject: SOR for Year 2022-23

Preamble:-

Schedule of Rates for Year 2022-23 was approved in 293rd Board Meeting held on Dt.05-03-2022.

Comparison of Basic Rates of Previous SOR are as below:

Sr. No	Details	2021-22	2022-23	Remark
1	WPI-HR coil	132.6 (Feb-21)	155.8 (Jan-22)	17.5 % increment
2	HR coil above 10 mm	Rs.55000/MT- (March-21), Excluding GST	RS.68000/MT- (Feb-22), Excluding GST	23.63% increase as per actual market price
3	HR coil less than 10 mm	Rs.54500/MT- (March-21), Excluding GST	Rs. 67500/MT- (Feb-22), Excluding GST	23.85 % increase as per actual market price
4	WPI Pig Iron	124.6 (Feb-21)	149.2 (January-22)	19.74% increment
5	PVC Resin	Rs. 140000/MT with GST	Rs.158946/MT with GST (dt.10/02/22)	13.53%increment
6	HDPE Resin	Rs.125000/M T with GST	Rs.139144.42/MT with GST(dt.17/02/22)	11.31% increment
7	Diesel	80/ liter	89.33/ liter (dt.28/02/22)	11.66% increase
8	Cement	Rs 285/ bag as per R & B input rates	Rs 323 per bag as per R & B	Increase 13.33%
9	Reinforcement	Rs 58.40/ kg	Rs 65.23/ Kg suggested as per WPI	WPI of Mild steel was 124.7- February-21, 139.3- January-22, Increase-11.71%
10	Labour	Skilled - Rs.340.5 Unskilled- Rs.324.5	Skilled - Rs.356 Unskilled- Rs.340 (dt.08/10/21)	skilled- 4.55% increase Unskilled- 4.77% increase
11	Average of Diesel + labor			8%

Proposal of New SOR 2022-23

Part I : Drinking Water Supply

Section-A-Material

Mild Steel pipes:

Rates of MS pipes for SOR year 2021-22 were worked on the basis of actual price of coils of more than 10 mm- Rs 55000/ MT and for less than 10mm- Rs 54500/ MT. WPI index of February-21 is considered as 132.6.

WPI Index of HR Coil for November is 155.8 and corresponding rate of HR Coil of more than 10 mm thickness is Rs 68000/ MT and for less than 10 mm thickness is Rs 67500/ MT, hence increase in cost of coil is Rs 13000/ MT

Sample calculation of MS bare pipe- 1067mm-8.8 mm thick was explained as mentioned here under

Rates as per SOR-2021-22- Rs 17135 @ rate of HR coil-54500 with WPI Index-132.6

Details	SOR 2021-22	Increase	SOR 2022-23 with GST	SOR rate without GST 2022-23 (Dividing by 1.12)
Cost of coil at 229.63 Kg	12514.84	23.85%	15499.63	
Other cost	4620.16	8%	4989.77	
SOR Rate	17135		20489.40	18294.10

Pipe with coating and lining

MS-1067-8.8 mm- outside 3 lpe- inside epoxy- Rs 18237/ mt

Details	SOR 2021-22	Increase	SOR 2022-23 with GST	SOR rate without GST 2022- 23(Dividing by 1.12)
Cost of coil at 229.63 Kg	12514.84	23.85%	15499.63	
Other cost	5722.16	8%	6179.93	
SOR Rate	18237		21679.56	19356.75

For price variation calculations rates of HRC coil without GST to be considered and 18% to be added for GST

M S Pipeline-bare pipe- per Kg rate:

For pipe above 914 mm with plate thickness less than 10 mm

Rate of new SOR arrived is Rs 18294.1 and weight of pipe is 229.63 kg, hence rate per Kg is worked out as Rs 79.67/ kg

For pipe above 914 mm with plate thickness more than 10 mm

For this item Rs 0.5/ Kg to be added which is difference of rate of coil for two groups of thickness, Rs 80.17 as per calculated above

MS Specials: Plain ended

Up to 300 mm diameter and Above 300 mm diameter-

Specials are made from pipes, fabricated at site, hence cost of 10% to be added for wastage of material and 10% for labor cost= i.e increase in 20% cost of Rs 80.17, i.eRs 96.20/ kg.

For Flanged specials we may add Rs 2 i.eRs 98.20/ Kg for flanged

Ductile Iron Pipes and specials

Whole sale price Index for Pig Iron- Feb-21 it is 124.6 as per SOR of Year 2021-22, WPI index of January-22 is 149.2, increase in 19.74%

In this item price variation is based on 65% of cost variation of due to change in WPI index, hence in this item cost of pig iron is not mentioned , but only WPI index of correspondence month is mentioned.

Increment in cost suggested for Pig iron component is $19.74 \times 65\% = 12.83\%$

Manufacturing component and transportation -35%, increase suggested 8% , therefore increase suggested $8\% \times 35\% = 2.8\%$

Total increase= $12.83\% + 2.8\% = 15.63\%$

Details	% component	Increase	Weightage increase	Calculation of rate without GST
Pig Iron	65%	19.74%	12.83%	115/1.12-100 =103.24-100 =3.24% (increment)
Manufacturing and transportation	35%	8%	2.8%	
			15.63%	3.24% (increment)

For variation due to Pig iron on the basis of WPI, 18% GST to be added.

DI specials- Increase suggested of 3.24% increment

PVC Pipes:

Resin rate for PVC- Rs. 140000/ MT as per SOR year 2021-22, whereas on dt. 10/2/2022 it is Rs. 158946/MT.

For purpose of variation, 900Kgs of PVC resin will be considered for one ton of PVC pipes.

Method of deriving new rates for SOR 2022-23

SOR 2021-22:- Rate of 140 mm -6 kg-EPC contract- Rs 444/ mt

Details	SOR rate 2021-22	Increase suggested	SOR Rate 2022-23	SOR 2022-23 withoutGST
Resin component @ 3.12 Kg	Rs 140/ Kg x 3.12 x 90%=393.12	13.53%	446.31	Rs 501.26/1.12= Rs 447.55
Manufacturing and transportation	50.88	8%	54.95	
140 mm- 6 Kg	Rs 444/ Rmt		Rs 501.26	Rs 447.55

Price variation to be worked out on the basis of Resin rates without GST and thereafter on variation amount 18% GST to be added

PVC Specials:

As per above analysis rates of SOR 2021-22 (with GST) is almost equal to proposed rates for 2022-23 (Without GST), hence rates of specials to be kept same for proposed SOR

HDPE Pipes:

Resin rate for HDPE- Rs. 125000/ MT for SOR 2021-22, whereas on dt.17/02/2022 it is Rs. 139144.42/MT.- increase of 11.31%

SOR 2021-22:- Rate of 180 mm -6 kg-EPC contract- Rs 651/ mt, Weight of 180 mm- 6 kg- 4.495 Kg/ Mt

Details	SOR rate 2021-22	Increase suggested	SOR Rate 2022-23	SOR 2022-23 withoutGST
Resin component @ 4.495 Kg	Rs 125/ Kg x 4.495 =561.88	11.31%	625.43	Rs 721.68/1.12= Rs 644.36
Manufacturing and transportation	Rs 89.12	8%	96.25	
140 mm- 6 Kg	Rs 651/ Rmt		Rs 721.68	Rs 644.36

Price variation to be worked out on the basis of Resin rates without GST and thereafter on variation amount 18% GST to be added

GI pipe:

GI pipes comparison as perWhole sale price index

WPI-February-2021- 114.40, WPI- January-2022-137

Percentage increase- 19.76% increase

Increase suggested for rates without GST= $=119.76/1.12-100=106.93-100 =6.93\%$ (increase)

Stoneware pipes: For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

Corrugated DWC pipes:- For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

RCC pipes:- For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

Sluice valve/ Butterfly valve/ NRV: For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

Water hammer devises and temper proof air valve: For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

Other material: For rates without GST, reduction worked out as $=100-100/1.12=100-89.29=10.71\%$ (reduction)

- M S Ladders- Increase suggested 11.71% as per increase in steel
- Channels, angles, rails- Increase of 11.71% as per steel

In above items after correction of increase to be divided by 1.12 to arrive at net cost i.e without GST.

Section-B:Labor :

Rate Analysis of excavation and Refilling the time when diesel rates were Rs 70/liter and hiring charge of excavator was Rs 800/ hour

Rate of excavator per hour- Rs 800

Diesel consumed per hour 6 liters, cost of diesel at Rs 70/ liter= Rs 420/ hours

Hence 50% cost is of diesel

Hike in diesel cost is from 80/ liter to 89.33/ liter, i.e 11.66 %, therefore hike in cost of excavator shall be about 5.83%.

Therefore proposed to enhanced 5.83% in cost of excavation and refilling as it is carried out through equipment to arrive for new SOR rates.

To arrive rates without GST reduction proposed is :- $105.83/1.12=94.49$, hence reduction proposed is 5.51%

Similarly for items of lowering laying of MS and DI pipes shall be worked out on same principles.

For lowering and laying of PVC/ HDPE to be considered on the basis purely on labor component- Increase for labor charges enhancement of 4.5% and after working out rates for new SOR, divide by 1.12 to arrive the rate with out 18% GST.

For other labor items- Similar calculation shall be made.

- Fixing of MS section- Increase of 4.5% for labor component

- Cutting of pipes- Increase of 4.5% for labor component
- Erecting RCC chamber- Increase of 4.5% for labor component
- Fixing of stand post- Increase of 4.5% for labor component

In above items after correction of increase to be divided by 1.12 to arrive at net cost i.e without GST.

Section-C:RCC ESR/GSR, HGLR structures:-

Details	% component	% increase suggested	Weightage %	To arrive at new rates without GST
Cement concrete 40% out of which 35% is cement cost=14%	14%	13.33%	1.87%	107.78/1.12= 96.23, i.e Decrease of 100- 96.23=3.77%
Steel	20%	11.71%	2.34%	
Transportation	10%	11.66%	1.17%	
Others average of Diesel and labor	30%	8%	2.40%	
Total			7.78%	

- Various types of concrete- Increase to be worked out on standard cement consumption multiplied by Rs 38/ bag which is increase in price of cement bag from existing SOR.
- Steel Reinforcement including cutting and binding- Increase of 11.71% as per steel reinforcement.
- RCC Spiral staircase- Consider 20% cement and 80% labor and diesel component, weightage average worked out is $13.33 \times 20\% + 8 \times 80\% = 9.06\%$.
- Cement plaster- worked out as per standard cement consumption multiplied by Rs 38/ bag which is increase in price of cement bag from existing SOR.
- Epoxy paint- No change.
- MS ladder per running meter- Increase of 11.71% as per steel
- CI double flanged pipes- Increase suggested 10% as per WPI Index- Current January-128.1, February-21-116.40
- Copper lightning arrestor- Increase in 9.5% as per WPI, January-22-129.7, February-21-118.4.
- Expansion joints- as per Steel- Increase of 11.71%
- Water level indicator- as per steel- Increase of 11.71%
- M S Railing- as per steel- Increase of 11.71%

- Cement paint- Average of 13.33% due to cement and 4.5% labor- Increase of 8.92%

In above items after correction of increase to be divided by 1.12 to arrive at net cost i.e without GST.

Section-D: Water Treatment Plant:

Calculation similar to ESR/ GSR

- Miscellaneous items of Water Treatment plant- Change as per composite WTP component-7.78%

In above items after correction of increase to be divided by 1.12 to arrive at net cost i.e without GST.

Section- E: Miscellaneous completed Items:

No change suggested and same rates to be arrived without GST.

Section- F: Wells and galleries:

Enhancement of Excavation, de-silting, sinking to be made as per item of Excavation for pipeline , for cutting edge enhancement of 11.71% as per steel is suggested, for RCC well stenining enhancement it was calculated that for RCC 1:2:4, considering 6.5 bags per Cum, the component of cement is 30% and other component is 70%, increase suggested on 30% is 13.33% and on 70% should be considered 8% (average of diesel+ labor), therefore weightage average is 8.90%. For Masonry work major component is diesel and labor, hence 8% increase suggested, for plaster calculation to be made as per cement component only, for coffer dam and horizontal bore well calculation to be done as per component of labor and diesel i.e 8%.

Section-G: Maintenance and Repairs-

To arrive rates without GST reduction proposed is :- $105.83/1.12=94.49$, hence reduction proposed is 5.51%- this is considering increase in diesel component of 50% cost.

Part-II- Drainage Section

Section C-Sewerage Treatment Plants:-

No change suggested and same rates to be arrived without GST.

Section-D-Chambers and Manholes:

Considering implication of diesel, cement and labor, worked out to 7.86% increase,

To arrive rates without GST = $107.86/1.12= 96.30$, hence reduction of $100-96.30= 3.70\%$ reduction proposed.

Section-E :Miscellaneous items:

For dewatering item-increase 11.66% for increase in diesel cost to be considered, for arriving at rates without GST= $111.66/1.12=99.70$, hence reduction proposed is $100-99.70= 0.3\%$

CC M-100 Encasing:

Implication of 11.66% of diesel, 7.43% of cement, 4.5% of labor, if average out worked out to 7.86%,

To arrive rates without GST = $107.86/1.12 = 96.30$, hence reduction of $100-96.30 = 3.70\%$ proposed.

Manual handling: Increase in 4.5% on labor suggested, for working out rates without GST, $100-104.5/1.12 = 100-93.30 = 6.7\%$ (reduction)

Crane handling/Wagon unloading: Increase in 11.66% for diesel

For working out rates without GST = $100-111.66/1.12 = 100-99.70 = 0.3\%$ (Reduction)

Transportation : To be calculated as per diesel rates and actual labor rate, and divide by 1.12 to arrive rates without GST.

Pump house: As per CC-M-100 encasing

Hiring of excavator: increase 11.66% for increase in diesel cost to be considered, for arriving at rates without GST = $111.66/1.12 = 99.70$, hence reduction proposed is $100-99.70 = 0.3\%$

Section-F-Maintenance and Repairs:

Items of crossing are included in this section, Section F to be renamed as Road/Railway crossings

Average of increase in diesel-11.66%, labor-4.5%, cement-7.43%, is worked out as 7.86%, to workout rates without GST, $100-107.86/1.12 = 100-96.30 = 3.70\%$ (Reduction)

Existing provisions as below shall remain unchanged

Sr. No	Description	Enhancement except Material Section of SOR
1	Bet area with facility of Jetty	50%
2	Bet area without facility of Jetty	65%
3	Urban and R-Urban areas (within area of local body)	15%
4	District Dang, Dharampur and Kapradataluka of District Valsad	10%
5	Other tribal areas	5%
6	DDP areas	2.5%
7	Open well in Kachchh District	5%
8	Open well in Kherbhrama and Vijayanagartalukas of Sabarkantha District	10%

Note: If urban area falls under Tribal area than enhancement of only 15% shall be made, similarly any one component of enhancement shall only be applicable if the work falls in combination of any above description.

Instruction to the user of SOR:

1. All rates are inclusive of all taxes, insurance, labor overhead charges, Contractor's Profit, royalties etc except GST.
2. Material section includes items for Water Supply and Sewerage Projects
3. While preparation of estimates and tender description of the item shall be as per SOR only.
4. While drafting specifications of WTP, specification in tender document should be as per item description mentioned in SOR.
5. While drafting tenders as per this SOR, rates of pipes and index / basic rate shall be taken as per SOR, index / basic rate shall not be changed as per the month in which DTP are approved.

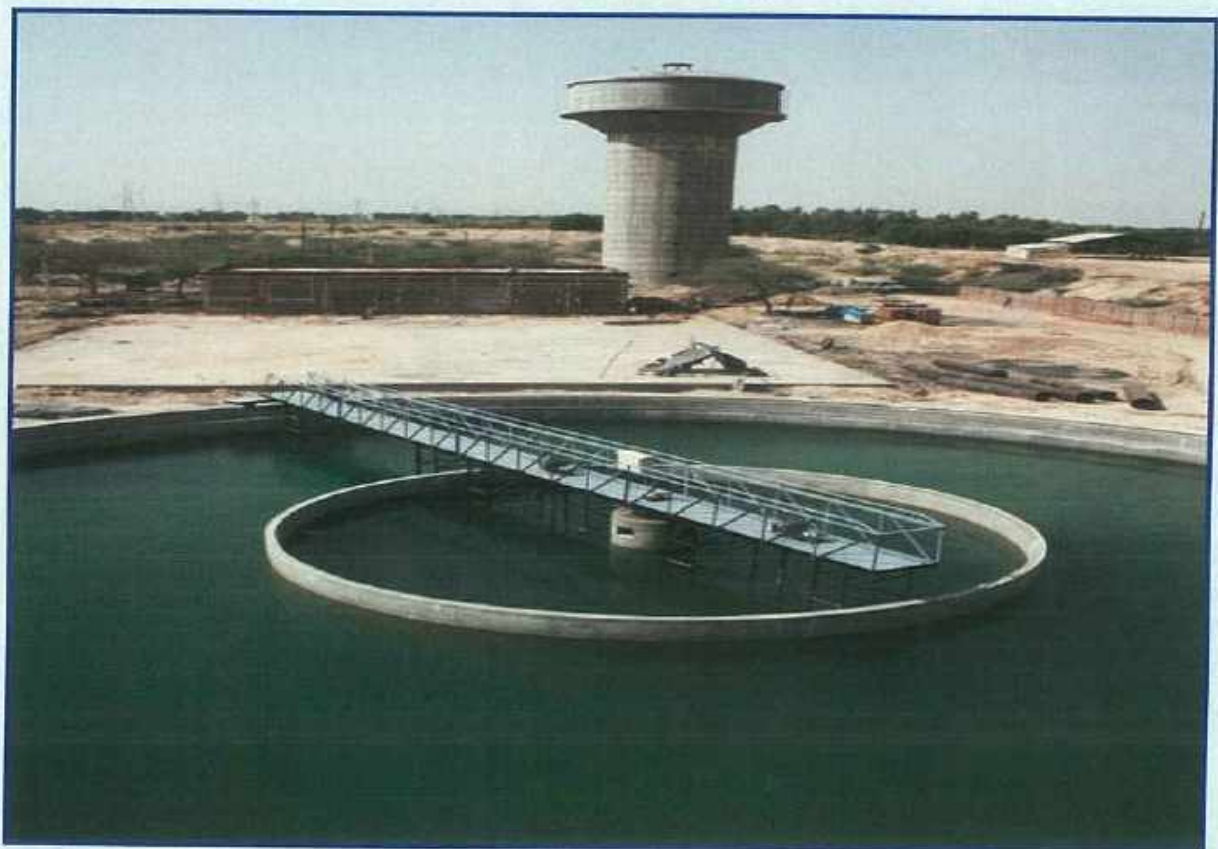

Chief Engineer
GWSSB

SCHEDULE OF RATES



YEAR : 2022-23

PART-1 WATER SUPPLY



MATERIAL SECTION - A



MATERIAL SECTION :- 1A				
Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
Item No. 1.1	MS Pipe			
1.1.A	Bare pipe			
Manufacture, Supply & Delivery of Electric Resistance Welded (Up to 400mm)/Submerged Arc Welded(Above 400mm) M.S.Pipe having beveled ends plate or coil conforming to IS-3589-2001 or its latest revision/ ammendment for following thickness outside diameter at GWSSB store or site anywhere in Gujarat State including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading conveyance to Departmental stores, stacking etc, all complete. (Rate for MS Pipe based on the ex. works price of HR Coil as Rs.67500.00 per MT - withouth GST (Above 3.15 mm to 10 mm) & Rs. 68000.00 per MT without GST (Above 10 mm) as on Feb-22.(WPI Index of H. R Coil of Jan-22 is 155.8)				
	Pipe dia in OD (mm)	Thickness (mm)		
1	168.3	4.0	R. Mt	1,291
2	168.3	4.5	"	1,449
3	219.1	4.5	"	1,898
4	219.1	5.3	"	2,634
5	273	4.0	"	2,114
6	273	5.0	"	2,633
7	323.9	4.0	"	2,515
8	323.9	4.5	"	2,824
9	323.9	5.6	"	3,502
10	355.6	4.0	"	2,763
11	355.6	5.0	"	3,444
12	355.6	5.6	"	3,851
13	406.4	4.0	"	3,162
14	406.4	5.0	"	3,943
15	406.4	6.3	"	4,952
16	457	4.0	"	3,560
17	457	5.0	"	4,440
18	457	6.3	"	5,578
19	508	5.0	"	4,941
20	508	5.6	"	5,528
21	508	6.3	"	6,210
22	610	5.8	"	6,884
23	610	6.3	"	7,472
24	711	6.3	"	8,722
25	711	7.1	"	9,819
26	813	7.1	"	11,242
27	914	8.0	"	14,240
28	1016	8.8	"	17,413
29	1067	8.8	"	18,295
30	1219	10.0	"	23,922
31	1422	12.5	"	34,902
32	1626	14.2	"	45,339
33	1829	16.0	"	52,901
34	2032	16.0	"	63,898
35	2236	17.5	"	76,875
36	2540	20.0	"	99,842
1.1.B	I/S epoxy Painting (100 Micron) & O/S Gunning (25 mm Thick)			
	Pipe dia in OD (mm)	Thickness (mm)		
1	168.3	4.0	R. Mt	1,557
2	168.3	4.5	"	1,714
3	219.1	4.5	"	2,237
4	219.1	6.3	"	2,972

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
5	273	4.0	"	2,532
6	273	5.0	"	3,051
7	323.9	4.0	"	3,006
8	323.9	4.5	"	3,316
9	323.9	5.6	"	3,993
10	355.6	4.0	"	3,301
11	355.6	5.0	"	3,983
12	355.6	5.6	"	4,388
13	406.4	4.0	"	3,776
14	406.4	5.0	"	4,558
15	406.4	6.3	"	5,562
16	457	4.0	"	4,244
17	457	5.0	"	5,122
18	457	6.3	"	6,261
19	508	5.0	"	5,697
20	508	5.6	"	6,284
21	508	6.3	"	6,966
22	610	5.8	"	7,789
23	610	6.3	"	8,377
24	711	6.3	"	9,773
25	711	7.1	"	10,870
26	813	7.1	"	12,440
27	914	8.0	"	15,586
28	1016	8.8	"	18,907
29	1067	8.8	"	19,862
30	1219	10.0	"	25,711
31	1422	12.5	"	36,985
32	1626	14.2	"	47,716
33	1829	14.2	"	53,719
34	2032	16.0	"	66,861
35	2235	17.5	"	80,133
36	2540	20.0	"	103,541
1.1.C	I/S CML (9 mm thick up to 700 mm dia & 12 mm thick above 700 mm dia) & O/S Gunning (25 mm thick)			
	Pipe dia in OD (mm)	Thickness (mm)		
1	406.4	4.0	"	3,857
2	406.4	5.0	"	4,637
3	406.4	6.3	"	5,644
4	457	4.0	"	4,335
5	457	5.0	"	5,214
6	457	6.3	"	6,352
7	508	5.0	"	5,799
8	508	5.6	"	6,386
9	508	6.3	"	7,069
10	610	5.8	"	7,912
11	610	6.3	"	8,500
12	711	6.3	"	9,916
13	711	7.1	"	11,012
14	813	7.1	"	12,674
15	914	8.0	"	15,847
16	1016	8.8	"	19,199
17	1067	8.8	"	20,169

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
18	1219	10.0	"	26,061
19	1422	12.5	"	37,392
20	1626	14.2	"	48,183
21	1829	14.2	"	54,246
22	2032	16.0	"	67,445
23	2235	17.5	"	80,774
24	2540	20.0	"	104,270
1.1.D	I/S Bare & O/S Gunning (25 mm thick)			
	Pipe dia in OD (mm)	Thickness (mm)		
1	168.3	4.0	R. Mt	1,480
2	168.3	4.5	"	1,638
3	219.1	4.5	"	2,136
4	219.1	6.3	"	2,872
5	273	4.0	"	2,405
6	273	5.0	"	2,924
7	323.9	4.0	"	2,855
8	323.9	4.5	"	3,165
9	323.9	5.6	"	3,843
10	355.6	4.0	"	3,134
11	355.6	5.0	"	3,815
12	355.6	5.6	"	4,223
13	406.4	4.0	"	3,584
14	406.4	5.0	"	4,365
15	406.4	6.3	"	5,373
16	457	4.0	"	4,028
17	457	5.0	"	4,908
18	457	6.3	"	6,046
19	508	5.0	"	5,458
20	508	5.6	"	6,045
21	508	6.3	"	6,727
22	610	5.8	"	7,502
23	610	6.3	"	8,088
24	711	6.3	"	9,438
25	711	7.1	"	10,534
26	813	7.1	"	12,056
27	914	8.0	"	15,153
28	1016	8.8	"	18,426
29	1067	8.8	"	19,357
30	1219	10.0	"	25,134
31	1422	12.5	"	36,313
32	1626	14.2	"	46,947
33	1829	14.2	"	52,853
34	2032	16	"	65,900
35	2235	17.5	"	79,074
36	2540	20	"	102,337
1.1.E	I/S Solvent free Liquid Epoxy Lining (406 micron) + O/S 3 LPE Coated M. S. Pipe			
	Pipe dia in OD (mm)	Thickness (mm)		
1	168.3	4.0	R. Mt	1,885
2	168.3	4.5	"	2,043
3	219.1	4.5	"	2,664
4	219	6.3	"	3,396

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
5	273	4.0	"	3,072
6	273	5.0	"	3,590
7	323.9	4.0	"	3,651
8	323.9	4.5	"	3,961
9	323.9	5.6	"	4,635
10	355.6	4.0	"	4,012
11	355.6	5.0	"	4,693
12	355.6	5.6	"	5,097
13	406.4	4.0	"	4,591
14	406.4	5.0	"	5,372
15	406.4	6.3	"	6,377
16	457	4.0	"	5,170
17	457	5.0	"	6,046
18	457	6.3	"	7,184
19	508	5.0	"	6,727
20	508	5.6	"	7,313
21	508	6.3	"	7,994
22	610	5.6	"	9,029
23	610	6.3	"	9,618
24	711	6.3	"	11,224
25	711	7.1	"	12,320
26	813	7.1	"	14,103
27	914	8.0	"	17,458
28	1016	8.8	"	20,991
29	1067	8.8	"	22,052
30	1219	10.0	"	28,215
31	1422	12.5	"	39,901
32	1626	14.2	"	51,054
33	1829	14.2	"	57,484
34	2032	16.0	"	71,045
35	2235	17.5	"	84,738
36	2540	20.0	"	108,777

1.1.F Group wise rates of Bare pipe per kg are as under. Rates of sizes other than above may be derived from following rates :

1	Up to 914 mm OD & Up to 10 mm thickness of Plate/Pipe	kg	79.67
2	Above 914 mm OD & Above 10 mm thickness of Plate/Pipe	kg	80.17

The mass (weight) per metre run of pipes can be worked out as under (ref : IS3589 : 2001)

$$M = (OD - T) \times T \times 0.0246615$$

M = mass of the pipe kg/meter, OD = outside of tube diameter in mm, T = thickness of tube in mm

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Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
Item No. 2.1 DI Pipe				
Providing and supplying D. I. K-9 grade pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000). Rate for DI pipe based on Wholesale Price Index of Pig Iron as 149.2 for the month of Jan-2022. For sewerage project cement mortar lining shall be with sulphate resistance cement				
2.1.A	DI Pipe K-9			
1	80	mm	RMT	932
2	100	mm	"	1,087
3	150	mm	"	1,597
4	200	mm	"	2,160
5	250	mm	"	2,892
6	300	mm	"	3,654
7	350	mm	"	4,524
8	400	mm	"	5,389
9	450	mm	"	6,437
10	500	mm	"	7,630
11	600	mm	"	9,945
12	700	mm	"	12,858
13	750	mm	"	14,348
14	800	mm	"	15,874
15	900	mm	"	19,397
16	1000	mm	"	23,130
17	1100	mm	"	28,577
18	1200	mm	"	31,352
2.1.B	DI Pipe K-7			
Providing and supplying D. I. pipes for following nominal bore diameter with internal cement mortar lining including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS 8329-2000).				
1	80	mm	RMT	794
2	100	mm	"	968
3	150	mm	"	1,425
4	200	mm	"	1,814
5	250	mm	"	2,379
6	300	mm	"	3,000
7	350	mm	"	3,722
8	400	mm	"	4,421
9	450	mm	"	5,227
10	500	mm	"	6,275
11	600	mm	"	8,184
12	700	mm	"	11,234
13	750	mm	"	12,712
14	800	mm	"	14,658
15	900	mm	"	17,925
16	1000	mm	"	21,382
17	1100	mm	"	28,577
18	1200	mm	"	31,352

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
2.1.C	DI Pipe K-9 D/F			
1	100	mm	RMT	2,045
2	150	mm	"	2,881
3	200	mm	"	3,760
4	250	mm	"	5,093
5	300	mm	"	6,315
6	350	mm	"	8,324
7	400	mm	"	10,291
8	450	mm	"	12,073
9	500	mm	"	14,386
10	600	mm	"	19,152
11	700	mm	"	25,790
12	750	mm	"	28,616
13	800	mm	"	31,439
14	900	mm	"	41,890
15	1000	mm	"	49,107
Item No. 3.1 P. V. C. Pipes				
Providing and supplying in standard length ISI mark rigid unplasticised PVC pipes suitable for potable water with ring fit joint including cost of rings, as per IS specification no. 4985/1988 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the departmental stores and including cost of jointing material etc. complete.				
Note :				
1. One coupler / ring shall be provided with each full length pipe cost of which is included in rates below.				
2. 3% (Three) Discounted rate to be consider for Coupler jointed pipe				
3. Rate for PVC Resin as Rs. 134700/MT (Price Without GST)				
3.1.A	Test Pressure 4 Kg/cm ² .			
1	63	mm	RMT	67.3
2	75	mm	"	94
3	90	mm	"	132
4	110	mm	"	190
5	125	mm	"	247
6	140	mm	"	308
7	160	mm	"	402
8	180	mm	"	513
9	200	mm	"	622
10	225	mm	"	791
11	250	mm	"	957
12	280	mm	"	1,213
13	315	mm	"	1,533
3.1.B	Test Pressure 6 Kg/cm ² .			
1	63	mm	RMT	95
2	75	mm	"	132
3	90	mm	"	190
4	110	mm	"	273
5	125	mm	"	360

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
6	140	mm	"	447
7	160	mm	"	575
8	180	mm	"	736
9	200	mm	"	911
10	225	mm	"	1,144
11	250	mm	"	1,418
12	280	mm	"	1,779
13	315	mm	"	2,256
3.1.C Test Pressure 8 Kg/cm².				
1	63	mm	RMT	118
2	75	mm	"	169
3	90	mm	"	237
4	110	mm	"	354
5	125	mm	"	460
6	140	mm	"	583
7	160	mm	"	759
8	180	mm	"	949
9	200	mm	"	1,176
10	225	mm	"	1,482
11	250	mm	"	1,845
12	280	mm	"	2,307
13	315	mm	"	2,905
3.1.D Test Pressure 10 Kg/cm².				
1	63	mm	RMT	145
2	75	mm	"	206
3	90	mm	"	292
4	110	mm	"	439
5	125	mm	"	564
6	140	mm	"	703
7	160	mm	"	920
8	180	mm	"	1,161
9	200	mm	"	1,435
10	225	mm	"	1,819
11	250	mm	"	2,248
12	280	mm	"	2,814
13	315	mm	"	3,548
Item No. 4.1 H.D.P.E. Pipes				
Providing and supplying in standard length ISI mark high density Polyethylene H.D.P.E. Pipes suitable for potable water as per IS specification no. 4984/1995 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the dept. stores etc. comp.				
Note:-				
(1) Rate for HDPE (PE-100) Pipe based on the rate of HDPE Resin as Rs. 117919/MT (Price Without GST)				
4.1.A 6.0 Kg/cm²				
1	50	mm	RMT	52
2	63	mm	"	81
3	75	mm	"	116
4	90	mm	"	163
5	110	mm	"	240
6	125	mm	"	312
7	140	mm	"	392

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
8	160	mm	"	510
9	180	mm	"	644
10	200	mm	"	793
11	225	mm	"	1,006
12	250	mm	"	1,237
13	280	mm	"	1,551
14	315	mm	"	1,963
15	355	mm	"	2,488
16	400	mm	"	3,217
17	450	mm	"	4,069
18	500	mm	"	5,031
19	560	mm	"	6,298
20	630	mm	"	7,973
21	710	mm	"	10,103
4.1.B	10.0 Kg/cm2			
1	50	mm	RMT	79
2	63	mm	"	126
3	75	mm	"	178
4	90	mm	"	255
5	110	mm	"	377
6	125	mm	"	485
7	140	mm	"	607
8	160	mm	"	792
9	180	mm	"	1,004
10	200	mm	"	1,239
11	225	mm	"	1,564
12	250	mm	"	1,926
13	280	mm	"	2,413
14	315	mm	"	3,057
15	355	mm	"	3,887
16	400	mm	"	5,036
17	450	mm	"	6,353
18	500	mm	"	7,848
19	560	mm	"	9,831
20	630	mm	"	12,452
21	710	mm	"	15,819
Item No. 4.2	HDPE (PE-100) Pipes in standard length suitable for Sewage, Industrial Effluents & Rising main			
Providing & Supplying of ISI Marked High Density Poly Ethylene (HDPE - PE-100) Pipes in standard length suitable for Sewage & Industrial Effluents as per IS Specification no. 14333-1996 or its latest revision / amendments including all local & central taxes & duties, freight charges, loading, unloading & conveyance to departmental stores etc. complete.				
4.2.A	HDPE- 6kg/cm2			
1	63	mm	Rmt	84
2	75	mm	Rmt	120
3	90	mm	Rmt	168
4	110	mm	Rmt	247
5	125	mm	Rmt	322
6	140	mm	Rmt	404
7	160	mm	Rmt	526
8	180	mm	Rmt	663
9	200	mm	Rmt	816
10	225	mm	Rmt	1,037
11	250	mm	Rmt	1,274

Item no.	Size		Unit	Rate for 2022-23
1	2	3	4	5
12	280	mm	Rmt	1,597
13	315	mm	Rmt	2,022
14	355	mm	Rmt	2,563
15	400	mm	Rmt	3,315
16	450	mm	Rmt	4,282
17	500	mm	Rmt	5,294
18	560	mm	Rmt	6,628
19	630	mm	Rmt	8,390
4.2.B	HDPE- 10kg/cm2			
1	63	mm	Rmt	129
2	75	mm	Rmt	183
3	90	mm	Rmt	262
4	110	mm	Rmt	387
5	125	mm	Rmt	500
6	140	mm	Rmt	626
7	160	mm	Rmt	816
8	180	mm	Rmt	1,035
9	200	mm	Rmt	1,276
10	225	mm	Rmt	1,611
11	250	mm	Rmt	1,984
12	280	mm	Rmt	2,486
13	315	mm	Rmt	3,149
14	355	mm	Rmt	4,005
15	400	mm	Rmt	5,188
16	450	mm	Rmt	6,714
17	500	mm	Rmt	8,258
18	560	mm	Rmt	10,616
19	630	mm	Rmt	13,450

MATERIAL SECTION :- 1A				
Item no.	Sr. No.	Size	Unit	Rate for 2022-23
Item No. 5	Corrugated DWC HDPE pipes (non-pressure pipes)			
Providing and supplying of Class SN8 Structured Wall polyethylene Piping systems (Pipe with online/offline coupler and elastomeric sealing ring) with non-smooth External Annular Corrugated and Smooth Internal Surfaces (Double Wall) for non-pressure underground Sewerage & Drainage application as per EN:13476-3 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the departmental stores etc. complete.(ID Dia)				
	Pipe dia. ID			
1	75	mm	Rmt	137
2	100	mm	Rmt	208
3	125	mm	Rmt	251
4	135	mm	Rmt	283
5	150	mm	Rmt	373
6	170	mm	Rmt	463
7	200	mm	Rmt	738
8	225	mm	Rmt	871
9	250	mm	Rmt	1,004
10	300	mm	Rmt	1,339
11	400	mm	Rmt	2,073
12	500	mm	Rmt	3,340
13	600	mm	Rmt	4,609
14	800	mm	Rmt	7,613
15	1000	mm	Rmt	10,846
16	1200	mm	Rmt	12,388
Item No. 6.1	G. I. PIPE			
Providing and supplying ISI mark G. I. pipes with Couplings of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS -1239) (Not for well/tube well column pipe)				
6.1.A	Light Duty			
1	15	mm	RMT	84
2	20	mm	"	115
3	25	mm	"	158
4	32	mm	"	199
5	40	mm	"	254
6	50	mm	"	314
7	65	mm	"	429
8	80	mm	"	502
9	100	mm	"	701
6.1.B	Medium Duty			
1	15	mm	RMT	100
2	20	mm	"	127
3	25	mm	"	182
4	32	mm	"	236
5	40	mm	"	273
6	50	mm	"	369
7	65	mm	"	460
8	80	mm	"	598
9	100	mm	"	864
10	125	mm	"	1,143
11	150	mm	"	1,355

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
6.1.C	Heavy Duty			
1	15	mm	RMT	114
2	20	mm	"	148
3	25	mm	"	211
4	32	mm	"	269
5	40	mm	"	321
6	50	mm	"	435
7	65	mm	"	562
8	80	mm	"	689
9	100	mm	"	992
10	125	mm	"	1,234
11	150	mm	"	1,470
7	MS Specials			
7.1.A	M. S. Specials plain & socket ends			
1	Up to 300 mm. dia.		Kg.	96
2	Above 300 mm. dia.		"	96
7.1.B	M. S. Specials flanged ends			
1	Up to 300 mm. dia.		Kg.	98
2	Above 300 mm. dia.		"	98
Item no. 8	D.I. Specials			
Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers or any other specials as per BS-EN-545/1995 Class-A series K12 suitable for use with D.I. Pipes manufactured as per IS:8329/1994 delivery of specials is to be made to GWSSB store or site of works any where in Gujarat including all taxes, loading, unloading, carting, stacking, insurance, inspection charges, octroi etc. complete.				
With external bitumen & zinc coating & internal cement mortar lining				
8.2.A	Socket & Spigot Type			
1	80 to 300mm dia		Kg.	148
2	350 & Above		Kg.	151
8.2.B	Flanged ended			
1	80 to 300mm dia		Kg.	155
2	350 & Above		Kg.	158
9	PVC fittings: Providing and supplying at store or site of work incl. freight, loading, unloading, stacking, insurance & all taxes etc. complete			
9.2.A	P. V. C. Couplers 6 Kg/cm2 (Fabricated)			
1	63	mm	No.	31
2	75	mm	"	44
3	90	mm	"	78
4	110	mm	"	133
5	140	mm	"	295
6	160	mm	"	439
7	200	mm	"	678
9.2.B	P. V. C. Couplers 10 Kg/cm2 (Moulded)			
1	63	mm	No.	52
2	75	mm	"	90
3	90	mm	"	133
4	110	mm	"	235
5	140	mm	"	479
6	160	mm	"	629

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
7	200	mm	"	1,145
9.2.C	P. V. C. Tail Piece with P. V. C. Flange (ISI) Heavy duty (Moulded)			
1	63	mm	No.	158
2	75	mm	"	187
3	90	mm	"	236
4	110	mm	"	320
5	140	mm	"	604
6	160	mm	"	811
9.2.D	Service Saddle 25 mm (Moulded) heavy			
1	63	mm	No.	115
2	75	mm	"	144
3	90	mm	"	167
4	110	mm	"	184
5	140	mm	"	375
6	160	mm	"	465
9.2.E	P. V. C. Tee (Moulded)			
1	63 x 63 mm		No.	125
2	75 x 63 mm		"	177
3	75 x 75 mm		"	199
4	90 x 63 mm		"	251
5	90 x 75 mm		"	297
6	90 x 90 mm		"	324
7	110 x 75 mm		"	338
8	110 x 90 mm		"	470
9	110 x 110 mm		"	407
10	140 x 140 mm		"	679
11	160 x 110 mm		"	857
12	160 x 160 mm		"	952
9.2.F	P. V. C. Elbow (Moulded)			
1	63	mm	No.	77
2	75	mm	"	129
3	90	mm	"	216
4	110	mm	"	358
5	140	mm	"	539
6	160	mm	"	687
7	200	mm	"	1,568
9.2.G	P. V. C. Reducer (Moulded)			
1	200 x 160 mm		No.	901
2	160 x 140 mm		"	511
3	160 x 110 mm		"	375
4	160 x 90 mm		"	304
5	140 x 110 mm		"	252
6	140 x 90 mm		"	226
7	140 x 75 mm		"	226
8	110 x 90 mm		"	188
9	110 x 75 mm		"	182

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
10	110 x 63 mm		"	171
11	90 x 75 mm		"	110
12	90 x 63 mm		"	104
13	75 x 63 mm		"	83
9.2.H	P. V. C. Bend 90° (Fabricated) 4.0 kg			
1	63	mm	No.	73
2	75	mm	"	103
3	90	mm	"	190
4	110	mm	"	329
5	140	mm	"	733
6	160	mm	"	1,089
7	200	mm	"	1,511
9.2.I	P. V. C. Bend 90° (Fabricated) 6.0 kg			
1	63	mm	No.	89
2	75	mm	"	138
3	90	mm	"	236
4	110	mm	"	421
5	140	mm	"	1,037
6	160	mm	"	1,637
7	200	mm	"	3,244
9.2.J	P. V. C. Bend 90° (Moulded) Light			
1	63	mm	No.	86
2	75	mm	"	129
3	90	mm	"	216
4	110	mm	"	358
5	140	mm	"	539
6	160	mm	"	687
9.2.K	P. V. C. Bend 90° (Moulded) Heavy			
1	63	mm	No.	118
2	75	mm	"	174
3	90	mm	"	318
4	110	mm	"	519
5	140	mm	"	809
6	160	mm	"	972
Item No. 10	R. C. C. PIPE (Horizontal Cast)			
Providing and supplying ISI Standard R.C.C. pipes (of Sulphate Resisting Cement) in standard lengths of following class and diameter suitable for either collar joints or rubber ring joints including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc.				
Note : One collar should be supplied with each full length plain ended RCC pipe, cost included in rates below. One rubber ring should be supplied with each full length socketed pipe, cost included in rates below.				
10.1.A	Class P2 Test Pressure 4 Kg/sq.cm			
1	150	mm	Rmt	304
2	200	mm	Rmt	404
3	225	mm	Rmt	450
4	250	mm	Rmt	503
5	300	mm	Rmt	720
6	350	mm	Rmt	1,005

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
7	400	mm	Rmt	1,207
8	450	mm	Rmt	1,843
9	500	mm	Rmt	1,778
10	600	mm	Rmt	2,365
11	700	mm	Rmt	3,351
12	750	mm	Rmt	3,459
13	800	mm	Rmt	4,263
14	900	mm	Rmt	5,225
15	1000	mm	Rmt	6,240
10.1.B	Class P3 Test Pressure 6 Kg/sq.cm			
1	150	mm	Rmt	373
2	200	mm	Rmt	493
3	225	mm	Rmt	552
4	250	mm	Rmt	614
5	300	mm	Rmt	881
6	350	mm	Rmt	1,229
7	400	mm	Rmt	1,473
8	450	mm	Rmt	1,885
9	500	mm	Rmt	2,364
10	600	mm	Rmt	3,262
11	700	mm	Rmt	4,413
12	750	mm	Rmt	4,227
13	800	mm	Rmt	5,590
14	900	mm	Rmt	4,600
15	1000	mm	Rmt	5,621
10.1.C	Class NP2 Test Pressure 0.7 Kg/sq.cm			
1	150	mm	Rmt	303
2	200	mm	Rmt	363
3	225	mm	Rmt	421
4	250	mm	Rmt	479
5	300	mm	Rmt	672
6	350	mm	Rmt	770
7	400	mm	Rmt	663
8	450	mm	Rmt	817
9	500	mm	Rmt	1,015
10	600	mm	Rmt	1,331
11	700	mm	Rmt	1,954
12	750	mm	Rmt	2,028
13	800	mm	Rmt	2,101
14	900	mm	Rmt	2,475
15	1000	mm	Rmt	3,433
16	1100	mm	Rmt	3,396
17	1200	mm	Rmt	4,121
18	1400	mm	Rmt	5,403
19	1600	mm	Rmt	8,210
20	1800	mm	Rmt	9,888

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
10.1.D	Class NP3 Test Pressure 0.7 Kg/sq.cm			
1	150	mm	Rmt	331
2	200	mm	Rmt	417
3	225	mm	Rmt	471
4	250	mm	Rmt	527
5	300	mm	Rmt	755
6	350	mm	Rmt	879
7	400	mm	Rmt	1,150
8	450	mm	Rmt	1,361
9	500	mm	Rmt	1,485
10	600	mm	Rmt	1,946
11	700	mm	Rmt	2,897
12	750	mm	Rmt	3,037
13	800	mm	Rmt	3,175
14	900	mm	Rmt	3,601
15	1000	mm	Rmt	4,821
16	1100	mm	Rmt	5,063
17	1200	mm	Rmt	5,899
18	1400	mm	Rmt	7,587
19	1600	mm	Rmt	11,167
20	1800	mm	Rmt	13,608
10.1.E	Class IRS/NP-4			
1	150	mm	Rmt	491
2	225	mm	Rmt	644
3	250	mm	Rmt	757
4	300	mm	Rmt	1,087
5	350	mm	Rmt	1,379
6	400	mm	Rmt	1,873
7	450	mm	Rmt	2,179
8	500	mm	Rmt	2,337
9	600	mm	Rmt	2,994
10	700	mm	Rmt	3,900
11	800	mm	Rmt	5,575
12	900	mm	Rmt	6,638
13	1000	mm	Rmt	8,282
14	1100	mm	Rmt	8,671
15	1200	mm	Rmt	9,704
16	1400	mm	Rmt	14,210
17	1600	mm	Rmt	17,702
18	1800	mm	Rmt	19,255
19	2000	mm	Rmt	20,887
Item No. 10.2	R. C. C. PIPE (vertically cast)			
Providing and supplying ISI Standard R.C.C. pipes(of Sulphate Resisting Cement) in standard lengths of following class and diameter suitable for either collar joints or rubber ring joints including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS - 458/ 1989)				
10.2.A	Class NP3 Test Pressure 0.7 Kg/sq.cm			
1	300	mm	Rmt	796
2	350	mm	Rmt	964

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
3	400	mm	Rmt	1,131
4	450	mm	Rmt	1,433
5	500	mm	Rmt	1,567
6	600	mm	Rmt	2,049
7	800	mm	Rmt	3,247
8	900	mm	Rmt	3,790
9	1000	mm	Rmt	5,076
10	1200	mm	Rmt	6,207
11	1400	mm	Rmt	7,982
10.2.B	Class NP4 Test Pressure 0.7 Kg/sq.cm			
1	300	mm	Rmt	1,145
2	350	mm	Rmt	1,510
3	400	mm	Rmt	1,875
4	450	mm	Rmt	2,296
5	500	mm	Rmt	2,464
6	600	mm	Rmt	3,154
7	800	mm	Rmt	6,328
8	900	mm	Rmt	6,997
9	1000	mm	Rmt	8,719
10	1200	mm	Rmt	10,212
11	1400	mm	Rmt	14,956
Item No. 10.3	R. C. C. Collars: Supplying of RCC Collars for RCC pipes including all taxes, carting, loading, unloading, etc. complete.			
1	100	mm	No.	46
2	150	mm	"	58
3	225 or 250	mm	"	80
4	300	mm	"	114
5	350	mm	"	138
6	380 or 400	mm	"	155
7	450	mm	"	182
8	500 or 525	mm	"	209
9	600	mm	"	291
10	680 or 700	mm	"	389
11	750	mm	"	433
12	800	mm	"	469
13	900	mm	"	644
14	1000	mm	"	742
15	1100	mm	"	884
16	1200	mm	"	1,063
17	1400	mm	"	1,245
18	1600	mm	"	1,522
19	1800	mm	"	1,693
Item No. 10.4	RCC precast M.H. Frame & Cover			
RCC precast M.H. Frame & Cover Manufacture, supply & Delivery at store or at site of work precast RCC M.200 Frame & cover suitable to drainage M.H. and as per type design & Drawing including cost of reinforcement M.S. Angles or Flat, curing mold work etc.				
10.4.A	Heavy duty			
1	Frame suitable for 50cm opening of MH			No. 1,121

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
2	Cover suitable for 50cm opening of MH		No.	1,173
10.4.B	Light Duty			
1	Frame suitable for 50cm opening of MH		No.	1,000
2	Cover suitable for 50cm opening of MH		No.	1,066
10.4.C	House Connection Chamber light duty			
1	Frame		No.	813
2	Cover		No.	920
Item No. 11	Stoneware Pipe			
Providing and supplying ISI marked only Standard length Stoneware pipes in standard lengths of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete. (IS - 651 / 1989)				
11.1	Class A			
1	100	mm	Rmt	113
2	150	mm	Rmt	163
3	200	mm	Rmt	252
4	230	mm	Rmt	299
5	250	mm	Rmt	360
6	300	mm	Rmt	529
11.2	Class AA			
1	100	mm	Rmt	124
2	150	mm	Rmt	179
3	200	mm	Rmt	277
4	230	mm	Rmt	329
5	250	mm	Rmt	395
6	300	mm	Rmt	581
Item No. 12	C.I.D. Joints			
Manufacture, supply and delivery of cast iron Detachable joints (Short & long) complete with joint flanges duly drilled, synthetic rubber sealing rings manufactured from styrene butadiene rubber (SBR) and other required accessories such as nut, bolts etc. conforming to IS specification 8794-1988 or its latest revision if any suitable for use with A.C. Pressure pipes. Delivery of joints including its accessories including loading, unloading, carting, stacking, insurance, all taxes, octroi etc. complete.				
12.1	Short Collar with ISI Mark			
12.1.A	Class- 5,10			
1	80	mm	No.	197
2	100	mm	"	248
3	125	mm	"	313
4	150	mm	"	400
5	200	mm	"	597
6	250	mm	"	769
7	300	mm	"	956
8	350	mm	"	1,537
9	400	mm	"	1,806
10	450	mm	"	2,176
11	500	mm	"	3,192
12	600	mm	"	4,835
12.1.B	Class- 15			
1	80	mm	"	197
2	100	mm	"	248

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
3	125	mm	"	313
4	150	mm	"	411
5	200	mm	"	597
6	250	mm	"	796
7	300	mm	"	982
8	350	mm	"	1,638
9	400	mm	"	1,883
10	450	mm	"	2,278
11	500	mm	"	3,396
12	600	mm	"	5,049
12.2	Short Collar without ISI Mark			
12.2.A	Class- 5,10			
1	80	mm	No.	189
2	100	mm	"	246
3	125	mm	"	309
4	150	mm	"	392
5	200	mm	"	571
6	250	mm	"	718
7	300	mm	"	897
8	350	mm	"	1,507
9	400	mm	"	1,749
10	450	mm	"	2,068
11	500	mm	"	3,083
12	600	mm	"	4,733
13	700	mm	"	6,796
12.2.B	Class- 15			
1	80	mm	"	195
2	100	mm	"	248
3	125	mm	"	313
4	150	mm	"	421
5	200	mm	"	581
6	250	mm	"	764
7	300	mm	"	948
8	350	mm	"	1,558
9	400	mm	"	1,828
10	450	mm	"	2,129
11	500	mm	"	3,238
12	600	mm	"	5,049
13	700	mm	"	7,136
12.3	Long Collar without ISI Mark			
12.3.A	Class- 5,10			
1	80	mm	No.	252
2	100	mm	"	313
3	125	mm	"	417
4	150	mm	"	577
5	200	mm	"	966
6	250	mm	"	1,254
7	300	mm	"	1,574
8	350	mm	"	2,232

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
9	400	mm	"	2,661
10	450	mm	"	3,196
11	500	mm	"	4,934
12	600	mm	"	6,861
13	700	mm	"	10,057
12.3.B	Class- 15			
1	80	mm	"	252
2	100	mm	"	313
3	125	mm	"	417
4	150	mm	"	604
5	200	mm	"	993
6	250	mm	"	1,311
7	300	mm	"	1,632
8	350	mm	"	2,232
9	400	mm	"	2,661
10	450	mm	"	3,196
11	500	mm	"	5,098
12	600	mm	"	6,977
13	700	mm	"	10,057
12.4	Short Collar Over size without ISI Mark			
12.4.A	Class- 5,10			
1	80	mm	No.	182
2	100	mm	"	218
3	125	mm	"	288
4	150	mm	"	360
5	200	mm	"	539
6	250	mm	"	702
7	300	mm	"	858
8	350	mm	"	1,447
9	400	mm	"	1,732
10	450	mm	"	2,104
11	500	mm	"	3,089
12	600	mm	"	4,634
13	700	mm	"	7,001
12.4.B	Class- 15			
1	80	mm	"	183
2	100	mm	"	220
3	125	mm	"	291
4	150	mm	"	367
5	200	mm	"	539
6	250	mm	"	734
7	300	mm	"	874
8	350	mm	"	1,554
9	400	mm	"	1,759
10	450	mm	"	2,210
11	500	mm	"	3,292
12	600	mm	"	4,848
13	700	mm	"	7,049

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
12.5	Long Collar Over size without ISI Mark			
12.5.A	Class- 5,10			
1	80	mm	No.	266
2	100	mm	"	319
3	125	mm	"	496
4	150	mm	"	595
5	200	mm	"	1,009
6	250	mm	"	1,304
7	300	mm	"	1,849
8	350	mm	"	2,361
9	400	mm	"	3,124
10	450	mm	"	3,445
11	500	mm	"	4,527
12	600	mm	"	6,453
13	700	mm	"	12,457
12.5.B	Class- 15			
1	80	mm	"	266
2	100	mm	"	319
3	125	mm	"	496
4	150	mm	"	595
5	200	mm	"	1,043
6	250	mm	"	1,470
7	300	mm	"	2,018
8	350	mm	"	2,462
9	400	mm	"	3,266
10	450	mm	"	3,496
11	500	mm	"	4,716
12	600	mm	"	6,690
13	700	mm	"	12,457
12.6	Long Collar Over Size Suitable to PVC/HDPE			
12.6.A	6 Kg / Cm ²			
1	90	mm	No.	195
2	110	mm	"	237
3	140	mm	"	297
4	160	mm	"	387
5	180	mm	"	488
6	200	mm	"	574
7	250	mm	"	893
8	315	mm	"	1,296
12.6.B	10 Kg / Cm ²			
1	90	mm	"	204
2	110	mm	"	251
3	140	mm	"	321
4	160	mm	"	419
5	180	mm	"	499
6	200	mm	"	601
7	250	mm	"	944
8	315	mm	"	1,351

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
Item No. 13	Sluice valves			
Providing and supplying ISI mark CI D/F Sluice Valves as per IS:14846 (Latest Edition) of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
13.1.A	PN-1 With hand wheel /cap operated (PD type short body)			
1	50	mm	No.	1,938
2	65	mm	"	2,366
3	80	mm	"	2,652
4	100	mm	"	3,563
5	125	mm	"	4,464
6	150	mm	"	5,848
7	200	mm	"	9,813
8	250	mm	"	15,920
9	300	mm	"	20,384
10	350	mm	"	30,125
11	400	mm	"	45,750
12	450	mm	"	53,384
13	500	mm	"	89,866
14	600	mm	"	122,777
15	700	mm	"	281,009
16	750	mm	"	355,455
17	800	mm	"	444,875
18	900	mm	"	488,616
19	1000	mm	"	852,679
20	1100	mm	"	1,125,688
21	1200	mm	"	1,286,500
13.1.B	PN-1 With gear operated (PD type short body)			
1	50	mm	No.	2,679
2	65	mm	"	2,902
3	80	mm	"	3,286
4	100	mm	"	4,527
5	125	mm	"	5,482
6	150	mm	"	7,205
7	200	mm	"	12,063
8	250	mm	"	19,589
9	300	mm	"	25,071
10	350	mm	"	36,723
11	400	mm	"	52,848
12	450	mm	"	64,491
13	500	mm	"	108,563
14	600	mm	"	148,330
13.1.D	PN-1 With hand/wheel cap operated (Alt-1 type long body)			
1	50	mm	No.	2,116
2	65	mm	"	2,554
3	80	mm	"	2,857
4	100	mm	"	3,875
5	125	mm	"	4,911
6	150	mm	"	6,482

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
7	200	mm	"	10,902
8	250	mm	"	17,518
9	300	mm	"	22,795
10	350	mm	"	33,598
11	400	mm	"	51,170
12	450	mm	"	59,920
13	500	mm	"	104,266
14	600	mm	"	140,205
15	700	mm	"	281,027
16	800	mm	"	355,473
17	900	mm	"	489,384
18	1000	mm	"	478,875
19	1100	mm	"	835,670
20	1200	mm	"	1,126,339
13.1.E	PN-1 With gear operated (Alt-1 type long body)			
1	50	mm	No.	2,893
2	65	mm	"	3,125
3	80	mm	"	3,545
4	100	mm	"	4,834
5	125	mm	"	5,911
6	150	mm	"	7,768
7	200	mm	"	13,009
8	250	mm	"	21,125
9	300	mm	"	27,036
10	350	mm	"	39,598
11	400	mm	"	56,982
12	450	mm	"	69,536
13	500	mm	"	117,054
14	600	mm	"	159,938
13.1.F	PN-1.6 With hand wheel /cap operated (PD type short body)			
1	50	mm	No.	1,955
2	65	mm	"	2,384
3	80	mm	"	2,679
4	100	mm	"	3,598
5	125	mm	"	4,536
6	150	mm	"	5,857
7	200	mm	"	10,295
8	250	mm	"	16,402
9	300	mm	"	20,946
10	350	mm	"	31,286
11	400	mm	"	47,009
12	450	mm	"	55,045
13	500	mm	"	92,554
14	600	mm	"	126,464
13.1.G	PN-1.6 With gear operated (PD type short body)			
1	50	mm	No.	2,750
2	65	mm	"	2,973
3	80	mm	"	3,375
4	100	mm	"	4,643

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
5	125	mm	"	5,625
6	150	mm	"	7,393
7	200	mm	"	12,375
8	250	mm	"	20,098
9	300	mm	"	25,732
10	350	mm	"	37,679
11	400	mm	"	54,223
12	450	mm	"	66,170
13	500	mm	"	111,393
14	600	mm	"	152,679
13.1.H	PN-1.6 With hand/wheel cap operated (Alt-1 type long body)			
1	50	mm	No.	2,143
2	65	mm	"	2,825
3	80	mm	"	2,946
4	100	mm	"	3,902
5	125	mm	"	5,063
6	150	mm	"	6,545
7	200	mm	"	11,063
8	250	mm	"	18,009
9	300	mm	"	23,259
10	350	mm	"	40,607
11	400	mm	"	52,214
12	450	mm	"	61,134
13	500	mm	"	106,116
14	600	mm	"	144,991
13.1.I	PN-1.6 With gear operated (Alt-1 type long body)			
1	50	mm	No.	2,964
2	65	mm	"	3,196
3	80	mm	"	3,634
4	100	mm	"	5,000
5	125	mm	"	6,054
6	150	mm	"	7,955
7	200	mm	"	13,321
8	250	mm	"	21,634
9	300	mm	"	27,688
10	350	mm	"	40,554
11	400	mm	"	58,357
12	450	mm	"	71,223
13	500	mm	"	119,893
14	600	mm	"	163,813
Item No. 14	Butterfly Valves			
Providing and supplying ISI mark CI D/F Butterfly Valves as per IS:13095 (Latest Edition) of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
14.1.A	Butterfly valves IS 13095 with ISI mark PN 1.0			
1	50	mm	No.	1,580
2	65	mm	"	1,705
3	80	mm	"	2,384
4	100	mm	"	2,563
5	125	mm	"	3,179

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
6	150	mm	"	4,089
7	200	mm	"	5,866
8	250	mm	"	8,563
9	300	mm	"	16,804
10	350	mm	"	28,402
11	400	mm	"	31,804
12	450	mm	"	33,643
13	500	mm	"	44,652
14	600	mm	"	51,384
15	700	mm	"	127,304
16	750	mm	"	185,357
17	800	mm	"	198,589
18	900	mm	"	224,036
19	1000	mm	"	275,000
20	1100	mm	"	332,830
21	1200	mm	"	418,795
14.1.B	Butterfly valves IS 13095 with ISI mark PN 1.6			
1	50	mm	No.	1,652
2	65	mm	"	1,777
3	80	mm	"	2,491
4	100	mm	"	2,670
5	125	mm	"	3,313
6	150	mm	"	4,268
7	200	mm	"	6,116
8	250	mm	"	8,920
9	300	mm	"	17,509
10	350	mm	"	29,589
11	400	mm	"	33,134
12	450	mm	"	35,045
13	500	mm	"	46,518
14	600	mm	"	53,527
15	700	mm	"	132,616
16	750	mm	"	193,080
17	800	mm	"	206,866
18	900	mm	"	233,375
19	1000	mm	"	286,464
20	1100	mm	"	346,705
21	1200	mm	"	436,250
Item No. 15	Reflux Valves			
Providing and supplying ISI mark CI D/F Reflux Valves as per IS:5312 (Latest Edition) of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
15.1.A	Reflux valves PN 1.0 IS 5312 with ISI mark			
1	50	mm	"	2,929
2	65	mm	"	3,438
3	80	mm	"	3,946
4	100	mm	"	5,348
5	125	mm	"	6,750
6	150	mm	"	8,027

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
7	200	mm	*	15,929
8	250	mm	"	26,759
9	300	mm	"	35,045
10	350	mm	"	61,179
11	400	mm	"	80,295
12	450	mm	"	88,580
13	500	mm	"	135,107
14	600	mm	"	213,527
15	700	mm	*	321,589
16	750	mm	*	393,313
15.1.B	Reflux valves PN 1.6 IS 5312 with ISI mark			
1	50	mm	"	3,054
2	65	mm	"	3,580
3	80	mm	"	4,107
4	100	mm	*	5,563
5	125	mm	*	7,027
6	150	mm	"	8,348
7	200	mm	"	16,571
8	250	mm	"	27,830
9	300	mm	"	36,446
10	350	mm	"	63,634
11	400	mm	"	83,509
12	450	mm	"	92,125
13	500	mm	"	140,518
14	600	mm	"	222,071
15	700	mm	"	334,455
16	750	mm	"	409,054
Item No. 16	Air valves			
Providing and supplying C. I. Air valves of approved make & quality of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.				
16.1.A	Air valves single (S1) Type			
1	15	mm	No.	462
2	25	mm	"	717
3	40	mm	"	948
4	50	mm	"	1,328
16.1.B	Air valves single (S2) Type			
1	25	mm	No.	661
2	40	mm	"	955
3	50	mm	"	1,400
16.1.C	Air valves double acting (DS2)			
1	40	mm	No.	2,013
2	50	mm	"	2,496
3	80	mm	"	3,680
4	100	mm	"	5,267
5	150	mm	"	12,384
6	200	mm	"	22,919
16.1.D	Kinetic Air Valve (DK)			
1	40	mm	No.	3,863

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
2	50	mm	"	4,547
3	80	mm	"	6,697
4	100	mm	"	10,500
5	150	mm	"	19,519
6	200	mm	"	31,721
16.2	Temper proof Air valves			
	Providing and supplying C. I. Temper proof Air valves with SS 304 Float gun metal- nozzle of approved make & quality of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.			
16.2.A	Without Isolating Sluice Valve PN 1.0			
1	40	mm	No.	4,278
2	50	mm	"	5,499
3	80	mm	"	7,387
4	100	mm	"	8,748
5	150	mm	"	13,876
6	200	mm	"	23,127
16.2.B	Without Isolating Sluice Valve PN 1.6			
1	40	mm	No.	7,189
2	50	mm	"	8,456
3	80	mm	"	9,965
4	100	mm	"	10,496
5	150	mm	"	16,647
6	200	mm	"	27,752
16.2.C	With Isolating Sluice Valve PN 1.0			
1	40	mm	No.	10,477
2	50	mm	"	11,221
3	80	mm	"	13,789
4	100	mm	"	16,232
5	150	mm	"	25,154
6	200	mm	"	40,595
16.2.D	With Isolating Sluice Valve PN 1.6			
1	40	mm	No.	11,668
2	50	mm	"	12,387
3	80	mm	"	16,016
4	100	mm	"	19,110
5	150	mm	"	29,606
6	200	mm	"	47,818
Item No. 17	Water hammer control device			
	Providing, supplying and delivery of Water Hammer Control Devices for use on various pumping main of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. complete.			
17.1.A	Zero velocity valves with bypass arrangement up to 300mm dia with C.I. body(class-10)			
1	100	mm	No.	49,426
2	125	mm	"	62,404
3	150	mm	"	73,112
4	200	mm	"	77,036
5	250	mm	"	86,079
6	300	mm	"	97,817

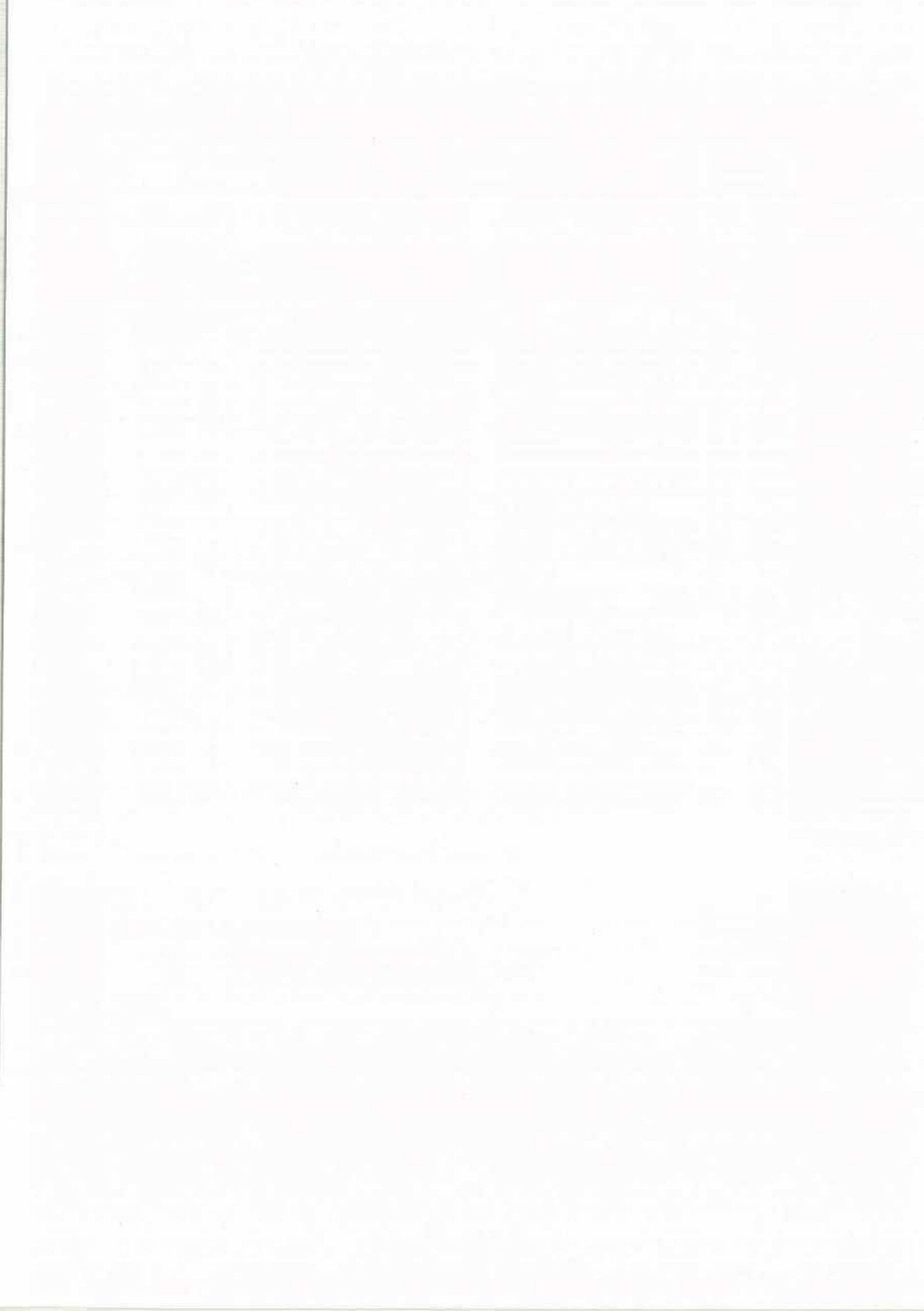
Item no.	Sr. No.	Size	Unit	Rate for 2022-23
17.1.B	Zero velocity valves with bypass arrangement up to 300mm dia with C.I. body (class-15)			
1	100	mm	No.	53,132
2	125	mm	"	75,796
3	150	mm	"	78,538
4	200	mm	"	83,044
5	250	mm	"	92,608
6	300	mm	"	105,147
17.1.C	Zero velocity valves above 300mm dia with M.S. body (class-10)			
1	350	mm	No.	97,838
2	400	mm	"	108,145
3	450	mm	"	116,929
4	500	mm	"	117,336
5	600	mm	"	174,829
6	700	mm	"	228,113
7	750	mm	"	252,668
8	800	mm	"	307,796
9	900	mm	"	365,834
10	1000	mm	"	443,759
11	1100	mm	"	565,369
12	1200	mm	"	680,472
13	1400	mm	"	1,020,708
14	1500	mm	"	1,189,300
15	1600	mm	"	1,213,084
16	1800	mm	"	1,332,164
17	2000	mm	"	1,476,464
17.1.D	Zero velocity valves above 300mm dia with M.S. body (class-15)			
1	350	mm	No.	112,511
2	400	mm	"	124,364
3	450	mm	"	144,648
4	500	mm	"	145,773
5	600	mm	"	201,054
6	700	mm	"	251,049
7	750	mm	"	277,971
8	800	mm	"	353,966
9	900	mm	"	420,709
10	1000	mm	"	443,759
11	1100	mm	"	641,083
12	1200	mm	"	748,534
13	1400	mm	"	1,122,798
14	1500	mm	"	1,308,218
15	1600	mm	"	1,334,379
16	1800	mm	"	1,383,897
17	2000	mm	"	1,476,464
17.2	Air Cushion Valve with Cast Iron Body			
17.2.A	Class-10			
1	100	mm	No.	63,915
2	150	mm	"	96,930
3	200	mm	"	103,460
4	300	mm	"	145,579
17.2.B	Class-15			
1	100	mm	No.	70,261
2	150	mm	"	106,587

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
3	200	mm	"	113,852
4	300	mm	"	160,202
Item No. 18.1	Ball or stop Valves			
18.1.A	Threaded ends, Metallic to metallic chrome coated wedge PVC seat rings			
1	50	mm	No.	465
2	65	mm	"	573
3	80	mm	"	911
4	100	mm	"	1,296
5	150	mm	"	2,206
18.1.B	Threaded ends, Metallic to PVC, PVC wedge PVC seat rings.			
1	50	mm	No.	465
2	65	mm	"	713
3	80	mm	"	825
4	100	mm	"	1,345
5	150	mm	"	2,206
18.1.C	Flanged ends, Metallic to metallic chrome coated wedge PVC seat rings			
1	50	mm	No.	1,296
2	65	mm	"	1,425
3	80	mm	"	1,827
4	100	mm	"	2,335
5	150	mm	"	3,203
18.2	Stop valves / cocks			
18.2.A	Providing & fixing gun metal check or non return full-way wheel valve			
1	15	mm	No.	276
2	20	mm	"	322
3	25	mm	"	457
4	40	mm	"	584
5	50	mm	"	821
18.2.B	Providing & fixing brass screw down stop tap			
1	15	mm	No.	157
2	20	mm	"	175
3	25	mm	"	212
18.2.C	C. I. Stop cock or push button type self closing tap as per IS 1711			
1	15	mm	No.	175
2	20	mm	"	175
Item No. 19	C.I. Miscellaneous Items			
19.1	C.I.Specials plain ended			
Manufacture, supply and delivery of 80 mm to 700 mm dia cast iron plain ended specials complete as per IS: 5531-1977 (Part- I to III) or its latest revision if any, suitable for use with A.C. Pressure pipes manufactured as per IS: 1592-1989 or its latest revision for various dia meter and classes. The delivery of specials is to be made to GWSSB store or sites any where In Gujarat States including all taxes, loading, carting, unloading, stacking, insurance, octroi, inspection charges etc. complete				
19.1.A	All type of Specials Such as Bends, Tees, Reducers etc. Class 5 & 10			
1	Up to 300 mm dia.			Kg 58

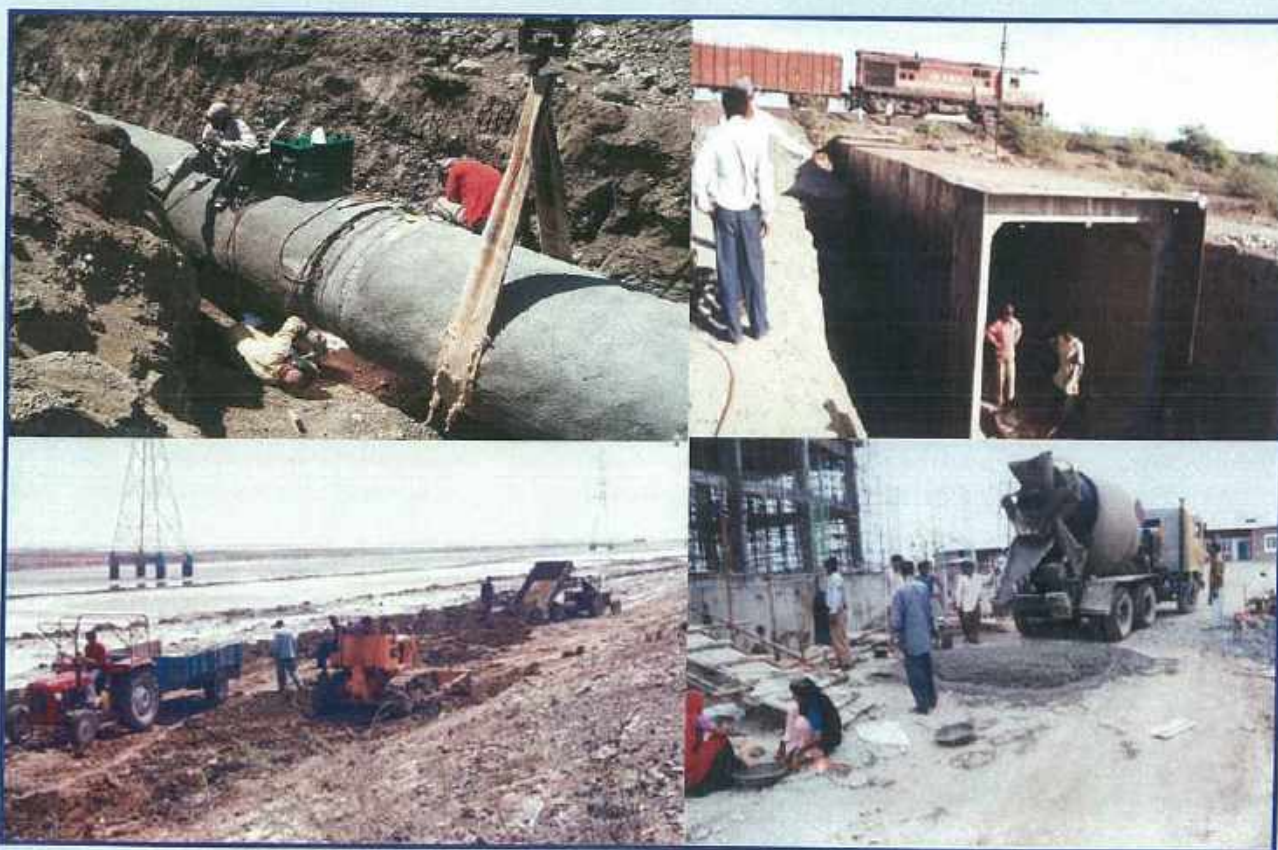
Item no.	Sr. No.	Size	Unit	Rate for 2022-23
19.1.B	C.I.Specials flange ended			
Manufacture, supply and delivery of 80 mm to 700 mm dia cast iron flange ended specials complete as per IS: 5531-1977 (Part- I to III) or its latest revision if any, suitable for use with A.C. Pressure pipes manufactured as per IS: 1592-1989 or its latest revision for various dia meter and classes. The delivery of specials is to be made to GWSSB store or sites any where in Gujarat States including all taxes, loading, carting, unloading, stacking, insurance, octroi, inspection charges etc. complete				
1	80 to 300mm dia		Kg	58
2	350 to 650mm dia		"	58
3	700 onwards		"	58
19.2	C. I. Fire hydrants : Double Valves type underground.			
	C. I. Fire hydrants- Double Valves type UG.		No.	6,473
19.3	C. I. Manhole Frame & Cover			
	All type		Kg.	58
19.4	C.I. Steps All type & size			
1			Kg.	58
19.5	C.I. surface box with cover			
1			Kg.	58
19.6	C.I. Cowl Ventilator			
	Providing C. I. Cowl Type ventilator with air filter & Jali etc. complete.			
1	All dia		Kg.	58
Item No. 20	HDPE Storage Tanks: Supplying Rotationally moulded HDPE storage tank with ISI Mark of approved make incl. all taxes transportation octroi etc. complete.			
20.1.A	Storage Tanks With ISI Mark (with outside Black colour & inside lining)			
1	100	lit cap.	No.	896
2	200	"	"	1,791
3	300	"	"	2,687
4	400	"	"	3,581
5	500	"	"	4,477
6	1000	"	"	8,954
7	1500	"	"	13,431
8	2000	"	"	17,908
9	2500	"	"	22,548
10	3000	"	"	27,058
11	4000	"	"	36,077
12	5000	"	"	45,096
13	6000	"	"	54,115
14	7500	"	"	67,645
15	10000	"	"	91,444
20.1.B	Storage Tanks Without ISI Mark (with outside Black colour & inside lining)			
1	100	lit cap.	No.	654
2	200	"	"	1,306
3	300	"	"	1,960
4	400	"	"	2,876
5	500	"	"	3,595
6	1000	"	"	7,189
7	1500	"	"	10,784
8	2000	"	"	14,379
9	2500	"	"	18,137

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
10	3000	"	"	21,764
11	4000	"	"	29,019
12	5000	"	"	36,273
13	6000	"	"	43,528
14	7500	"	"	54,410
15	10000	"	"	71,848
20.1.C	Loft Storage Tanks With ISI Mark (with outside Black colour & inside lining)			
1	100	lit cap.	No.	904
2	200	"	"	1,810
3	300	"	"	2,714
4	400	"	"	3,661
5	500	"	"	4,575
6	1000	"	"	9,302
20.1.D	Loft Storage Tanks Without ISI Mark (with outside Black colour & inside lining)			
1	100	lit cap.	No.	784
2	200	"	"	1,569
3	300	"	"	2,353
4	400	"	"	3,138
5	500	"	"	3,921
6	1000	"	"	7,973
Item No. 21	Coupline & Rings			
21.1.A	Supplying AC coupling with EPDM rubber rings and carting, loading, unloading and all taxes etc.			
1	80	mm	No.	152
2	100	mm	"	195
3	150	mm	"	280
4	200	mm	"	430
5	250	mm	"	509
6	300	mm	"	661
7	350	mm	"	859
8	400	mm	"	1,104
9	450	mm	"	1,257
10	500	mm	"	1,487
11	600	mm	"	2,016
21.1.B	Rubber Rings for AC pipes / CID Joints			
Manufacturing, Supplying & Delivery of EPDM Rubber Sealing Ring with ISI mark as per Type-3 specified in Table-I & II of IS specification 5382-1985 and IS 10292-1982 (Part-I & II) or its latest revision of any suitable for use with A.C.Coupler or CID Joints for A.C.Pressure Pipe (IS 1592-1989) including all taxes loading, carting, unloading and stacking at GWSSB store any where in Gujarat State including insurance, inspection charges, octroi etc. complete.				
21.2.A	"O" Type rings			
1	80	mm	No.	24
2	100	mm	"	34
3	125	mm	"	37
4	150	mm	"	42
5	200	mm	"	60
6	250	mm	"	70
7	300	mm	"	88
8	350	mm	"	119

Item no.	Sr. No.	Size	Unit	Rate for 2022-23
9	400	mm	"	128
10	450	mm	"	170
11	500	mm	"	295
12	600	mm	"	375
13	700	mm	"	491
21.2.B "V" Type rings				
1	80	mm	No.	31
2	100	mm	"	41
3	125	mm	"	44
4	150	mm	"	54
5	200	mm	"	76
6	250	mm	"	87
7	300	mm	"	111
8	350	mm	"	149
9	400	mm	"	151
10	450	mm	"	171
11	500	mm	"	376
12	600	mm	"	446
13	700	mm	"	590
21.2.C Suitable for CID Joints				
1	80	mm	No.	24
2	100	mm	"	34
3	125	mm	"	37
4	150	mm	"	42
5	200	mm	"	60
6	250	mm	"	70
7	300	mm	"	88
8	350	mm	"	119
9	400	mm	"	126
10	450	mm	"	170
11	500	mm	"	295
12	600	mm	"	375
13	700	mm	"	491
Item No. 22 MS Iron Ladder				
Providing and fixing at site of work M. S. Iron ladder with Rly. freight, loading, unloading, carting & all taxes etc. comp as directed including paints 2 coats etc comp.				
	-do- as above		Kg	72
22.1 Channels, angles, iron rails etc..				
22.1.A Purchasing & supplying at site of works, with Railway freight, loading, unloading, carting, etc. complete such as joints, channels, angles, iron rails, etc.				
1	Angles & channels below 10 mm thickness		MT	64,838
2	Angles 10mm & above thick		MT	72,916
22.1.B - do - M. S. Flats of various thickness			MT	66,408
Note : All the Rates in material section includes transportation and storage charges & Excludes GST				



LABOUR SECTION - B



SECTION : 1 & 2.B - LABOUR				
Item no.	Size	Unit	Rate for 2022-23	
Item No. 1	Excavation for Pipeline trenches			
	Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with shoring and strutting if required as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.			
a)	In all sorts of soil and soft murrum			
b)	In hard murrum, boulders incl. macadam road.			
c)	In soft rock and/or masonry in CM or L M or Lime Concrete.			
d)	In hard rock and / or in C. C. 1:2:4 or RCC with blasting, breaking, chiseling, or by chiseling/breaking only.			
1.A.1	Upto 1.50 mt depth			
	a)	"	Cu.M.	89
	b)	"	"	135
	c)	"	"	163
	d)	"	"	372
1.A.2	1.50 mt to 3.00 mt depth			
	a)	"	Cu.M.	98
	b)	"	"	148
	c)	"	"	179
	d)	"	"	388
1.A.3	3.00 mt to 4.50 mt depth			
	a)	"	Cu.M.	103
	b)	"	"	154
	c)	"	"	187
	d)	"	"	397
1.A.4	4.50 mt to 6.00 mt depth			
	a)	"	Cu.M.	109
	b)	"	"	161
	c)	"	"	195
	d)	"	"	405
1.A.5	6.00 mt to 7.50 mt depth			
	a)	"	Cu.M.	113
	b)	"	"	167
	c)	"	"	202
	d)	"	"	414
1.A.6	Excavation for P/L trenches beyond 7.5m			
	For every extra additional depth of 1.5 m or part thereof beyond 7.5 m depth			
	a)	"	Cu.M.	28
	b)	"	"	40
	c)	"	"	50
	d)	"	"	52

Item no.	Size	Unit	Rate for 2022-23
Item No. 2	Excavation in Bituminous Road		
	Excavation in bituminous road as per required gradient and line including safety provisions using site rails and stacking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts as specified.		
	a)	Excavation in Bituminous Road Cu.M.	251
Item No. 3	Providing bedding incl. ramming, watering, levelling, consolidating etc. Complete as per standard and instruction of engineer incharge		
1	As above with selected excavated earth available near site	Cu.M.	60
2	As above with Murrum brought from outside including all lead	"	176
3	As above with required quality Sand brought from outside including all lead	"	329
Item no.4 (A)	: L, L & J of MS Pipe (outside gunniting & inside lining / epoxy)		
	Lowering, laying, Jointing & welding in position to correct line & level M.S. Pipe with outer gunniting & inside lining/Epoxy painting on pedestal or chairs upon prepared formation or prepared bedding in trenches the rates include conveyance from store to site of work loading, unloading, joint plastering, hydrotesting etc.complete.		
4.a.1	4mm to 7mm Thick		
	Pipe Dia in mm		
1	168.3	RMT	180
2	193.7	"	197
3	219.7	"	216
4	244.5	"	232
5	273.1	"	251
6	323.9	"	297
7	355.6	"	320
8	406.4	"	354
9	457	"	391
10	508	"	427
11	559	"	470
12	610	"	507
13	660	"	544
14	711	"	579
15	762	"	631
16	813	"	666
17	864	"	704
18	914	"	746
19	965	"	782
20	1016	"	819

Item no.	Size	Unit	Rate for 2022-23
4.a.2	Above 7 mm thick		
	Pipe Dia in mm		
1	559	Rmt	518
2	610	"	560
3	660	"	599
4	711	"	640
5	762	"	693
6	813	"	736
7	864	"	779
8	914	"	825
9	965	"	864
10	1016	"	920
11	1067	"	962
12	1118	"	1002
13	1168	"	1043
14	1219	"	1088
15	1321	"	1187
16	1422	"	1269
17	1524	"	1353
18	1626	"	1442
19	1727	"	1540
20	1829	"	1624
21	2032	"	1793

Item no.4 (B)	L, L & J of MS Pipe (with 3 LPE coating & with lining or epoxy)		
	Lowering, laying, jointing & welding in position to correct line & level M.S. Pipe with outside 3 LPE coating & inside solvent free liquid epoxy lining on pedestal or chairs upon prepared formation or prepared bedding in trenches the rates include conveyance from store to site of work loading, unloading, heat shrink sleeve jointing hydrotesting etc.complete.		
4.b.1	4 mm to 7 mm thick		
	Pipe Dia in mm		
1	168.3	RMT	240
2	193.7	"	265
3	219.7	"	293
4	244.5	"	320
5	273.1	"	347
6	323.9	"	411
7	355.6	"	444
8	406.4	"	495
9	457	"	552
10	508	"	604
11	559	"	666
12	610	"	723
13	660	"	774
14	711	"	827
15	762	"	896

Item no.	Size	Unit	Rate for 2022-23
16	813	"	951
17	864	"	1006
18	914	"	1066
19	965	"	1118
20	1016	"	1173

4.b.2	Above 7 mm thick		
	Pipe Dia in mm		
1	559	Rmt	736
2	610	"	799
3	660	"	856
4	711	"	917
5	762	"	992
6	813	"	1052
7	864	"	1115
8	914	"	1180
9	965	"	1241
10	1016	"	1300
11	1067	"	1362
12	1118	"	1422
13	1168	"	1481
14	1219	"	1550
15	1321	"	1669
16	1422	"	1792
17	1524	"	1912
18	1626	"	2042
19	1727	"	2164
20	1829	"	2288
21	2032	"	2533

Item No. 5	L, L & J of DI / CI Pipe (flanged Joint)		
	Providing and making flanged joints to flanged DI / C.I. pipes of all classes / specials etc. including cost of all jointing materials rubber packing, nut bolts, including lowering laying jointing labour hydraulic testing etc. complete.		
	Pipe Dia in mm		
1	80	Joint	434
2	100	"	477
3	125	"	543
4	150	"	611
5	200	"	837
6	250	"	1007
7	300	"	1223
8	350	"	1442
9	400	"	1699
10	450	"	2131
11	500	"	2588
12	600	"	3217

Item no.	Size	Unit	Rate for 2022-23
13	700	"	3988
14	750	"	4710
15	800	"	5174
16	900	"	5954
17	1000	"	6738
18	1100	"	7614
19	1200	"	8604

Item No. 6	L, L & J of DI / CI Pipe (tyton Joint)		
	Lowering, laying and jointing C. I. S & S Spun pipes suitable for Tyton joints / Mortar lined D. I. Pipes of various classes with CI / MS specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including hydraulic testing etc. comp.		
	Pipe Dia in mm		
1	80	RMT	50
2	100	"	55
3	125	"	64
4	150	"	76
5	200	"	99
6	250	"	127
7	300	"	155
8	350	"	188
9	400	"	225
10	450	"	265
11	500	"	312
12	600	"	404
13	700	"	513
14	750	"	571
15	800	"	635
16	900	"	766
17	1000	"	914
18	1100	"	1088
19	1200	"	1295

Item No. 7	L,L& J of G.I.Pipes		
	Lowering, laying and jointing G. I. pipes with G. I. specials of following diameters in proper position, grade and alignment as directed by Engineer-in-charge including conveyance from stores to site of work, labour, giving hydraulic testing, etc. comple		
	Pipe Dia in mm		
1	32	RMT	13
2	40	"	15
3	50	"	18
4	65	"	20
5	80	"	27
6	100	"	34
7	125	"	43

Item no.	Size	Unit	Rate for 2022-23
8	150	"	49
Item No. 8 L, L & J PVC/uPVC/cPVC pipes and specials			
	Lowering, laying, fixing and jointing PVC/uPVC/cPVC pipes and specials of following class and diameter including cost of conveyance from stores to site of works including cost of labour, material, cement solvent, giving satisfactory hydraulic testing as per ISI code.		
	Pipe Dia in mm		
1	63	RMT	12
2	75	"	15
3	90	"	17
4	110	"	19
5	125	"	21
6	140	"	23
7	160	"	28
8	180	"	34
9	200	"	37
10	225	"	47
11	250	"	51
12	280	"	60
13	315	"	69
Item No. 9 L,L& J of HDPE Pipes			
9.A	Lowering, laying and jointing HDPE pipes and specials of following class and diameter (By butt fusion welding method) including cost of conveyance from stores to site of works at all level including cost of labour, material, giving satisfactory hydraulic testing etc. comp.		
	Pipe dia. in mm		
1	50	RMT	4
2	63	"	5
3	75	"	7
4	90	"	7
9.B	Lowering, laying and jointing HDPE pipes and specials of following class and diameter (By butt fusion welding method) including cost of conveyance from stores to site of works at all level including cost of labour, material, giving satisfactory hydraulic testing etc. comp.		
	Pipe dia. in mm		
1	110	RMT	45
2	125	"	74
3	140	"	91
4	160	"	103
5	180	"	105
6	200	"	114
7	225	"	138
8	250	"	168
9	280	"	174

Item no.	Size	Unit	Rate for 2022-23
10	315	"	292
11	355	"	327
12	400	"	383
13	450	"	403
14	500	"	784
15	600	"	845
16	630	"	1046
17	710	"	1200
18	800	"	1501
19	900	"	1575
20	1000	"	2937
Item No. 10	L,L& J of Corrugated DWC HDPE Pipes (Gravity Line)		
	Lowering, laying and jointing of class SN 8 structured wall (External Annular Corrugated & Smooth Internal surface) Polyethylene Piping and fittings with the help of coupler (on line / off line) attached with one end of pipes, sliding over the elastomeric sealing rubber ring placed on the specified valley of the corrugation at the spigot end, lowering the same into the trench at all level, laying on the lower bedding (constructed at bottom of trenches) at prescribed gradient,depth & alignment ,testing the water tightness of the joints, ensuring the continuity tests of specified pipe segments etc. complete as per drawing,specifications & detailed engineering, including carriage of pipes & fittings from site stacks to the place of laying etc. as per direction of Engineer-in-charge.		
	Pipe dia. ID in mm		
1	75	RMT	21
2	100	"	21
3	125	"	22
4	135	"	23
5	150	"	23
6	170	"	23
7	200	"	33
8	225	"	37
9	250	"	42
10	300	"	62
11	400	"	80
12	500	"	106
13	600	"	131
14	800	"	169
15	1000	"	230
16	1200	"	293

Item no.	Size	Unit	Rate for 2022-23
Item No. 11	L, L& J of R.C.C. Pipes		
	Lowering, laying and jointing R. C. C. pipes in C. M. 1:1 1/2 of following diameters in proper position, grade and alignment at all level as directed by Engineer-in-charge including conveyance from stores to site of work, labour, giving hydraulic testing as per ISI code.		
11.a	RCC pipe (p1,p2,p3)		
	Pipe dia. in mm		
1	80	RMT	40
2	100	"	45
3	150	"	63
4	225	"	88
5	250	"	97
6	300	"	119
7	350	"	133
8	380	"	146
9	400	"	155
10	450	"	171
11	500	"	189
12	525	"	202
13	600	"	228
14	680	"	256
15	700	"	279
11.b	Class NP2,NP3,NP4		
	Pipe dia. in mm		
1	80	RMT	40
2	100	"	45
3	150	"	63
4	225	"	88
5	250	"	97
6	300	"	119
7	350	"	133
8	380	"	146
9	400	"	152
10	450	"	171
11	500	"	189
12	525	"	202
13	600	"	228
14	680	"	256
15	700	"	268
16	750	"	289
17	800	"	302
18	900	"	340
19	1000	"	375
20	1100	"	409
21	1200	"	440
22	1400	"	514

Item no.	Size	Unit	Rate for 2022-23
23	1600	"	577
24	1800	"	650
Item No. 12 L, L& J of Stone Ware Pipes			
	Lowering, laying and jointing Stone Ware pipes of following diameters with cement joints in C. M. 1:1 proportion in proper position, grade and alignment at all level as directed by Engineer-in-charge including conveyance from stores to site of work, Jointing material etc. comp.		
	Pipe Dia in mm		
1	75	RMT	49
2	100	"	58
3	150	"	88
4	200	"	113
5	230	"	128
6	250	"	140
7	300	"	159
Item No. 13 Dewatering			
1	In all sorts of soil and soft murrum, hard Murrum and boulders, Soft Rock, Hard Rock, upto 1.5 mt. depth from G. L.	Cu.M.	17
2	Extra for dewatering in all sorts of strata's, for each 1.5 mt. or part thereof beyond 1.5 mt. depth.	Cu.M.	10
Item No. 14 Refilling of pipeline trenches			
	Refilling the pipeline trenches incl. ramming, watering, consolidating disposal of surplus stuff as directed within a radius of 3 km.		
1	Refilling as directed	Cum	22
2	--do-- with selected soil brought from outside including all lead	Cu. M.	175
Item No. 15 L, L& J of SV / AV / BFV / RV			
	Lowering, laying and jointing in position following C. I. / D/F Reflux valves, Butterfly valves, Sluice valves and Air valves including cost of all labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete.		
15.a	Sluice valves, Butterfly Valves, Reflux Valves		
	Dia. in mm		
1	50	No.	378
2	65	"	393
3	80	"	400
4	100	"	439
5	125	"	479
6	150	"	585

Item no.	Size	Unit	Rate for 2022-23
7	200	"	742
8	250	"	946
9	300	"	1141
10	350	"	1742
11	400	"	1971
12	450	"	2760
13	500	"	2905
14	600	"	3967
15	700	"	5030
16	750	"	5805
17	800	"	6514
18	900	"	7574
19	1000	"	9345

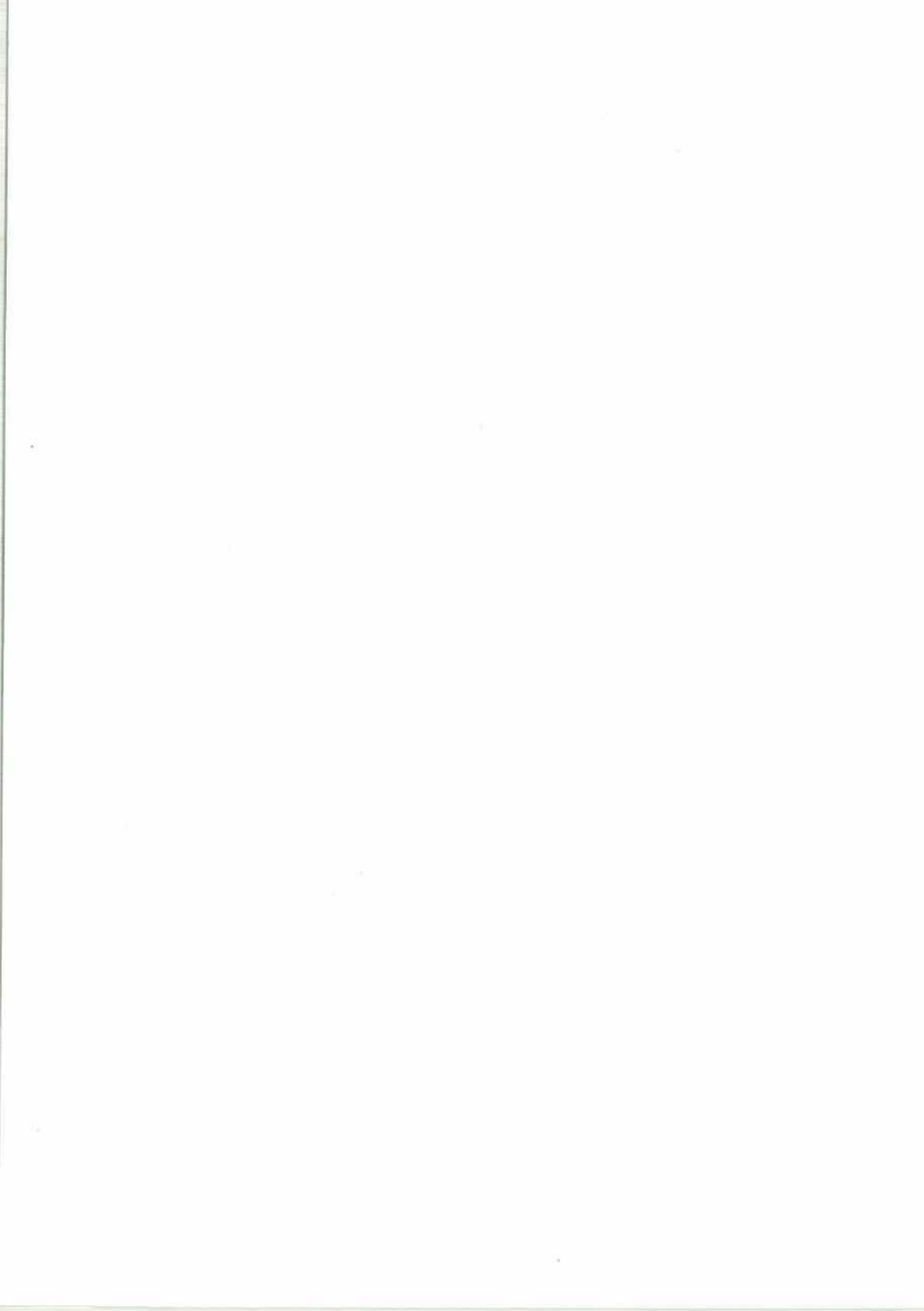
15.b	Air valves single ball Flanged / screwed type		
	Dia. in mm		
1	15	No.	29
2	20	"	42
3	25	"	56
4	40	"	69
5	50	"	178

15.c	Air valves double ball Flanged		
	Dia. in mm		
1	25	No.	199
2	40	"	251
3	50	"	379
4	65	"	397
5	80	"	411
6	100	"	526
7	150	"	605
8	200	"	857

Item No. 16	Fixing M.S.Sections			
	Labour charges for lowering laying, erecting, fixing, various size of M. S. section such as joints channel, angles plates etc. complete.			
	a)	-do-	MT	8523
	b)	- do - with fabrication.	MT	11365

Item No. 17	Cutting, bending, binding MS reinforcement WITH WIRE			
17.a	Labour charges for fabricating in position M. S. reinforcement of various dia. including shifting, cutting, bending, binding with 16 gauge wire, hooking, overlapping, scraping etc. complete for water retaining and water treatment structure and their related structures. INCL. COST OF WIRE			
	- do -		MT	8523
17.b	- do - for deformed bars		MT	8523

Item no.	Size	Unit	Rate for 2022-23
Item No. 18 Cutting of pipes			
	Labour charges for cutting pipes with the help of requisite tools and as directed.		
18.a	C. I. Pipe/D.I. Pipe		
1	Pipe thickness upto 10 mm	10 cm.	11
2	Pipe thickness upto 11 to 20 mm	"	14
3	Pipe thickness upto 21 to 30 mm	"	16
4	Pipe thickness upto 31 to 40 mm	"	21
18.b	R. C. C. Pipe/A.C. Pipe		
1	Pipe thickness upto 20 mm	10 cm.	3
2	Pipe thickness upto 21 to 30 mm	"	5
3	Pipe thickness upto 31 to 40 mm	"	7
4	Pipe thickness upto 41 to 50 mm	"	8
5	Pipe thickness upto 51 to 60 mm	"	11
6	Pipe thickness upto 61 to 70 mm	"	14
Item No. 19 Erecting Precast RCC Chamber			
	Labour charges for erecting precast RCC chamber for water main incl carting from store and fixing etc. complete (excluding excavation and refilling)		
1	0.60 x 0.60 x 1.0 mt	No.	691
2	0.90 x 0.90 x 1.0 mt	"	904
3	1.30 x 1.30 x 1.0 mt	"	1101
Item No. 20 Fixing RCC stand post with platform			
	Labour charges for fixing RCC precast stand post four taps.		877



RCC ESR, SUMP SECTION - C



SECTION : 1.C - RCC, ESR, GSR, SUMP, HGLR			
Item no.	Description of Item	Unit	Rate for 2022-23
Item No. 1	P.C.C (M7.5) 1:4:8 Mass concrete		
	Providing and casting in situ mass cement concrete in 1:4:8 proportion using granite quartzite trap metal of size 25 mm to 40 mm including consolidation curing etc. complete.	Cu. M.	3393
Item No. 2	P.C.C. M-10 levelling Course		
	Providing and casting in situ mass cement concrete in grade M-10 (approx. corresp. to prop. 1:3:6) using granite quartzite trap metal of size 12 mm to 25 mm incl. consolidation curing etc. complete.		
	2.1 With Form Work	Cu. M.	3972
	2.2 Without Forms Work	Cu. M.	3662
Item No. 3	C.C. (M-15)		
	Providing and casting in situ C.C. in grade M-15 (approx. corresp. to prop. 1:2:4) (proportions as per mix design or as per Table 9 of IS456 2000 in masses by weigh batching) using granite, quartzite trap metal of size 6 mm to 20 mm for RCC work, including scaffolding centering, form work, needle vibrated consolidation, curing comp. up to 6 meter depth or height (excluding cost of reinforcement and neat finishing) with centering and shuttering/deshuttering etc. comp. for structure for other than water retaining.		
	1. Footing (without form work)	Cu. M.	4732
	2. Footing for column or foundation (with form work)	Cu. M.	4906
Item No. 4	C.C. M-20 (without w.p.chemical)		
	Providing and casting in situ C.C. in grade M-20 (proportions as per mix design or as per table 9 of IS456 2000 in masses by weigh batching) using granite, quartzite trap metal of size 6 mm to 20 mm for RCC work, including scaffolding centering, formwork, needle vibrated consolidation, curing complete up to 6 meter depth or height (excluding cost of reinforcement and neat finishing) with centering and shuttering/deshuttering etc. complete for structure other than water retaining (Below G.L.)		
	1. Footing (without form work)	Cu. M.	5292
	2. Footing for column or foundation (with form work)	Cu. M.	5520
	3. Columns	Cu. M.	7363
	4. Braces and Beams/ Ring beam/Ring beams	Cu. M.	6722
	5. Top flat slab/slab of various thickness	Cu. M.	6504
	6. Top/roof Dome	Cu. M.	7028
	7. Vertical Wall/Cylindrical wall	Cu. M.	6779
Item No. 5	C.C. M-20 Nominal Mix (with w.p.chemical)		
	Providing and cast in situ C.C. in grade M-20 (approx. corresp. to prop. 1:1.5:3) (proportions as per mix design or as per table 9 of IS456 2000 in masses by weigh batching) using quartzite trap metal of size 12 mm to 20 mm and or 6 mm to 12 mm including scaffolding centering form work, needle vibrated consolidation, curing and hydraulic testing etc. complete (excluding cost of reinforcement) with centering and shuttering/deshuttering etc. complete up to 6 meter height/depth from Av. G.L. for all structures with water proofing compound.		
	1. Bottom slab or floor slab with shuttering	Cu. M.	7304
	2. Bottom slab or floor slab – without shuttering	Cu. M.	5978

Item no.	Description of Item	Unit	Rate for 2022-23
3.	Bottom dome / roof dome	Cu. M.	7499
4.	Slant slab/conical wall or conical shell	Cu. M.	7484
5.	Beams /Ring beams/Ring girders	Cu. M.	7553
	Vertical Wall		
6.	up to 15 cm thick	Cu. Mt.	7778
7.	Above 15 cm and up to 20 cm	Cu. Mt.	7466
8.	Above 20 cm and up to 25 cm	Cu. Mt.	7228
9.	Above 25 cm	Cu. Mt.	7162
10.	Columns	Cu. Mt.	8356
Item No. 6	C.C. M-25 Control concrete for water retaining structures		
	Providing and cast in situ C.C. in grade M-25 proportions of ingredients as per mix design by weigh batching using granite, quartzite trap metal of size 12 mm to 20 mm and or 6 mm to 12 mm including scaffolding centering formwork, needle vibrated consolidation, curing and hydraulic testing etc. complete (excluding cost of reinforcement) with centering and shuttering/deshuttering etc. comp. up to 6 meter height/depth Av. G.L for all water retaining structures.		
1.	Flat bottom slab/floor slab/slab with shuttering	Cu. M.	8077
2.	Flat bottom slab/floor slab/slab without shuttering	Cu. M.	6705
3.	Bottom dome / Top dome	Cu. M.	8281
4.	Slant slab /conical wall or conical shell	Cu. M.	8266
5.	Beams/ ring beams/girders	Cu. M.	8347
	Vertical Wall		
6.	up to 15 cm thick	Cu. Mt.	8597
7.	Above 15 cm and up to 20 cm	Cu. Mt.	8262
8.	Above 20 cm and up to 25 cm	Cu. Mt.	8006
9.	Above 25 cm	Cu. Mt.	7936
10.	Columns	Cu. Mt.	9195
Item No. 7	C.C. M-30 Control concrete for water retaining structures		
	Providing and cast in situ C.C. in grade M-30 proportions of ingredients as per mix design by weigh batching using granite, quartzite trap metal of size 12 mm to 20 mm and or 6 mm to 12 mm including scaffolding centering formwork, needle vibrated consolidation, curing and hydraulic testing etc. complete (excluding cost of reinforcement) with centering and shuttering/deshuttering etc. comp. up to 6 meter height/depth Av. G.L for all water retaining structures		
1.	Flat bottom slab/floor slab/slab with shuttering	Cu. M.	8213
2.	Flat bottom slab/floor slab/slab without shuttering	Cu. M.	6905
3.	Bottom dome / Top dome	Cu. M.	8412
4.	Slant slab /conical wall or conical shell	Cu. M.	8395
5.	Beams/ ring beams/girders	Cu. M.	8486
	Vertical Wall		
6.	up to 15 cm thick	Cu. Mt.	8747
7.	Above 15 cm and up to 20 cm	Cu. Mt.	8412
8.	Above 20 cm and up to 25 cm	Cu. Mt.	8164
9.	Above 25 cm	Cu. Mt.	8083
10.	Columns	Cu. Mt.	9317
Item No. 8	Extra for raising / lowering of C.C.		
	Extra for raising / lowering of C.C. for every additional 3 meter of part thereof in all RCC items of reservoirs or water retaining structures.		
	(for item 4, 5, 6 and 7)	Cu. Mt.	205

Item no.	Description of Item	Unit	Rate for 2022-23
Item No. 9	Steel /Reinforcement bars		
	Supplying cutting, bending, binding and placing in position steel as per plan and design and as per ISS 2502 including cost of steel and binding wire for reservoirs/structures only including lift up to 6 meter height or depth below G.L. for all diameters		
9.1	High yield strength deformed(HYSD)bars/ Cold twisted deformed (CTD) bars confirming to IS1786(latest) Fe – 415 grade	MT	68914
9.2	Do-Thermo mechanically treated (TMT)bars Fe-415 grade for all diameters.	MT	73208
9.3	Do-Corrosion resistance steel(CRS) Fe 415 grade for all diameters confirming to relevant I.S.	MT	77504
9.4	Do – deformed (TMT) bars confirming to relevant IS Fe – 500 grade for all diameters.	MT	77504
9.5	Do-CRS steel all diameter Fe 500grade confirming to relevant I.S.	MT	78577
9.6	Do-Using Mild steel confirming to ISS 226 – 1962 or ISS 432 (i) or latest	MT	66767
Item No. 10	Extra for raising Steel bars		
	Extra for raising steel bars for every additional height of 3 meters or part thereof.	MT	453
Item No. 11	RCC Spiral Staircase		
	RCC circular spiral staircase with central circular in M-20 as per design including M.S. reinforcement, centering, shuttering, form work , scaffolding ,finishing and curing including providing and fixing balusters of 1.0 m (work below G.L. for column and footing will be paid extra) for 1m radius and 20 cms rise .	Step	1000
Item No. 12	Cement Plaster (20 mm thick)		
	A) Cement plaster 20 mm thick in C.M. 1:2 using water proofing compound of approved quality including finishing etc. complete.	Sq. M.	202
	B) – do – Without water proofing compound.	Sq. M.	195
Item No. 13	Epoxy paint to RCC		
	Providing and applying Epoxy paint of approved make to concrete surface for RCC/ ESR of GSR or any other structure including cleaning the surface by scrapping and air blowers to the satisfaction of Engineer-in-charge necessary scaffolding etc. complete with all leads and lifts and giving satisfactory hydraulic test for water tightness as per IS codes.		
	1. For new surface – Two coats	Sq. M.	90
	2. For old surface – Two coats	Sq. M.	97
Item No. 14	(a) M.S. Ladder(Without safety cage)		
	Providing and fixing 50 cm wide M.S. Ladder fabricated from M.S. Flats 10 mm x 75 mm with 20 mm dia steel bar steps in double rows, @ 30 cm C/C. The include stays of 10 mm x 50 mm flats fixed at 3 meter C/C with welding anchoring and 3 coats anticorrosive paint.	R. Mt.	2950
	(b) Note: For M.S. Ladder(With safety cage)		

Item no.	Description of Item	Unit	Rate for 2022-23
	Item No 14 (a) plus Rs. 67 per kg of additional structural steel consumed for safety cage arrangement		
Item No. 15	Aluminium Pole Ladder (1.2m to 4.0m)		
	Providing Aluminium pole ladder made from channel size 44 mm x 25 mm x 3 mm and step made from non sleep corrugated aluminium pipe 25 mm dia. complete with rubbers shores at top and bottom available in Aluminium any height from 1.2 mt to 4.0 mt.	R. Mt.	992
Item No. 16	Water Level Indicator / Depth Gauge		
	Providing and fixing Water Level Indicator or depth gauge painted on TW plank 25 mm / MS plate 4 mm thick float, level indicator sliding wire on standard pulleys incl. necessary arrangement to prevent the swinging etc. complete with calibration up to 5 mt height.		
		No.	5520
Item No. 17	Construction /Expansion Joints .		
	Providing and Fixing water tight construction or expansion joints.		
	1. Made of G.I. plain sheet of 16 to 18 gauge 30 cms wide.	R. Mt.	235
	2. 150 mm wide thin ribbed PVC.	R. Mt.	330
	3. 180 mm dumbbell type	R. Mt.	377
Item No. 18	Copper Lightning Arrestor		
	Providing and fixing copper lightning arrestor incl. copper strip and earthing plate etc. complete (incl. cost of excavation for earthing plate etc. rate per kgs of copper).	Kg.	878
Item No. 19	CIDF Pipes for ESR / Reservoir		
	Providing and fixing flanged steel cylinder reinforced concrete or C.I.D.F. / Class A pipes vertically for R.C.C. Reservoir incl. providing clamps at every 3 mt incl. jointing materials such as nuts, bolts, rubber packing, hydraulic testing and necessary scaffolding etc. complete.		
	1. 80 mm	R. Mt.	2656
	2. 100 mm	R. Mt.	3108
	3. 125 mm	R. Mt.	3713
	4. 150 mm	R. Mt.	4354
	5. 200 mm	R. Mt.	6098
	6. 250 mm	R. Mt.	7899
	7. 300 mm	R. Mt.	9957
	8. 350 mm	R. Mt.	12254
	9. 400 mm	R. Mt.	14779
	10. 450 mm	R. Mt.	18490
	11. 500 mm	R. Mt.	21984
	12. 600 mm	R. Mt.	28698
	13. 700 mm	R. Mt.	37519
	14. 750 mm	R. Mt.	42769

Item no.	Description of Item	Unit	Rate for 2022-23
Item No. 20	DIDF pipes for ESR / Reservoir		
	Providing and fixing flanged D.I.D.F. / Class K-9 pipes vertically for RCC. Reservoir incl. providing clamps at every 3 mt incl. jointing materials such as nuts, bolts, rubber packing, hydraulic testing and necessary scaffolding etc. complete.		
1.	100 mm	R. Mt.	2334
2.	150 mm	R. Mt.	3421
3.	200 mm	R. Mt.	4576
4.	250 mm	R. Mt.	5821
5.	300 mm	R. Mt.	7219
6.	350 mm	R. Mt.	8813
7.	400 mm	R. Mt.	10489
8.	450 mm	R. Mt.	12780
9.	500 mm	R. Mt.	15347
10.	600 mm	R. Mt.	19991
11.	700 mm	R. Mt.	25369
Item No. 21	M.S. Pipe Railing		
	Providing and fixing 25 mm x 5.2 mm MS railing with three horizontal rows and posts of angle iron of size 65 mm x 65 mm x 8 mm RCC 150 mm and 1.15 meter height and placed at 1.85 mt / c/c including painting two coats and anchorage in CC etc. complete	Kg.	77
Item No. 22	Cement Paint to ESR		
22-A	Applying any approve quality of cement paint in three coats including cleaning washing etc. complete for E.S.R. only.	Sq. Mt.	63
22-B	-do- for Existing ESR Incl. Scaffolding	Sq. Mt.	79

SECTION : 1.C - RCC, ESR, GSR, SUMP, HGLR

Description of Item		Unit	Rate for 2022-23		
Item No.1: RCC ESR (description of item for turnkey tender)					
Designing structurally (and aesthetically) complying provisions of relevant Indian standards and constructing RCC Elevated service Reservoir of the following capacity and height, using latest Soil Investigation Report of proposed site, Seismic zone, Wind speed Zone, including (1) Container shape any suitable type (or as specified), (2) Staging consisting of column brace trestle / shaft / combination column-brace trestle and shaft as appropriate (or as specified) and (3) Appropriate foundation system. This includes excavation in all types of soil strata (including hard rock), casting 100 mm thick P.C.C. levelling course in M-10, Refilling the pit with proper soil and disposing of the surplus stuff at all required lead, (4) This will also include cement plaster in CM 1:2 with approved water proofing compound all over inside container (i.e. walls, base, top slab/dome bottom etc. all), (5) All types of labour & material charges of lowering, laying, erecting / hoisting & joining of pipe assembly of Inlet, Outlet, overflow, washout and bye pass arrangement as per hydraulic design are including, (6) Providing and fixing of any accessories (specified), CI Manhole frame and covers, water level indicator, lightning conductor, GI Pipe railing around walk way, at roof level, at gallery and around landing of inside shaft. Adequate cowl type ventilators or lantern type ventilator with stainless steel grill, (7) Scope of work includes constructing RCC spiral staircase with adequate tie beams, staircase footing, RCC chambers for valves, ventilating shaft and ventilators as well as door in shaft, SS grating to be provided to outlet pipe (inside container) for safety, (8) including providing and applying three coats of cement paint/snowcem (as specified) to the whole structure, (9) It also includes satisfactory water tightness test as per relevant I.S. Code and painting name of scheme & capacity on the tank as per direction of engineer in charge.					
List of Indian Standards for design of ESR:					
Note: The structural design of ESR shall be in accordance with provisions of relevant Indian Standards:					
(1) I.S. 3370 part I & II 2009 or its latest revision					
(1.1) I.S. 3370 part III & IV 1965 or its latest revision					
(2) IS 456-2000 or its latest revision					
(3) IS 11682- 1985 or its latest revision					
(4) IS 1893-2002 part I to V or its latest revision					
(5) IS 13920-1993, or its latest revision					
(6) IS 875 part I to III, 1987 or its latest revision					
(7) IS 11089- 1987 or its latest revision					
General specifications:					
(1) The Min. concrete grade for RCC shall be M :30. Proportion of concrete ingredients shall be as per Mix design using weigh batching.					
(2) HYSD (Fe 415) or higher grade reinforcing bars conforming to IS 1786/1139 or CRS /TMT bars shall be used as per detailed specification.					
(3) In case of column-brace trestle type staging having more than 6 columns internal horizontal bracing is obligatory. One bracing shall be at foundation level in case of individual footings.					
(4) Min. size/ thickness of various components shall be provided as per design criteria/specifications/IS Code (or as per std. practice). Capacity of the ESR shall be considered excluding free board.					
(5) Minimum dimensions specified for various components in tender data /specifications should be provided.					
(6) The Safe bearing capacity (SBC) /allowable pressure on soil shall be referred from latest SBC test report or tender datasheet. During execution if poor soil strata or ground water table is encountered, the SBC shall have to be re-ascertained and the design should be revised accordingly.					
(7) Maximum spacing between horizontal bracings shall be 5 m (storey height).					
(8) The BB Masonry cabin with MS door shall be constructed when spiral staircase is outside the staging.					
(9) RCC Staircase/ MS Staircase shall be provided and fixed for access to roof when height of roof from G.L. is up to 10 m. For ESR having more than 10 m height proper RCC staircase or suitable RCC spiral staircase shall be constructed. Railing should be provided through out the staircase and around the top ring beam.					
(10) For ESR having staging height more than 15 m the spiral staircase shall be provided inside the staging with effective tie beams in more than one direction.					
(11) Water level indicator shall be provided and fixed float type /electronic (as specified).					
(12) The rate shall include providing and fixing pipes, specials, and valves required for inlet, outlet, wash out, over flow and bye pass arrangement. The scope of work includes constructing supporting RC pillars, erecting, laying, fixing and joining pipes and specials etc. up to 5m length from face of staging (outer most column).					
(13) DI pipes & specials shall only be used.					
(14) The rate shall include cost of dewatering during execution making all arrangement with any dewatering technique.					
(15) The structure shall be designed properly for uplift due to Ground water table specified in data or GWT encountered during execution. No extra payment shall be paid for the same.					
(16) Effective curing shall be carried out up to required period as per specifications.					
(17) Agency shall engage qualified (at least graduate) consulting engineer for designing the structure and he/she shall visit the site for guidance of work at all levels (i.e. below foundation, up to G.L. above G.L. for all lifts up to container).					
(18) 75 % part rate shall be payable for Concrete, Reinforcement and Plastering items of container until satisfactory hydraulic testing for water tightness is performed. Or as per tender condition. Till then the work shall be treated as incomplete.					
Above conditions / general specifications Sr No. 1 to 18 are part & parcel of tender(contract).					
1.A	As above up to staging height (L.S.L.) 12m from G.L. and S.B.C.10)	Unit per	Rate Rs./- for the year 2022-23		
	Capacity of ESRs (shall type container like cylindrical, conical, intze, folded plates & its combination)		Seismic ZONE 3	Seismic ZONE 4	Seismic ZONE 5
	1. Up to 25000 litres	Litre	28.61	36.99	38.14
	Cost of 25000 litres capacity	No	715245.40	924790.89	953419.95
2.	Add above 25000 up to 50000 litres	Litre	20.17	26.15	26.90

SECTION : 1 C - RCC, ESR, GSR, SUMP, HGLR				
Description of Item		Unit	Rate for 2022-23	
Item No.1: RCC ESR (description of item for turnkey tender)				
3. Cost of 50000 litres	No	1219501.83	1578447.72	1625842.05
4. Add above 50000 up to 100000 litres	Litre	11.39	13.86	14.70
5. Cost of 100000 litre capacity	No	1789196.12	2261695.94	2351055.63
6. Add above 100000 up to 200000 litres	Litre	8.62	9.92	10.73
7. Cost of 200000 litres	No	2651436.12	3253849.33	3434044.02
8. Add above 200000 up to 500000 litres	Litre	7.97	8.78	9.58
9. Cost of 500000 litres capacity	No	5041842.54	5866760.76	6309460.46
10. Add above 500000 up to 1000000 litres	Litre	7.10	7.77	8.49
11. Cost of 10lacs lit. capacity	No	8592809.82	9769727.72	10653297.95
12. Add above 10 Lacs up to 15 Lacs litres	Litre	6.26	6.84	7.41
13. Cost of 15 Lacs litre capacity	No	11720353.26	13190780.40	14258235.45
14. Add above 15 Lacs up to litres	Litre	5.65	6.16	6.65
1.B Extra staging height above 12 mt onward, for each 1000 L per meter height.				
For Capacity of ESR				
1. Up to 25000 litres	per 1000 Litre		216.70	
2. Above 25000 to 50000 litres			185.72	
3. Above 50000 to 100000 litres			166.06	
4. Above 100000 to 200000 litres			129.18	
5. Above 200000 to 500000 litres			101.55	
6. Above 500000 to 1000000 litres			82.70	
7. Above 1000000 to 1500000 litres			62.24	
8. Above 1500000 litres			49.81	

SECTION : 1.C - RCC, ESR, GSR, SUMP, HGLR

Sl. No.	Description of item	Unit	Rate for 2022-23
2	RCC GSR (description of item for turnkey tender)		
	Preparing structural design of RCC Under Ground / Partially under ground / above high ground level Reservoir of required capacity as per relevant I.S. standards and constructing the same, including excavation in all types of soil strata (including rock) including shoring strutting if required, for loose soil / to protect from collapse, casting 100 mm thick P.C.C. levelling course in M-15, Refilling the pit with proper soil and disposing of the surplus stuff at all level, including cement plaster in CM 1:2 with approved water proofing compound to all over inside container (i.e. walls, base, top slab/dome bottom etc. all), Including all types of labour and material charges of lowering, laying, erecting / hoisting and joining of pipe assembly to inlet, outlet overflow, washout and bye pass arrangement as per hydraulic design. Providing and fixing accessories, GI Manhole frame and cover, water level indicator, adequate cow type ventilators or lantern type ventilator with stainless steel jail. RCC chambers for valves. Providing and applying three coats of cement paint / snowcem to the out side face of structure. It also includes satisfactory water tightness test as per relevant I.S. code and painting name of scheme and capacity on the tank as per direction of engineer in charge.		
	List of Indian Standards for Design of GSR / SUMP:-		
	The structural design of GSR shall be in accordance with provisions relevant I.S standards		
	(1) I.S. 3370 part I & II 2009 or its latest revision		
	(1) I.S. 3370 part III & IV 1995 or its latest revision		
	(2) I.S. 456 – 2000 or its latest revision		
	(3) I.S. 1893 – 2000 – 1984 or its latest revision.		
	(4) I.S. 875 Part – 1 to 3, 1987 or its latest revision.		
	General Specifications:-		
	(1) Water depth in container shall be adopted as per data of tender. Capacity shall be calculated excluding free board of the reservoir. If water depth is not specified, the suitable water depth / acceptable to field engineer in accordance with hydraulic		
	(2) Shape of container (in plan) specified by in data shall be adopted in absence circular shape shall be adopted.		
	(3) Site shall be fixed as per availability of space (land area) at site / acceptable engineer in charge.		
	(4) Effect of overlapping of pressure bulbs on soil due near by structure and proposed sump should be considered.		
	(5) Care shall be taken that no damage should occur to nearby existing structure. Compensation shall be paid for the same by agency.		
	(6) The minimum concrete grade for RCC shall be M-30.		
	(7) HYSD Fe 415 / 500 grade reinforcing bars conforming to I.S. 1786 / 1789 shall be considered in design. CRS / TMT bars shall be provided. In saline atmosphere corrosion resistance stainless steel / HCR rebar shall be provided. Any other steel can be used with approval of G.E. / in situation of non availability in market without extra cost.		
	(8) Minimum size (or thickness) of various components shall be provided as per tender criteria / specifications in absence as per I.S. / Std. practice of G.W.S.S.B. Minimum dimensions specified for various components in tender data / specifications shall be provided without fail.		
	(9) The safe bearing capacity (SBC) shall be referred from SBC test report. In absence of report it shall be referred from data sheet. If poor soil is found / water table is met with during excavation SBC shall be scientifically ascertained and design shall be revise. No extra shall be paid for increase in quantity.		
	(10) DI pipes and special shall only be used if type is not specified in tender.		
	(11) The rate shall include cost of dewatering during excavation making all arrangement when water table meets within depth.		
	(12) The structure shall be designed properly to resist uplift due to ground water table specified in data or actual ground water table meets with during excavation. If GWT / Uplift is mentioned in tender and during excavation it does not meet 7.5% rate shall be reduced.		
	(13) SS pipes railing shall be provided over sump periphery when sump height is ≥ 1.5 meter above ground level.		
	(14.a) RCC staircase/RCC Steps should be provided from GL to sump top slab based on the height of the GSR above/below the ground.		
	(14.b) RCC stair case with SS railing to be provided inside reservoir container. BS Masonry stair cabin with MS safety door having locking arrangement to be provided for GSR, Sump and HGLR of capacity more than 7.5 lakhs liter with top slab. If dome is constructed as top slab then provide minimum opening of 900 mm x 2000 mm with curbing and SS railing around.		
	(15) Appearance of structure should be aesthetically good looking acceptable to authority.		
	(16) Any change in size, shape, depth below GL, height above GL, water depth, F.B., size of member etc can be permitted in exceptional case due to site condition or hydraulic design requirement by G.E. No extra shall be paid for change.		
	(17) Any change in data, dimensions, shape, water depth, reduction in size, if permitted by competent authority and if it reduces quantity then payment shall be reduced pro-rate.		
	(18) When capacity of GSR / Sump is > 20 lakh litres two or suitable components acceptable to executive engineer shall be designed and provided.		
	(19) Agency shall engage qualified (at least graduate) consulting engineer for designing the structure and he / she shall visit the site for guidance of work.		
	(20) 75% part rate shall be payable for concrete, reinforcement and plastering works of container until satisfactory hydraulic testing for water tightness is performed as per tender condition. Till the work shall be treated as incomplete.		
	Above conditions / general specifications Sr. No. 1 to 20 are part and parcel of tender (contract) and prevail over other provisions in tender.		
A.	As above without water table (Sub soil water level below foundation)		
	Capacity of GSR/Sump	Unit	
	1. Up to 50000 litres	Litre	5.44
	2. Cost of 50000 litres	No	271855.80
	2(a). Add for capacity above 50000 up to 100000 litre	Litre	2.17
	3. Cost of 100000 litres	No	380598.13
	3(a) -do- 100000 up to 200000	Litre	3.04
	4. Cost of 200000 litre capacity	No	684691.70
	4(a) -do- 200000 up to 500000	Litre	2.83
	5. Cost of 500000 litres capacity	No	1533459.20
	5(a) -do- 500000 up to 1000000	Litre	2.39
	6. Cost of 10lacs litre capacity	No	2726737.77
	6(a) -do- 10 Lacs up to 15 Lacs	Litre	2.01
	7. Cost of 15 Lacs litre capacity	No	3712363.66
	7(a) -do- 15 Lacs up to 50 Lacs	Litre	1.85
	8. Cost of 50 Lacs litre capacity	No	10199163.66

It. No.	Description of item	Unit	Rate for 2022-23
	9(a) Add capacity above 50 Lacs litres	Litre	1.68
	Note:1		
	For GSR(U/G sump) with cover slab to be constructed at site situated in seismic zone V, the above rates shall be increased by 2%		2% increment
B	As above with water table (Sub soil water level above foundation)		
	Capacity of GSR/Sump	Unit	
1	Up to 50000 litres	Litre	5.75
2	Cost of 50000 litres	No	267734.11
2(a)	Add for capacity above 50000 up to 100000 litre	Litre	3.64
3	Cost of 100000 litres	No	469612.86
3(a)	-do- 100000 up to 200000	Litre	3.28
4	Cost of 200000 litre capacity	No	795839.62
4(a)	-do- 200000 up to 500000	Litre	3.04
5	Cost of 500000 litres capacity	No	1708120.54
5(a)	-do- 500000 up to 1000000	Litre	2.55
6	Cost of 10lacs litre capacity	No	2983196.43
6(a)	-do- 10 Lacs up to 15 Lacs	Litre	2.12
7	Cost of 15 Lacs litre capacity	No	4041750.00
7(a)	-do- 15 Lacs up to 50 Lacs	Litre	1.95
8	Cost of 50 Lacs litre capacity	No	10879043.75
8(a)	Add capacity above 50 Lacs litres	Litre	1.79
	Note:1		
	For GSR(U/G sump) with cover slab to be constructed at site situated in seismic zone V, the above rates shall be increased by 2%		2% increment
C	As above rectangular sump without water table (Sub soil water level below foundation)		
	Capacity of GSR/Sump	Unit	
1	Up to 50000 litres	Litre	5.65
2	Cost of 50000 litres	No	282441.34
2(a)	Add for capacity above 50000 up to 100000 litre	Litre	3.59
3	Cost of 100000 litres	No	461914.29
3(a)	-do- 100000 up to 200000	Litre	3.15
4	Cost of 200000 litre capacity	No	776593.39
4(a)	-do- 200000 up to 500000	Litre	2.98
5	Cost of 500000 litres capacity	No	1674435.29
5(a)	-do- 500000 up to 1000000	Litre	2.44
6	Cost of 10lacs litre capacity	No	2898587.50
6(a)	-do- 10 Lacs up to 15 Lacs	Litre	2.07
7	Cost of 15 Lacs litre capacity	No	3931083.04
7(a)	-do- 15 Lacs up to 50 Lacs	Litre	1.91
8	Cost of 50 Lacs litre capacity	No	10599970.54
8(a)	Add capacity above 50 Lacs litres	Litre	1.74
	Note:1		
	For GSR(U/G sump) with cover slab to be constructed at site situated in seismic zone V, the above rates shall be increased by 2%		2% increment
D	As above rectangular sump with water table (Sub soil water level above foundation)		
	Capacity of GSR/Sump	Unit	
1	Up to 50000 litres	Litre	5.98
2	Cost of 50000 litres	No	298800.80
2(a)	Add for capacity above 50000 up to 100000 litre	Litre	3.80
3	Cost of 100000 litres	No	488659.29
3(a)	-do- 100000 up to 200000	Litre	3.37
4	Cost of 200000 litre capacity	No	825671.79
4(a)	-do- 200000 up to 500000	Litre	3.26
5	Cost of 500000 litres capacity	No	1804352.68
5(a)	-do- 500000 up to 1000000	Litre	2.61
6	Cost of 10lacs litre capacity	No	3108298.21
6(a)	-do- 10 Lacs up to 15 Lacs	Litre	2.17
7	Cost of 15 Lacs litre capacity	No	4195721.43
7(a)	-do- 15 Lacs up to 50 Lacs	Litre	2.01
8	Cost of 50 Lacs litre capacity	No	11235102.68
8(a)	Add capacity above 50 Lacs litres	Litre	1.85
	Note:1		
	For GSR(U/G sump) with cover slab to be constructed at site situated in seismic zone V, the above rates shall be increased by 2%		2% increment
3	Gunning exterior surface for Civil Structures only		
	Gunning the surface in CM 1:2 having thickness of 40 mm to 50 mm (Ave.) for beam, braces, column and container slab incl. chiseling and scraping loose concrete cleaning the surface with water and air under pressure and including providing and fixing in position steel wire square mesh 75 mm x 75 mm as per IS-1965-1982 3.15 mm Wt/ Sq. Mt. 1.64 Kg. with spot welding wherever necessary with main reinforcement incl. tying binding with wire incl. scaffolding centering staging all equipment and materials etc. complete incl. labour and testing of the container.	Sq. Mt.	594.64

Sl. No.	Description of item	Unit	Rate for 2022-23
4	Guniting Internal Surface		
	Providing the guniting to interior surface of cement / masonry / Water Tank of various capacities as specified at various places with cement mortar (1:2) in thickness of 40 mm including chiselling and scraping loose concrete and plaster incl. providing and fixing in position 6 mm dia. mild steel bars reinforcement at 15 cm c/c both ways including fabricating and cost of binding wires including centering, staging all equipments etc. complete including scaffolding, carting of all type of material and equipments to site of work and giving hydraulic testing up to satisfaction of engineer in - charge.		
	For top, bottom of ESR/ GSR/tank /cistern		
	With vertical walls, columns, braces and shaft up to 8 m height	Sq. M	428.57
	Do- for columns, braces and shaft staging above 8m height	Sq. M	591.07
	Do- for RCC container (inside)	Sq. M	647.32
5	Pressure Grouting		
	Providing pressure grouting at 5.6 Kgr/Sq. cm in required row zigzag fashion as specified at 1.5 m interval as per site conditions to stop leakages from water retaining structures including supply of cement and hardening chemical, bringing equipments like compressor and all scaffolding works to get smooth finishing as directed by engineer in charge.		
	(1) To masonry structures	Per cement bag	514.29
	(2) Concrete/RCC structures	Per cement bag	533.04
6	Drilling holes for grouting		
	Drilling 40 mm Dia. Holes in masonry/concrete structures with providing and fixing 500 mm long GI Pipeline for pressure grouting including supply of material, machineries and labour cost etc. complete.	RM	458.04

WATER TREATMENT PLANT SECTION - D



SECTION : 1.D - WTP

Unconventional (Non Mechanical) Water Treatment Plant			
(Description of Item for Turnkey Tender)			
Item No.	Description of Item	Unit	Rate for 2022-23
1	Unconventional WTP		
	Designing (hydraulic, process, structural and aesthetic), constructing and commissioning high rate Unconventional Water Treatment Plant (i.e. Non Mechanical) consisting of Civil, Mechanical and Electrical components of various sub-works as given below; including necessary hydraulic testing and trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job). The design shall conform to IS / CPHEEO Manual.		
1.1	Aeration Fountain/Cascade aerator		
1.2	Mixing channel with ventury flume/partial flume and flow measuring devices.		
1.3	Flocculator		
	RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 15 minutes and surface loading rate 8000 litres/hour/sq.m and depth 2.5m using PVC FlocModules @45 deg fabricated from square tubes with supporting arrangement and sludge collecting pipes as per detail specifications.		
1.4	Tube Settlers		
	RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 40 to 60 minutes(as specified) and surface loading rate 6500 litres/hour/sq.m with 3 m depth using PVC tube settler Modules @60 deg fabricated from tubes with supporting arrangement as well as sludge drain pipes as per detail specifications.		
1.5	Rapid sand gravity filters.		
	Filter House(RCC framed structure with infill brick masonry walls) and RCC filter beds with sand and gravel bedding as per hydraulic and process design adopting 6000 Litres/hour/sq.m filtration rate with 2m water above sand media with under drainage system and inlet, outlet, backwash (rate 600 LPM per sq.M) piping and valves/gates arrangement as per design and detail specifications.		
1.6	Chemical house		
	RCC framed structure with brick masonry infill walls .ground floor and first floor area as per data/specifications shall be provided. Minimum clear head room for doors, passages, galleries etc. shall be 2.10 m. It shall be 2.40 m in case of Alum dosing tank.		
	Alum tanks 2 Nos. with mixing, carrying ,dosing with piping arrangement.		
1.7	Gravity feed gas chlorinator with 100% stand by.TCI solution with mixing carrying and dosing arrangement with piping.		
1.8	Bye-pass arrangement		
1.9	External and internal electrification as per planning and specifications		
1.10	Laboratory room with equipments as per planning and specifications. All platform of granite.		

Item No.	Description of Item	Unit	Rate for 2022-23
1.11	Wash water tanks of capacity equal to 2% of designed quantity of filtered water in a day (+) 10% with 8 to 10 m head (as specified). Wash water tank shall be constructed on RCC column/slabs only.		
1.12	Wash water pumps with 100% standby		
1.13	Air blowers capable of delivering 750 to 833 LPM per sq.M of free air flow area at 0.35 to 0.4 Kg/sq.M at the under drains (100% standby) (For capacity of FP more than 10 MLD)		
1.14	Drainage arrangements as per planning and design.		
	Alum store area as per data /specifications		
1.15	Sanitary block with necessary water supply and drainage arrangements. Bathroom with shower facility.		
1.16	All vehicle access roads shall be of RCC and balance of Paver block type.		
1.17	Rates given below are inclusive of uplift pressure if any and dewatering during the entire work using any appropriate technique.		
1.18	Following conditions shall form a part and parcel of the tender		
	All channels should be with inside china mosaic/epoxy coated.		
	All railing should be SS railing (SS 304) as per latest IS standard.		
	External paint should be of weather proof coating		
	All Window shall be of Anodised Aluminum section with wired glasses, also provided with grill / jaali/aluminium weldmesh to prevent birds entry.		
	Roof top of all unit of the WTP is approachable through staircase. All staircase of entire WTP should be RCC only.		
	Fire safety equipment, Safety kit to be kept handy.		
	Opening of window & door should be framed with granite. All platform for kitchen/laboratory shall be of granite and fixed in sandwich with bottom of kota/white marble.		
	All building terrace shall be finished with high quality water proofing like china mosaic flooring with proper slope and drainage for rain water		
	Flooring of Loading area shall be of stone flooring and open/other space shall be of paver block pitching.		
	All walkways of WTPs shall have cast in-situ with 1mt projection on both sides		
	Note		
	(1) Conditions from Sr. No. 1 to 1.18 shall form a part and parcel of the tender and must be included in draft tender papers for the work of unconventional treatment plants.		
	(2) The necessary changes should be carried out as per site condition and project requirements at the time of preparing DTP's		
	(3) All other details shall be as per design criteria and detail specifications.		
	(4) The following rates are for sites falling in seismic zone III for sites falling in zone IV and V rates shall be increased 5% and 8 % respectively		
	(5) The rates includes excavation, refilling and throwing away extra stuff to lead up to 50m		
	(6) Hydraulic design criteria approved by Technical committee shall be referred and item description shall be modified accordingly.		

Item No.	Description of Item	Unit	Rate for 2022-23
	(7) Structural design criteria approved by technical committee shall be applicable for design.		
	(8) Design flow shall be specified in M ³ /hour in data sheet considering 22 hours WTP run time in a day to treat requirement water quantity of a day (i.e. 24 hours) of population to be served with design rate of water supply. No separate overloading provision shall be kept in any tender clause.		
	(9) The following rates are for preliminary or rapid estimate of WTP	Job	
	1. Fixed cost up to and including 1 MLD	No	2,197,053
	2. Add for capacity above 1MLD up to 2MLD	MLD	1,648,332
	3. Cost of 2MLD treatment plant	No	3,845,386
	4. Add for capacity above 2MLD up to 4MLD	MLD	1,450,577
	5. Cost of 4 MLD treatment plant	No	6,746,539
	6. Add for capacity above 4 MLD up to 10MLD	MLD	1,399,507
	7. Cost of 10 MLD treatment plant	No	15,143,582
	8. Add for capacity beyond 10MLD	MLD	1,202,838

Section - D

Conventional Water Treatment Plant

2	Conventional WTP(Description of item for turnkey Tender)		
	Designing (hydraulic, process, structural and aesthetic),constructing and commissioning Conventional Water Treatment Plant consisting of all Civil, Mechanical and Electrical components of various sub-works as given below including necessary hydraulic testing, structural testing, equipment testing, trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job). The design shall conform to IS / CPHEEO Manual.		
2.1	Aeration Fountain/Cascade Aerator		
2.2	Ventury Flume/Partial flume		
	With necessary flow measuring devices/meter consisting of mechanical/digital indicator.		
	Flash Mixer		
2.3	Rapid mixing device design conforming to IS : 7090 of 1985.Detenion time 60second, velocity gradient 300-400 sec-1 with fans gear and motor assembly as per design.		
2.4	Flocculator		
	Design conforming to IS : 7208 – 1974 (Type-C) .		
	Detention period 30minutes with flocculator paddles with gear and motor assembly as per design .		
2.5	Clarifier		
	Circular tank with horizontal flow pattern, detention period 2.5 hours, overflow rate 30 cubic meter per square meter per day (to be specified). Weir loading not more than 300 cubic meter per meter per day, with mechanical sludge scraper conforming to IS : 10313 – 1982 and bridge of standard make as per design with gear and motor assemblies.		
2.6	Rapid Sand Filters and Filter House		
	Filter designed for filtration rate of 6,000 litres per square meter per hour, minimum 2 beds for plants up to 10 MLD, for larger plants as specified, pipe gallery and platform minimum 5.5 meter in width.		
	a) Filter Media		

Item No.	Description of Item	Unit	Rate for 2022-23
	Effective size of filter sand 0.45 to 0.70 mm, uniformity coefficient not more than 1.7 nor less than 1.3, depth of filter 0.75 M, free board 50 cm, gravel 0.45 M in depth, sand and gravel conforming to IS : 8491 (i) – 77, backwash by air wash(if specified) and hard wash by water, standard appurtenances (to be specified), rate of flow controller, filter gauge, sand expansion gauge, etc.		
	b) Wash Water Tank		
	Wash water tanks of capacity equal to 2% of designed quantity of filtered water in a day (+) 10% with 8 to 10 m head (as specified) Wash water tank shall be constructed on RCC column/slabs only.		
	c) Wash Water Pumps		
	Capacity to fill water tank in 1 hour with 100% standby.		
	d) Air Blowers		
	Capable of delivering 600 LMP per square meter of free air, of filter area with pressure@ 0.4 kg/square cm at the under drains (100% standby).		
	e) Valves/gates		
	Inlet, outlet, wash water inlet –outlet and all types and sizes of valves/ gates as per design. (MOC of gate shall be CI)		
	f) Gauges/meters		
	All types gauges and meters required for filter operations and backwashing etc. as per design.		
2.7	Chemical House in Two Stories (floor wise area as specified) RCC framed structure with brick masonry infill walls .ground floor and first floor area as per data/specifications shall be provided. Minimum clear head room for doors, passages, galleries etc. shall be 2.10 m. It shall be 2.40 m in case of Alum dosing tank.		
	Ground floor to accommodate 90 days alum requirements and		
	a) Sundry storage		
	b) First floor to accommodate alum and lime tanks, etc.		
	c) Solution Tanks		
	Minimum 3 tanks (one for preparation, second for dosing and third as standby), each tank capable of giving 8 hours maximum dose without interruption, minimum free board 0.30 M, trays for dissolving, level indicator, mechanical agitation devices, solution feed and drain lines, solution feed device (constant head device, strength of solution up to 10% only) conforming to IS : 9222 Part – 1/1979.		
Chemical house, laboratory & administrative building with areas as per details			
Areas of the Chemical House			
Sr. No.	Details	Capacity of the plant up to 500 m ³ /hr.	
A	Ground Floor		
1	Alum Store	As per calculations-90 day storage	
2	Toilet Block	9	
3	Control panel area	9	

Item No.	Description of Item	Unit	Rate for 2022-23
4	Stair case	15	
5	Chlorinator Room	15	
6	Chlorine Tonner Store (5.00 m height)	30	
	Total Area of Ground Floor	78	
B	First Floor		
1	Alum tanks	As per calculations + conveyance space	
2	Store	9	
3	Laboratory	15	
4	Office	10	
5	Stair Case	15	
	Total Area of First Floor	49	
	Total Area of Ground Floor & First Floor	127	
# Note : Space for pipe gallery, platform for valve operation etc. are included in filter house and hence removed from the areas of chemical house given under 15 of the tender.			
2.8	Store House (area as specified)		
	Suitable for alum storage of three months requirement in monsoon with 10% extra capacity for other sundry articles		
2.9	Vacuum feed type Chlorinators – make to be specified and approved by GWSSB.		
	a) conforming to IS : 10533 – A Part – 2/1983.		
	b) Rate of withdrawal shall be as per clause 6.1 Table-1 confirming to IS 10553 (2)-1983		
	c) Chlorinator equipment and container room to confirm to IS : 10533 Part – 1/1983.		
	d) 100% standby shall be provided.		
2.10	By pass arrangements – for Inlet to CCT, Clarifloculator to Filter bed through channel & Filter feed channel to CCT - C.I. or M.S. pipes(as specified) of size as per design		
	Drainage arrangements – RCC pipes up to plot boundary (as specified) diameter as per design. (Backwash drain with RCC pipe to plant boundary Or to recirculation sump), (Clarifloculator sludge removing drain with RCC pipe)		
2.11	Electric installation.		
	Both internal and external including entire plant area (as specified).		
2.12	Laboratory equipments		
	As per requirement (to be specified during tendering).		
2.13	Sanitary blocks.		
	Sanitary Block Area – 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).		
2.14	Administrative block and internal roads.		
	To accommodate office room, chlorine room, laboratory room, panel board room, blower room etc. and asphalt road to connect all units from main gate of plot.		
2.15	Dewatering during entire work using any technique.		

Item No.	Description of Item	Unit	Rate for 2022-23
2.16	Necessary Instrumentation and control as per specifications (for ≥ 10 MLD WTP). The plant shall be provided with required instrumentation equipment for measurement & control functions, indicated below as a minimum, but not limited to the following:		
a)	Rate of Flow (ROF) Measurement at WTP Inlet Parshall Flume and at each Filter Bed Outlet. Flow Meter shall be Ultrasonic type with remote display to indicate level and corresponding/ proportionate Flow values on field.		
b)	Torque switch at Clariflocculator for alarm of Overload and Trip function of Clariflocculator mechanism.		
c)	Loss of Head (LOH) Measurement across each Filters. LOH Meter shall be Ultrasonic type with remote display to indicate level values and Head Difference on field.		
d)	Level measurement at each Sump/ Tank/ ESR. Level Indicator shall be Float & board type to indicate level values on field. Level switch shall be Displacer/Float type with Low & High set point to start/ stop respective pumps.		
e)	Float & Horizontal Scale type level gauge at Chemical dosing tanks to indicate level values on field.		
f)	Pressure Gauges at each pump/ blower delivery line and at common header.		
g)	Constant Head Flow Measurement at Alum dosing tanks with Float operated flow meter.		
h)	All alarm/indications shall be provided in instrument chamber of MCC.		
i)	pH Indicator cum Transmitter (Online Analyzer) to measure, display & transmit pH Value of Raw Water (Location: WTP Inlet Parshall Flume) and Clear Water (Location: CCT Outlet).		
j)	Turbidity Indicator cum Transmitter (Online Analyzer) to measure, display & transmit Turbidity Value of Raw Water (Location: WTP Inlet Parshall Flume), settled water (Location: Clariflocculator outlet) and Clear Water (Location: CCT Outlet).		
k)	Chlorine Indicator cum Transmitter (Online Analyzer) to measure, display & transmit Residual Chlorine Value of clear water (Location: CCT Outlet) and Chlorine Leak Detector at Chlorination Room.		
l)	Sampling Pump for Sampling to Laboratory at Raw Water Channel, At Inlet to Filter & Outlet to Filter		
m)	PLC based control panel with SCADA system shall be provided in central control room of treatment plant for monitoring, control, recording, and logging etc. Necessary alarms, status signals along with the measurements of process parameters etc. shall be displayed in SCADA System.		
n)	Additional instruments & control equipments if any for safe, reliable & efficient operation of treatment process.		
3	Following conditions shall form a part and parcel of the tender		
3.1	Filter house tiles should be glazed vitrified mat finish and tile on wall up to window sill. Around valve area granite flooring to be provided.		
3.2	All channels should be with inside china mosaic/epoxy coated.		
3.3	All railing should be SS railing (SS 304) as per latest IS standard.		
3.4	External paint should be of weather proof coating with primer and 3 coat paint		

Item No.	Description of Item	Unit	Rate for 2022-23
3.5	Opening of window & door should be framed with granite. All platform for kitchen/laboratory shall be of granite and fixed in sandwich with bottom of kota/white marble. All Window shall be of Anodised Aluminum section (1.2mm guage section) with wired glasses, also provided with grill / jaali/aluminium weldmesh to prevent birds entry. Doors shall be of anodised aluminum section(1.2mm guage of section) partial glazed and partial panel with 4mm backelite sheet. Main entry door should be 2.0meter wide with 3.0mtr entry poarch.		
3.6	Roof top of all unit of the WTP is approachable through staircase. All staircase of entire WTP should be RCC only.(No MS ladder or No MS Staircase)		
3.7	Bathroom should have shower facility.		
3.8	Chlorination neutralized pits(Lime pit) shall be made and mock drill practice for leakage neutralization to be carried out while commissioning		
3.9	Fire safety equipment with Safety kit.		
3.10	At chlorination room safety mask and hand gloves, gum boots etc. should be available.		
3.11	All vehicle access roads shall be of RCC and balance of Paver block type		
3.12	Proper arrangement shall be made for storage of PAC solution and Alum with arrangment of vertical lifting of platform through guide rails operated by motors.		
3.13	Proper sludge disposal arrangement shall be made with sludge drying beds		
3.14	All building terrace shall be finished with high quality water proofing like china mosaic flooring with proper slope and drainage for rain water		
3.15	Minimum plinth height of filter house shall be 0.6 m. Also outlet channel RL shall be at plinth level		
3.16	Clear walkway excluding column and valve operating valves shall be 1 meter.		
3.17	Air blower shall be placed on ground floor		
3.18	Pipe gallery shall be embedded in flooring		
3.19	Inlet pipe from flash-mixture to Clariflocculator shall be epoxy coated.		
3.20	Flooring of Loading area like tonner/alum store etc. shall be of Polished Kota stone flooring and open/other space shall be of paver block pitching.		
	Notes		
	(1)Conditions from Sr. No. 2 to 2.16 & 3.1 to 3.20 shall form a part and parcel of the tender and must be incorporated in draft tender papers of conventional treatment plants.		
	(2) Aerator must be provided.		
	(3) Hydraulic design criteria approved by Technical committee shall be referred and item description shall be modified accordingly		
	(4) Structural design criteria approved by technical committee shall be applicable for design.		

Item No.	Description of Item	Unit	Rate for 2022-23
	(5) Design flow shall be specified in M ³ /hour in data sheet considering 22 hours WTP run time in a day to treat requirement water quantity of a day(i.e. 24 hours) of population to be served with design rate of water supply. No separate overloading provision shall be kept in any tender clause .		
	(6) All other details shall be as per design criteria and detail specifications.		
	(7) The following rates are for sites falling in seismic zone III for sites falling in zone IV and V rates shall be increased 5% and 8 % respectively		
	(8) The rates includes excavation ,refilling and throwing away extra stuff at all lead.		
	(9) The following rates are for preliminary or rapid estimate of WTP		
	1. Fixed cost up to and including up to 1MLD	Each	1,473,938
	2. Add for capacity above 1MLD up to 2MLD	Per MLD	1,340,833
	3. Cost of 2MLD treatment plant	Each	2,814,771
	4. Add for capacity above 2MLD up to 4MLD	Per MLD	1,308,235
	5. Cost of 4MLD treatment plant	Each	5,431,241
	6. Add for capacity above 4MLD up to 10MLD	Per MLD	1,202,838
	7. Cost of 10MLD treatment plant	Each	12,648,267
	8. Add for capacity above 10MLD to 25MLD	Per MLD	1,152,855
	9. Cost of 25MLD treatment plant	Each	29,941,087
	10. Add for capacity above 25MLD to 50MLD	Per MLD	1,203,924
	11. Cost of 50MLD treatment plant	Each	60,039,186
	12. Add for capacity above 50MLD to 100MLD	Per MLD	1,197,405
	13. Cost of 100MLD treatment plant	Each	119,909,438
	14. Add for capacity above 100MLD	Per MLD	1,197,405
	---do--- ---do--- with 'V' wire screen under drainage system for filter beds with filter media only filter sand in place of conventional under drain system with gravel supporting media.		
	1. Fixed cost up to and including up to 1MLD	Each	1,416,349
	2. Add for capacity above 1MLD up to 2MLD	Per MLD	1,299,542
	3. Cost of 2MLD treatment plant	Each	2,715,891
	4. Add for capacity above 2MLD up to 4MLD	Per MLD	1,264,772
	5. Cost of 4MLD treatment plant	Each	5,245,435
	6. Add for capacity above 4MLD up to 10MLD	Per MLD	1,221,309
	7. Cost of 10MLD treatment plant	Each	12,573,290
	8. Add for capacity above 10MLD to 25MLD	Per MLD	1,146,336
	9. Cost of 25MLD treatment plant	Each	29,768,327
	10. Add for capacity above 25MLD to 50MLD	Per MLD	1,163,721
	11. Cost of 50MLD treatment plant	Each	58,861,351
	12. Add for capacity above 50MLD to 100MLD	Per MLD	1,183,279
	13. Cost of 100MLD treatment plant	Each	118,025,291
	14. Add for capacity above 100MLD	Per MLD	1,183,279
Slow Sand Filter & Pressure Filter			
3	Slow Sand Filter		
	Providing and erecting slow sand filter including sedimentation tank including all civil structure and piping arrangement and filter media control unit etc. complete.		
	Up to 2 MLD	MLD	2,243,749
	Beyond 2MLD	MLD	1,391,704
4	Pressure Filter / Package WTP		

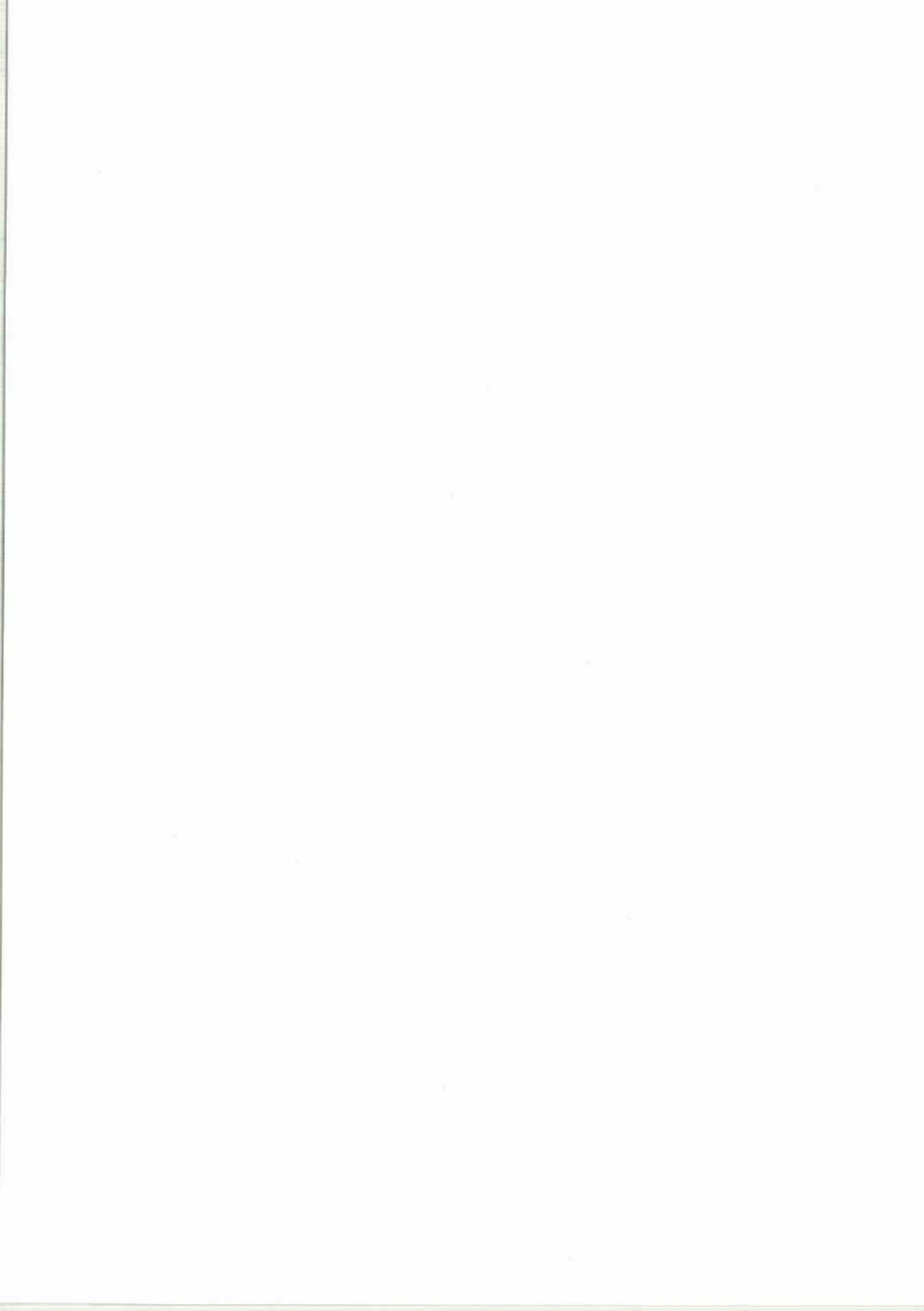
Item No.	Description of Item	Unit	Rate for 2022-23
	Designing, providing, fabricating pressure filter / package WTP transporting to site, installing, testing and commissioning at site including supply and erection of pressure pump set with all electrical work etc. complete one month trial run with guarantee for one year.		
	Capacity 0.5 MLD	MLD	628,636
	Capacity 1.0 MLD	MLD	682,796
	Capacity 2.0 MLD	MLD	790,148
	Capacity 3.0 MLD	MLD	897,499
	Capacity 4.0 MLD	MLD	1,004,851
	Capacity 5.0 MLD	MLD	1,112,203
Treatment Plant, Mechanical / Electrical & Miscellaneous Items			
5.1	Filter Media - Sand for Rapid Sand Filter Bed Providing & Supplying the filter sand of specified effective size (0.45 to 0.70 mm) and uniformity coefficient(not more than 1.7, nor less than 1.3) and laying over gravel support conforming to IS : 8491 (i) – 77 in filter bed of required depth as per design and drawing. Inclusive of all lead.	Cum	1,277
5.2	Filter Gravel Providing & supplying gravels of different size as per design and drawing and laying in layers in filter beds Inclusive of all lead.	Cum	1,277
5.3.a	Under Drains System: Providing & laying & fixing PVC laterals (pipes) 6 kg/sq.cm of size & perforations as per the hydraulic design to resist 10 m Back wash water head for filter bed area	Sq MT	2,128
5.3.b	V-wire under drain system Supply of V-wire under drain system for RSF beds made from stainless steel screen with base pipe of HDPE pipes with other accessories for one bed having two compartment & size of each bed is 6 m x 4 m . The system shall consist of required length of laterals, each having MOC SS 304 with 300 micron slot screen based on 3" HDPE pipe . The air distribution shall be done uniformly and shall cover all laterals individually.	Sq MT	31,275
5.4	Flash Mixer: Apertures Providing, installing & commissioning Flash mixer impeller with motor, gear arrangement & electrical cable, connections, control panels etc.(size as per design)		
	1 hp	Each	24,178
	2hp	Each	38,685
	3hp	Each	62,864
	5hp	Each	77,371
	7.5hp	Each	106,385
	10hp	Each	120,892
	12.5hp	Each	164,413
5.5	M.S. Gates providing fabricating and fixing /installing mild steel gates of size as per design with operating handle etc for by pass arrangement		
	M.S. Gates	KG	75
5.5A	C.I. Gates		

Item No.	Description of Item	Unit	Rate for 2022-23
	providing fabricating and fixing /installing C.I. gates of size as per design with operating handle etc.for by pass arrangement with ISI Mark		
	C.I. Gates	KG	82
5.6	M.S. Bridge with Flocculator & Scraper		
	Providing, fabricating, fixing/installing/fitting & commissioning Clarifier M.S Bridge with chequered plate platform 1 m wide, scrapers, flocculator connections with rails and wheels rotating arrangement incl. peripheral trolley, central bearing etc. complete size as per design. Should be of branded.		
	M.S. Bridge with Flocculator & Scraper	Rmt	27,467
5.7	Motors and Gearboxes: For clari Bridge		
	Extra for 3 motors of required RPM and 3 gear box assemblies with one slipping unit including wiring and installing switch and control panel as per requirement.	Set	106,385
5.8	Providing, supplying & fixing Sluice valve PN 1.6 instead of filter gate including cost of valves/specials/nut bolts/rubber packing / key to operate valves incl. all labour, equipments, materials required.		
	100 mm dia	No.	5,320
	150 mm dia	No.	8,028
	200 mm dia	No.	13,830
	250 mm dia	No.	22,148
	300 mm dia	No.	28,337
	350 mm dia	No.	41,490
	400 mm dia	No.	59,286
	450 mm dia	No.	72,632
	500 mm dia	No.	120,602
	600 mm dia	No.	164,799
5.9	Air Blower:		
	Providing, installing & commissioning Air agitation system including Blowers(40 HP), piping and valve arrangement etc. as per design FOR ALL BEDS	set	345,963
5.10	Alum Stirrer:		
	Providing, installing & commissioning Alum stirrers with motor(1 HP), gear arrangement & electrical cable, connections, control panels etc.(size as per design)		
	Alum Stirrer	No	19,343
5.11	Pumping Machineries		
	Providing, installing & commissioning pumps for filling the wash water tank / recirculation / lab use as per design including all electrical cable connection complete considering filtration rate		
	For wash water tank	Set	As Per Mech SOR
	For recirculation	Set	
	For Laboratory	Set	
5.12	Manometer:		
	Providing and fixing manometer of approved make	No	21,277
5.13	Loss of Head Indicator:		
	Providing and fixing LOH Indicator of approved make	No	4,062
5.14	Lifting Device:		
	Providing, installing & commissioning Lifting Device including all electrical cable connection complete:		

Item No.	Description of Item	Unit	Rate for 2022-23
	Electrically Operated Hoist 3 tonne capacity in Chlorination room	No	As Per Mech SOR
	Supporting MS girder of lifting device of required size	Rmt	
	Travelling Trolley	No	
	HOT	No	
	Single Girder EOT for Blower room	No	
5.15	Weighing Machine		
	Providing Supplying 500 Kg capacity weighing machine at destination	No	9,623
	Providing Supplying 2500 Kg capacity weighing machine at destination	No	33,681
5.16	Chemical Dosing Pump: Incl. Tank		
	Providing and installing chemical dosing metering pump model V-12 with PP head and flow of suitable size	No	12,090
5.17	Electrical Lighting :		
	Providing, installing & commissioning Electrical Installation & lighting as per planning & design. Note : detail estimates as per GWSSB mechanical S.O.R. items		As per R&B
	a) Internal	LS	
	b) External	LS	
	c) Cables	LS	
	d) Panel Board	LS	
5.18	Chlorination Plant:		
	Providing, installing & commissioning Chlorination plant as per design capacity with Gravity feed type chlorinator		
	5 Kg / hr capacity	Set	33,850
	Pressure feed type chlorinator with injector booster etc.complete		
	5 Kg / hr capacity	Set	45,455
5.19	Refilling of Chlorine Gas Cylinder :		
	Refilling of Chlorine gas in cylinder including transportation to and from factory and back		
	a) Chlorine cylinders 900 kg	No	7,737
	b) Chlorine cylinders 100 kg	No	1,741
	c) Emergency drum leakage kit-900 kg	No	46,422
	c.1) Emergency drum leakage kit-100 kg	No	40,620
	d) Chlorine gas metering arrangement	Set	33,850
5.19A	Transportation of Chlorine Gas Cylinder with loading, unloading. Cylinder transportation should have a Licence public liability insurance at 1991		
	(A) 100 Kg. Cylinder	Per No.	1,451
	(B) 900 Kg. Tonner	Per No.	2,901
5.20	Supply of Chlorine Cylinders (Empty)		
	Providing and supplying Chlorine gas cylinder empty of required capacity with necessary explosive certificates including all taxes		
	a) Chlorine cylinders 900 kg (tonner)	No	62,551
	b) Chlorine cylinders 100 kg	No	26,945
5.21	Laboratory Instruments		
	a) Digital PH Meter		
	Providing and supplying microprocessor based digital pocket PH tester.	No	7,217
	b) Digital TDS Meter		
	Providing and supplying microprocessor based digital pocket TDS tester.	No	7,506
	c) Fluoride Test Kit (Digital)		
	Providing and supplying fluoride spot test kit.	No	2,406

Item No.	Description of Item	Unit	Rate for 2022-23
5.22	Chlorine Safety equipments & vacuum control type gaseous chlorination plant.		
A	Providing, Supplying & installing Vacuum Control Direct cylinder mounted gas chlorinator including necessary fittings, installation and commissioning of plant incl. Clamp & control valve with injector.		
	A. 1 Kg. Capacity per hour	No.	90,427
	B. 2 Kg. Capacity per hour	No.	117,023
	C. 3 Kg. Capacity per hour	No.	135,109
B	Providing, Supplying & installing Vacuum Control Direct wall mounted gas chlorinator including necessary fittings, installation and commissioning of plant incl. Clamp, copper pipe, ferule filter & control valve with injector.		
	A. 1 Kg. Capacity	No.	104,257
	B. 2 Kg. Capacity	No.	131,917
	C. 3 Kg. Capacity	No.	152,131
	D. 5 Kg. Capacity [Cabinet Type]	No.	210,642
	E. 10 Kg. Capacity [Cabinet Type]	No.	255,323
C	Providing, supplying, fixing, erecting & commissioning of Panel Mounted Chlorination Plant with complete equipments Govt. approved make		
	(A) 500 Grams/Hr. capacity	No.	36,171
	(B) 1000 Grams/Hr. capacity	No.	40,426
	(C) 1500 Grams/Hr. capacity	No.	48,937
D	Providing & supplying digital chlorine detector monitor meter - 0 to 20 ppm capacity	No.	62,551
E	Providing & supplying safety kit for 900 Kg cap. Toner.	No.	46,191
F	Providing & supplying safety kit for 100 Kg cap. Toner.	No.	40,418
G	Providing, Supplying & erecting Motor Driven Bleaching Dozing Pump with Cast		
	With 15 Lit Per hour capacity.	No.	32,883
	With 45 Lit Per hour capacity.	No.	34,817
H	Providing & supplying air breathing apparatus as per IS:10245 Part-II.		
	With 30 minutes duration cylinder	No.	38,493
	With 45 minutes duration cylinder	No.	41,380
5.23	Laboratory Instruments		
	Providing and supplying microprocessor based digital pocket TDS tester.	No.	7,506
	a) Providing and supplying fluoride spot test kit.	No.	2,406
	b) Chloroscope 0.2 ppm including testing materials.	No.	866
	c) Chloroscope 0.5 ppm including testing materials.	No.	1,443
	d) Chlorine Tablet Hypo tab - 60	Per Kg.	207
5.24	Servicing of existing Panel Mounted gaseous Chlorination Plant.		
	a) Gravity Feed Type.	No.	2,418
	b) Pressure Feed Type.	No.	2,418
	c) Vacuum Feed Type.	No.	2,418
	d) Bleaching Dozing Type.	No.	628

Item No.	Description of Item	Unit	Rate for 2022-23
	Removal of Chlorine Effect On RCC & M.S. Existing Structures.		
6	Applying Anti corrosive Chemical treatment Food Grade epoxy for water retaining structure including cleaning the surface with required treatment and cleaning the surface thoroughly & Making Surface dry, even & smooth for applying treatment and coats. DCL1400 With 3 Years Guarantee	Sq.mt.	1,451
7	Applying Anti corrosive Chemical treatment Food Grade for Exposed Surfaces of M.S. Structures / Pipe Grade for Exposed Surfaces of M.S. Structures / Pipe and smooth and applying treatment in two coats and smooth and applying treatment in two coats	Sq.mt.	242



MISCELLENEOUS ITEMS SECTION - E





SECTION : 1.E - MISCELLANEOUS COMPLETED ITEM

Item no.	Description of Item	Unit	Rate for 2022-23
Item no.1	Precast Half Round Gutter		
	Providing and laying precast cement concrete M-150 metal size 12 mm to 20 mm half round gutters with 5 cm thick rectangle block laid on necessary packing of rubble masonry in C.M. 1:6 and C.P. in C.M. 1:3		
1	100 mm dia	R.Mt.	130
2	150 mm dia	"	186
Item no.2	Painting letters		
	Painting letters for "Capacity of tank" the size of letters will be 45 cm height and 50 mm width.		
	Painting letters 45 Cm Ht.	No.	34
	Painting letters 23 Cm Ht.	No.	22
Item no.3	Supplying of various material		
	Supplying following materials including all taxes and carting.		
3.1	Alumina ferric	Kg.	8
3.2	Solvent Cement	Lit.	268
3.3	Bolts and washer for valves	Kg.	63
3.4	Bleaching powder	Kg.	14
3.5	Rubber Packing Normal	Kg.	80
3.6	Rubber Packing Neoprene type	Kg.	156
3.7(a)	P.A.C solution 10% concentration	Lit.	9
Item no.4	Pipe Coating (out Side)		
(A)	Guniting		
	Providing and applying with mechanical arrangement in 1:2 proportion cement, sand Guniting to M.S. pipe surface under 2.1 Kg/Sq.Cm. to 2.80 Kg/Sq.Cm. pressure including removing the loose materials as directed by the Engineer-in-charge and including scrapping the surface with wire brushes, degreasing, cleaning by compressed air and providing, fixing BRC fabric No.14 as reinforcement, curing for 21 days, disposing off the rebound materials with in a lead of 50 m etc. comp. As directed by the E.I.C.		
1	25 mm thick	Sq.M.	361
2	40 mm thick	Sq.M.	422
B	3 LPE	Sq.M.	808
	Providing and applying 3 LPE Coating outside 3 layers polyethylene (LPE) coating with required tk. As per DIN 30670 or its latest revision or amendment and detail specifications with necessary material & Labour and Equipments etc.		
Item no.5(A)	Inner Cement Mortar Lining		
	Providing and making inner cement mortar lining to M.S. Pipes with mechanical devices in cement mortar 1:1 proportion including cost of all materials, labour, special sand required, machinery, power generation, all equipments and taking necessary access openings and manholes, cuts at suitable intervals as directed by Engineer-in-charge and rewelding the same after done with doubler plates pipes including necessary excavation, refilling, concrete breaking and remaking if any, breaking guniting and remaking the same, repainting wherever required with epoxy paint in 3 coats, all dewatering including emptying the pipeline and refilling the same after done with (water to be supplied by Department free of cost within 5 km. lead at fixed point and all other arrangements to be done by agency), including carrying out "C" value performance test of pipeline, complete job as per the directions of the Engineer-in-charge.		
1	9 mm thick for pipes up to 700 mm dia	Sq.M.	249
2	12 mm thick for pipes above 700 mm dia	"	280
Item no.5(B)	Providing 406 Micron epoxy coating to inside pipe line		
1	Providing epoxy coating to inside pipe line with two parts of Solvent free high build liquid epoxy lining as per AWWA C210-07 Suitable for potable water application & shall be approved by CFTRI India/BS 8920-UK/International standard /NSF/ANSI-61 2004 to be fit for contact with potable water for human consumption <u>with 406 micron thickness</u> , inclusive of necessary materials, labour, Equipment, Contractor's overhead charges and profit and including all taxes.	Sq.M.	332

Item no.	Description of Item	Unit	Rate for 2022-23
Item no.5(C) Providing 100 Micron epoxy coating to inside pipe line			
1	Providing and applying 1 coat of 25 micron of zinc rich primer conforming to specifications of DGS-175, Type- A , and 3 coats each of 25 micron of Non toxic high build black epoxy paint suitable for water potable water application inclusive of necessary materials , labour ,Equipment ,Contractor's overhead charges and profit and including all taxes.	Sq.M.	155
Item no.6			
	Constructing the air Valve cage having following dimension & specification	No.	44,767
	(1) Excavation of pit having size 2.01mX2.01mX0.225m		
	(2) P.C.C in M-10 with size 2.01mX2.01mX0.225m		
	(3) All Conc. Work in M-25		
	(4) Bottom Flat base slab of size 1.86mX1.86mX.18m		
	(5)Top Flat base slab of size 0.91mX0.91mX.10m		
	(6)Vertical wall 0.68 mt height of 1.68 m length &0.18 m wide		
	(7) wide horizontal slab of Size 0.195 mX1.305mX0.18m		
	(8)vertical wall of size 0.93mX0.18mX2.68m		
	(9)Top square of size 0.93mX0.93mX0.10m		
	(10) CRS steel is to be used & dia of all bars are 10 mm & min,350 kg. steel into be used (AS per approved Drawing of GWSSB)		
Item no. 7 Extra Welding for fixing various appurtenances			
	Welding in all positions with required number runs, for M.S.Pipes internally and/or externally including gauging wherever necessary, fixing appurtenances and other accessories in connection with pipe laying work as per specification.		
	As above for Butt Joints : Plate thickness		
1	Welding for Pipe thickness 4 mm to 7mm	RMT	681
2	Welding for Pipe thickness above 7mm	"	729
Item no. 8 Gas Cutting of MS Pipe / Plates			
	Gas cutting(Either square cut or V cut) pipes, plates etc. including all costs for the following thickness.		
1	Up to 5 mm	RMT	36
2	Above 5 mm up to 10 mm	"	56
3	Above 10 mm	"	72
Item no. 9 Fixing water level indicator			
	Labour charges for fixing wooden / steel water level indicator including all accessories and jointing material etc. complete.		
	For Sump	No.	513
	For ESR	No.	574
Item no. 10 Fixing CI/MS frame & cover			
	Fixing all types of C. I. frame and cover in C.C. 1:2:4 including carting etc. complete excluding cost of R. C. C.	No.	279
Item no.11 Fixing lightning arrester			
	Labour charge for fixing lighting conductors including fixing copper strip incl. suitable Hole fast at suitable intervals incl. fixing earth electrodes in charcoals and salt 0.5 Cu. Mt. and welding copper strip with copper plates etc. complete.		
11.a	as above	No.	2,564
11.b	- do - for copper strip every one mt above or below 15 mt.	R. Mt.	86
11.c	Alternative on weight basis.	Kg	66
Item no.12 Fixing CI Steps			
	Fixing C. I. steps in masonry in C. M. 1:3 including necessary C.C. for jointing etc. complete during progress of the work.		
1		No.	61
Item no.13 Fixing Surface Boxes			
	Fixing surface boxes including jointing materials incl. cost of jointing materials for concreting C. C. 1:2:4 etc. complete excluding cost of surface Box.		
1		Sq.M.	262

Item no.	Description of Item	Unit	Rate for 2022-23
Item no.14	Fixing Cowl ventilator		
	Fixing C. I. cowl type ventilator in C. C. 1:2:4 with bolts and nuts etc. complete including cost of jointing materials.		
	Dia. in mm		
1	80	No.	177
2	100	No.	211
3	150	No.	256
15	Fixing M.S.ladder		
	Labour charges for fixing 45 cm wide M. S. ladder made from angle iron or Flats, in position including cost of jointing materials etc. complete.	R.MU	122

WELLS & GALLERY

SECTION - F



1875-1876

SECTION : 1.F - Wells & Gallery

Sr. No.	Item	Unit	Rate for 2022-23
1	2	3	
	Item No. 1 : Excavation for well including removing and spreading the excavated stuffs directed with all lead.		
(I)	In all sorts of soils & Soft Murrum		
(II)	In Hard Murrum		
(III)	In Soft rock		
(IV)	In hard rock with blasting and chiselling or by chiselling/Breaking only for finishing		
1	0.0 m to 1.5 m depth	I Cu.M.	128
		II Cu.M.	186
		III Cu.M.	273
		IV Cu.M.	659
2	1.5 m to 3.0 m depth	I Cu.M.	141
		II Cu.M.	199
		III Cu.M.	286
		IV Cu.M.	675
3	3.0 m to 4.5 m depth	I Cu.M.	155
		II Cu.M.	213
		III Cu.M.	300
		IV Cu.M.	691
4	4.5 m to 6.0 m depth	I Cu.M.	172
		II Cu.M.	230
		III Cu.M.	317
		IV Cu.M.	707
5	6.0 m to 7.5 m depth	I Cu.M.	190
		II Cu.M.	249
		III Cu.M.	336
		IV Cu.M.	726
6	7.5 m to 9.0 m depth	I Cu.M.	210
		II Cu.M.	269
		III Cu.M.	358
		IV Cu.M.	748
7	9.0 m to 10.5 m depth	I Cu.M.	233
		II Cu.M.	291
		III Cu.M.	389
		IV Cu.M.	779
8	10.5 m to 12.0 m depth	I Cu.M.	259
		II Cu.M.	317
		III Cu.M.	422
		IV Cu.M.	812
9	12.0 m to 13.50 m depth	I Cu.M.	284
		II Cu.M.	343
		III Cu.M.	455
		IV Cu.M.	844

Sr. No.	Item	Unit	Rate for 2022-23
10	13.50 m to 15.00 m depth	I Cu.M.	310
		II Cu.M.	368
		III Cu.M.	487
		IV Cu.M.	878
11	15.00 m to 16.50 m depth	I Cu.M.	336
		II Cu.M.	394
		III Cu.M.	521
		IV Cu.M.	910
12	16.50 m to 18.00 m depth	I Cu.M.	356
		II Cu.M.	415
		III Cu.M.	553
		IV Cu.M.	943
13	18.00 m to 19.50 m depth	I Cu.M.	377
		II Cu.M.	435
		III Cu.M.	586
		IV Cu.M.	976
14	19.50 m to 21.00 m depth	I Cu.M.	397
		II Cu.M.	456
		III Cu.M.	622
		IV Cu.M.	1,012
15	21.00 m to 22.50 m depth	I Cu.M.	418
		II Cu.M.	476
		III Cu.M.	658
		IV Cu.M.	1,053
16	22.50 m to 24.00 m depth	I Cu.M.	438
		II Cu.M.	496
		III Cu.M.	694
		IV Cu.M.	1,094
17	24.00 m to 25.50 m depth	I Cu.M.	459
		II Cu.M.	518
		III Cu.M.	730
		IV Cu.M.	1,135
18	25.50 m to 27.00 m depth	I Cu.M.	479
		II Cu.M.	538
		III Cu.M.	755
		IV Cu.M.	1,212
19	27.00 m to 28.50 m depth	I Cu.M.	499
		II Cu.M.	558
		III Cu.M.	802
		IV Cu.M.	1,294
20	28.50 m to 30.00 m depth	I Cu.M.	521
		II Cu.M.	578
		III Cu.M.	837
		IV Cu.M.	1,386

Sr. No.	Item	Unit	Rate for 2022-23
	Extra for every additional depth of 1.5 m or part there of beyond 30 m depth		
		I Cu.M.	40
		II Cu.M.	45
		III Cu.M.	65
		IV Cu.M.	91
	NOTE : For Desilting of well rates of excavation of well in all soils including hard murrum should be adopted as per lifts		
	(B) Extra for dewatering for excavation in wet condition and in all strata		
	0.00 m to 1.50 m depth	Cu.M.	20
	1.50 m to 3.00 m depth	Cu.M.	27
	3.00 m to 4.50 m depth	Cu.M.	32
	4.50m to 6.00 m depth	Cu.M.	43
	6.00 m to 7.50 m depth	Cu.M.	60
	7.50 m to 9.00 m depth	Cu.M.	77
	9.00 m to 10.50 m depth	Cu.M.	96
	10.50 m to 12.00 m depth	Cu.M.	111
	12.00 m to 13.50 m depth	Cu.M.	139
	13.50 m to 15.00 m depth	Cu.M.	186
	15.00 m to 16.50 m depth	Cu.M.	191
	16.50 m to 18.00 m depth	Cu.M.	218
	18.00 m to 19.50 m depth	Cu.M.	251
	19.50 m to 21.00 m depth	Cu.M.	273
	21.00 m to 22.50 m depth	Cu.M.	309
	22.50 m to 24.00 m depth	Cu.M.	341
	24.00 m to 25.50 m depth	Cu.M.	369
	25.50 m to 27.00 m depth	Cu.M.	404
	27.00 m to 28.50 m depth	Cu.M.	436
	28.50 m to 30.00 m depth	Cu.M.	468
	(C) Extra for dewatering for excavation for every extra additional depth of 1.5 m or part there of beyond 30 m depth		
		Cu.M.	36
Item No.2 :	Sinking single circular well of internal diameter and thickness of steining as specified up to the level as specified in all sorts of soil including hard murrum, boulders and all strata type & strata up to the level as per drawing by dredging, dewatering, drop chiselling with necessary kentledge and with mechanical means as may be necessary for this type of work including all labour, plant machinery etc. complete. Zero level to be considered from cutting edge level. Including all labour charges with Dewatering but Excluding cost of Cutting Edge & Well steining		
	Well Excavation by sinking		
	2.1 For 4.0 mt internal dia well incl. Dewatering		
	1. 0 to 3 mt depth	R.Mt	9,955
	2. Beyond 3 mt up to 6 mt depth	R.Mt	10,726
	3. Beyond 6 mt to 9 mt depth	R.Mt	11,501
	4. Beyond 9 mt to 12 mt depth	R.Mt	11,998
	5. Beyond 12 mt to 15 mt depth	R.Mt	12,511
	6. Beyond 15 mt to 18 mt depth	R.Mt	13,285
	2.2 For 6.0 mt internal dia well incl. Dewatering		
	1. 0 to 3 mt depth	R.Mt	22,404
	2. Beyond 3 mt up to 6 mt depth	R.Mt	24,134
	3. Beyond 6 mt to 9 mt depth	R.Mt	25,899
	4. Beyond 9 mt to 12 mt depth	R.Mt	26,995
	5. Beyond 12 mt to 15 mt depth	R.Mt	28,149
	6. Beyond 15 mt to 18 mt depth	R.Mt	29,904

Sr. No.	Item	Unit	Rate for 2022-23
	2.3 For 8.0 mt dia well, Internal incl. Dewatering		
	1. 0 to 3 mt depth	R.Mt	39,857
	2. Beyond 3 mt up to 6 mt depth	R.Mt	42,904
	3. Beyond 6 mt to 9 mt depth	R.Mt	46,042
	4. Beyond 9 mt to 12 mt depth	R.Mt	47,991
	5. Beyond 12 mt to 15 mt depth	R.Mt	50,133
	6. Beyond 15 mt to 18 mt depth	R.Mt	53,238

Note :Rate for various dia meter of well other than shown can be arrived on area basis, considering internal dia. '0' (Zero) is to be considered from where sinking operation is started

Item No.3 : Cutting edge			
	Providing fabricating and placing cutting edge and curbs as per design and drawing manufactured from structural steel or M.S. plate confirming to ISS 226-1982 incl. Riveting, welding etc. complete, incl. m.s.bars, anchor bolts and structural steel etc complete.	MT	87,934
Item No. 4			
	RCC for well steining		
	Providing and laying cement concrete 1:2:4 (1 Cement : 2 Coarse sand: 4 graded stone aggregates 20 mm nominal size) and curing complete incl cost of formwork but excluding cost of reinforcement for well steining work.		
	1. Well steining incl beam	Cu.M	5,984
	2. Add extra per Cum per m depth beyond 6 m depth	Cu.M	105
Item No. 5 :			
	Masonry for well steining		
	Masonry for well steining in C.M. 1:6 above ground level and up to 1.5 mt depth below average ground level		
	1. Using uncoursed rubble	Cu.M	2,797
	2. Using Bela stones	Cu.M	4,846
	3. Using burnt brick of standard size	Cu.M	3,886
	4. Using CC 1:3:6 block of approved size	Cu.M	3,335
	5. Inverted bela masonry (Veraval area)	Cu.M	5,331
	6. ---do --- Without C.M. joints	Cu.M	4,703
	7. For additional depth of 1.5 m or part there of beyond 1.5 m depth	Cu.M	93
Item No. 6 :			
	Cement plaster for Wells		
	Cement plaster 20 mm thick rough coat with C.M. 1:3 incl watering curing etc. comp. For well	Sq.M	149
	Extra for cement finishing incl. Watering and curing for well	Sq.M	32
Item No. 7 :			
	Coffer dam		

Sr. No.	Item	Unit	Rate for 2022-23
	Providing and constructing cofferdam in river basin including excavation ,filling, middle portion with B.C.soil (in empty Cement/Gunny bags) to the entire satisfaction of EIC till completion of the work including dismantling coffer dam after completion of the work as directed by EIC. <u>Bags Filled with...</u>		
1	Local sand (up to 0.5 Km)	Per Bag	7
2	Local selected Soil (Up to 0.5 KM)	Per Bag	8
3	Sand brought from Outside	Per Bag	10
4	Selected Soil brought from outside	Per Bag	11
5	Dismantling Charges	Per Bag	2
Item No. 8			
	Horizontal Bore in well		
	Drilling of horizontal bore inwell in hard strata of required size and length (without air compressor test & dewatering)		
8.1	115 mm dia	Rmt	622
8.2	100 mm dia	Rmt	513
8.3	80 mm dia	Rmt	410

MAINTENANCE & REPAIRS

SECTION - G



SECTION : 1.G - Maintenance & Repair

Item No.	Description	Unit	Rate for 2022-23
Item No. 1	Labour charges for repairing of leakage in MS pipeline of following diameter at different places including necessary excavation manually or by machinery, dewatering, removing of mud, cleaning of pipe and leakage portion, grinding, cutting the pipeline or joint if necessary incl. welding the joint by using ISI marked welding rods duly approved by EIC of appropriate number and size inclusive of excavator, Hydra/ Crane, D.G. set, welding machine, Gas cutter with LPG Cylinder, Oxygen cylinder, Grinding machine etc. with fuel, operator & labour as required. (incl. all material but excluding cost of pipe)		
1	Dia. from 168.3 to 323.9mm	No.	5,247
2	355.60 mm	No.	5,470
3	406.40 mm	No.	6,023
4	457.00 mm	No.	6,361
5	508.0 mm	No.	6,391
6	559.0 mm	No.	6,575
7	610.0 mm	No.	8,511
8	660.0 mm	No.	8,773
9	711.0 mm	No.	9,249
10	762.0 mm	No.	9,433
11	813.0 mm	No.	9,771
12	864.0 mm	No.	10,170
13	914.0 mm	No.	10,586
14	965.0 mm	No.	11,476
15	1016 mm	No.	12,983
16	1067 mm	No.	13,028
17	1118 mm	No.	13,782
18	1168 mm	No.	13,812
19	1219 mm	No.	15,564
20	1321 mm	No.	15,626
21	1422 mm	No.	15,687
22	1524 mm	No.	19,451
23	1626 mm	No.	20,266
24	1727 mm	No.	21,555
25	1829 mm	No.	21,615
26	2032 mm	No.	21,493
Item No. 2	Labour charges for repairing of leakage in C/DI pipeline for following diameter at different places including necessary excavation manually or by machinery, removing mud, dewatering, cleaning of pipe and leakage portion and repairing by inserting lead wool including tools required for inserting lead wool, hiring charges of excavators, Hydra/Crane, dewatering set, fuel, operator, cost of lead wool etc complete (including all material but excluding cost of pipe)		
	Dia. in mm		
1	80 mm	No.	701
2	100 mm	No.	987
3	125 mm	No.	1,051
4	150 mm	No.	1,337
5	200 mm	No.	1,660
6	250 mm	No.	2,430
7	300 mm	No.	2,713
1	350 mm dia	No.	2,795
2	400 mm dia	No.	3,630
3	450 mm dia	No.	4,609
4	500 mm dia	No.	4,790
5	600 mm dia	No.	6,895
6	700 mm dia	No.	7,910
7	750 mm dia	No.	8,709

Item No.	Description	Unit	Rate for 2022-23
Item No. 3	Labour charges for repairing leakage in CI/DI pipeline of following diameter at different places including necessary excavation manually or by machinery, removing of mud, dewatering, cleaning of pipe, cutting of pipe, Jointing & repairing using CID joints including CID joints, rubber rings, nut bolts, hiring excavator, Hydra/Crane, dewatering machine, fuel, operator etc complete (including cost of jointing material but excluding cost of pipe)		
1	80 mm	No.	1,590
2	100 mm	No.	1,799
3	125 mm	No.	2,150
4	150 mm	No.	2,496
5	200 mm	No.	3,420
6	250 mm	No.	4,522
7	300 mm	No.	5,686
8	350 mm	No.	7,695
9	400 mm	No.	9,193
10	450 mm	No.	11,089
11	500 mm	No.	13,746
12	600 mm	No.	20,352
13	700 mm	No.	33,702
14	750 mm	No.	34,371
Item No. 4	Labour charges for repairing of leakage in AC pipeline of following diameter at different places including necessary excavation manually or by mechanized excavation, removing of mud, cleaning of pipe and leakage portion, cutting the pipeline & removing piece of pipe from trench with inclusive of mechanical devices JCB, Hydra/Crane if necessary & labourers required. (Exclu. cost of pipe & Fittings)		
	<u>Dia in mm</u>		
1	350	No.	1,211
2	400	No.	1,657
3	450	No.	1,912
4	500	No.	2,359
5	600	No.	4,015
6	700	No.	5,990
Item No. 5	Labour charges for repairing of leakage in AC pipeline of falling diameter at different places including necessary excavation manually or by mechanized excavation, removing of mud, cleaning of pipe and leakage portion, cutting the pipeline & removing piece of pipe from trench with inclusive of mechanical devices JCB, Hydra/Crain if necessary & labours required with providing material such Turened C.I.D. joints with nut bolt, rubber rings etc. comp. (incl. all material but Exclu. cost of pipe)		
1	80 mm dia	No.	1,021
2	100 mm dia	No.	1,208
3	125 mm dia	No.	1,514
4	150 mm dia	No.	1,846
5	200 mm dia	No.	2,971
6	250 mm dia	No.	4,089
7	300 mm dia	No.	5,153
8	350 mm dia	No.	6,906
9	400 mm dia	No.	8,801
10	450 mm dia	No.	10,316
11	500 mm dia	No.	13,757
12	600 mm dia	No.	16,746
13	700 mm dia	No.	37,091
Item No. 8	Labour charges for repairing of leakage in PVC pipeline of folling dia meter at different places including necessary excavation manually or by mechanise excavation, dewatering removing of mud, cleaning of pipe and leakage portion, cutting the pipeline & removing piece of pipe from trench with inclusive of mechanical devices JCB, Hydra/Crain if necessary & labours required with providing material such couplers, solution etc. comp. (incl. all material but Exclu. cost of pipe)		
1	90 mm dia	No.	838
2	110 mm dia	No.	978
3	125 mm dia	No.	1,131
4	140 mm dia	No.	1,321
5	160 mm dia	No.	1,629

Item No.	Description	Unit	Rate for 2022-23
6	180 mm dia	No.	2,078
7	200 mm dia	No.	2,652
8	225 mm dia	No.	2,957
9	250 mm dia	No.	3,646
10	280 mm dia	No.	4,230
11	315 mm dia	No.	4,793
Leakage in HDPE Pipe Repairing			
Item No. 7	Labour charges for repairing of leakage in HDPE pipe line with butt welding of following diameter at different places including necessary excavation manually or by mechanize excavation, dewatering, removing of mud, cleaning of pipe and leakage portion of pipe from trench with incl. of mechanical device JCB if necessary and labours required with providing, jointing material with welding machine etc, comp. (incl. all materials)		
	Dia. in mm		
1	83 mm	No.	731
2	75 mm	No.	810
3	90 mm	No.	913
4	110 mm	No.	1,055
5	125 mm	No.	1,170
6	140 mm	No.	1,319
7	160 mm	No.	1,518
8	180 mm	No.	1,699
9	200 mm	No.	1,997
10	225 mm	No.	2,254
11	250 mm	No.	2,788
12	280 mm	No.	3,242
13	315 mm	No.	3,674
Item No. 8	Labour charges for repairing of leakage in HDPE pipeline of following diameter at different places including necessary excavation manually or by machinery, dewatering, removing of mud, cleaning of pipe and leakage portion, Jointing & repairing using MS Clamp inclusive of using all required machinery, labour, dewatering set, fuel, operator, rubber sheet, all Jointing materials, nut bolts etc complete (but excluding cost of Pipe)		
1	83 mm dia	No.	1,107
2	75 mm dia	No.	1,128
3	90 mm dia	No.	1,157
4	110 mm dia	No.	1,193
5	125 mm dia	No.	1,220
6	140 mm dia	No.	1,281
7	160 mm dia	No.	1,353
8	180 mm dia	No.	1,388
9	200 mm dia	No.	1,562
10	225 mm dia	No.	1,607
11	250 mm dia	No.	1,993
12	280 mm dia	No.	2,185
13	315 mm dia	No.	2,248
14	355 mm dia	No.	2,458
15	400 mm dia	No.	3,017
16	450 mm dia	No.	3,382
17	500 mm dia	No.	3,471
Item No. 9	Labour charges for repairing of leakage in HDPE pipeline of following diameter at different places including necessary excavation manually or by machinery, dewatering, removing of mud, cleaning of pipe and leakage portion, cutting the pipeline, Jointing & repairing using CID joint inclusive of using all required machinery, labour, D G Set, fuel, operator, CID joints, rubber rings, nut bolts etc complete (but excluding cost of Pipe)		
1	90 mm	No.	1,703
2	110 mm	No.	1,808
3	125 mm	No.	1,884
4	140 mm	No.	1,959
5	160 mm	No.	2,183
6	180 mm	No.	2,438
7	200 mm	No.	2,653
8	225 mm	No.	3,051
9	250 mm	No.	3,751

Item No.	Description	Unit	Rate for 2022-23
10	280 mm	No.	4,460
11	315 mm	No.	5,274
12	355 mm	No.	7,056
13	400 mm	No.	7,502
14	450 mm	No.	9,473
15	500 mm	No.	12,862
Item No. 10	Labour charges for cleaning of sump / GL cistern including cleaning and removing algae, calcinations, sludge, dirt deposition from bottom and as well as from wall of container, disinfection by bleaching powder with all necessary tools and plants, labours and cost of disinfectant etc complete		
	Capacity of sump in Ltr		
1	10000	No.	1,138
2	20000	No.	1,138
3	30000	No.	1,138
4	40000	No.	1,138
5	50000	No.	1,707
6	60000	No.	1,707
7	70000	No.	1,707
8	80000	No.	1,707
9	90000	No.	1,707
10	100000	No.	2,276
11	110000	No.	2,276
12	120000	No.	2,276
13	130000	No.	2,276
14	140000	No.	2,276
15	150000	No.	2,276
16	160000	No.	2,390
17	170000	No.	2,390
18	180000	No.	2,390
19	190000	No.	2,618
20	200000	No.	2,618
21	250000	No.	2,959
22	300000	No.	3,414
23	350000	No.	4,097
24	400000	No.	4,552
25	450000	No.	5,008
26	500000	No.	5,463
27	550000	No.	5,690
28	600000	No.	5,918
29	650000	No.	6,373
30	700000	No.	6,829
31	750000	No.	7,284
32	800000	No.	7,511
33	850000	No.	7,966
34	900000	No.	8,421
35	950000	No.	8,877
36	1000000	No.	9,105
37	1100000	No.	10,242
38	1200000	No.	10,925
39	1300000	No.	11,835
40	1400000	No.	12,745
41	1500000	No.	13,429
42	1600000	No.	14,567
43	1700000	No.	15,932
44	1800000	No.	16,161
45	1900000	No.	16,843
46	2000000	No.	17,753
47	2500000	No.	21,851
48	3000000	No.	26,175
49	3500000	No.	30,272
50	4000000	No.	34,483
51	4500000	No.	38,580
52	5000000	No.	42,677

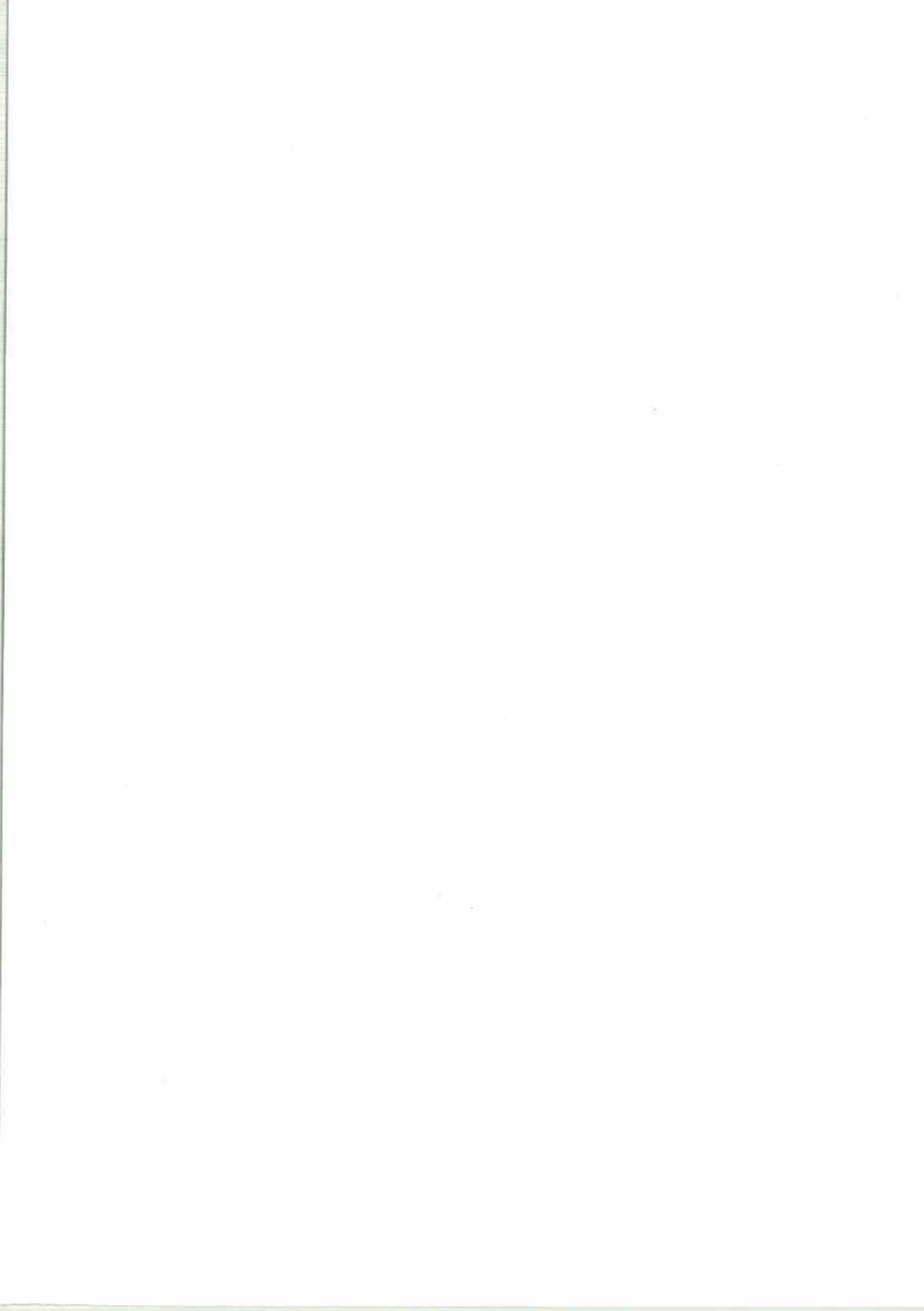
Item No.	Description	Unit	Rate for 2022-23
53	5500000	No.	46,888
54	6000000	No.	50,757
55	6500000	No.	54,967
56	7000000	No.	59,055
57	7500000	No.	62,934
58	8000000	No.	67,144
59	8500000	No.	71,242
60	9000000	No.	75,224
61	9500000	No.	79,321
62	10000000	No.	83,418
Item No. 11	Labour charges for cleaning of RCC ESR including cleaning and removing algae, calcinations, sludge, dirt deposition from bottom and as well as from wall of container, disinfection by bleaching powder with all necessary scaffolding, tools and plants, labours and cost of disinfectant etc complete		
	Capacity of ESR in Ltr		
1	10000	No.	2,276
2	20000	No.	2,276
3	30000	No.	2,276
4	40000	No.	2,276
5	50000	No.	2,276
6	60000	No.	2,503
7	70000	No.	2,503
8	80000	No.	2,503
9	90000	No.	2,503
10	100000	No.	2,503
11	110000	No.	2,618
12	120000	No.	2,618
13	130000	No.	2,618
14	140000	No.	2,618
15	150000	No.	2,618
16	160000	No.	2,731
17	170000	No.	2,731
18	180000	No.	2,731
19	190000	No.	2,731
20	200000	No.	2,731
21	250000	No.	2,959
22	300000	No.	3,187
23	350000	No.	3,528
24	400000	No.	3,984
25	450000	No.	4,439
26	500000	No.	4,666
27	550000	No.	4,894
28	600000	No.	5,121
29	650000	No.	5,463
30	700000	No.	6,145
31	750000	No.	6,373
32	800000	No.	6,600
33	850000	No.	6,829
34	900000	No.	7,056
35	950000	No.	7,284
36	1000000	No.	7,739
37	1100000	No.	7,986
38	1200000	No.	8,535
39	1300000	No.	9,105
40	1400000	No.	9,674
41	1500000	No.	10,356
42	1600000	No.	10,811
43	1700000	No.	11,380
44	1800000	No.	11,950
45	1900000	No.	12,519
46	2000000	No.	13,087
47	2500000	No.	14,795
48	3000000	No.	17,640

Item No.	Description	Unit	Rate for 2022-23
49	3500000	No.	20,257
50	4000000	No.	22,761
Item No. 12	Labour charges for repairing of Sluice valve/ Reflux valve including materials, labours and testing etc. complete		
	(A) Repairing of Sluice Valve / Reflux Valve		
12.A.1	(1) Replacing of gland flange only		
1	50 mm dia	No.	55
2	65 mm dia	No.	55
3	80 mm dia	No.	58
4	100 mm dia	No.	63
5	125 mm dia	No.	65
6	150 mm dia	No.	72
7	200 mm dia	No.	108
8	250 mm dia	No.	116
9	300 mm dia	No.	123
10	350 mm dia	No.	188
11	400 mm dia	No.	201
12	450 mm dia	No.	223
13	500 mm dia	No.	237
14	600 mm dia	No.	259
15	700 mm dia	No.	310
16	750 mm dia	No.	325
17	800 mm dia	No.	346
18	900 mm dia	No.	374
12.A.2	(2) Replacing of gland packing only		
1	50 mm dia	No.	60
2	65 mm dia	No.	60
3	80 mm dia	No.	60
4	100 mm dia	No.	67
5	125 mm dia	No.	75
6	150 mm dia	No.	89
7	200 mm dia	No.	121
8	250 mm dia	No.	127
9	300 mm dia	No.	135
10	350 mm dia	No.	196
11	400 mm dia	No.	210
12	450 mm dia	No.	225
13	500 mm dia	No.	240
14	600 mm dia	No.	255
15	700 mm dia	No.	292
16	750 mm dia	No.	309
17	800 mm dia	No.	324
18	900 mm dia	No.	339
12.A.3	(3) Replacing of S.S spindle only		
1	50 mm dia	No.	287
2	65 mm dia	No.	352
3	80 mm dia	No.	475
4	100 mm dia	No.	664
5	125 mm dia	No.	790
6	150 mm dia	No.	915
7	200 mm dia	No.	1,185
8	250 mm dia	No.	1,561
9	300 mm dia	No.	1,937
10	350 mm dia	No.	2,608
11	400 mm dia	No.	3,109
12	450 mm dia	No.	3,860
13	500 mm dia	No.	4,612
14	600 mm dia	No.	5,865
15	700 mm dia	No.	8,140
16	750 mm dia	No.	11,399
17	800 mm dia	No.	13,904

Item No.	Description	Unit	Rate for 2022-23
18	900 mm dia	No.	16,410
	(B) Repairing of Butterfly Valve		
12.B.1	(1) Repairing of leakage in flange only		
1	80 mm dia	No.	192
2	100 mm dia	No.	231
3	125 mm dia	No.	268
4	150 mm dia	No.	346
5	200 mm dia	No.	845
6	250 mm dia	No.	922
7	300 mm dia	No.	999
8	350 mm dia	No.	1,306
9	400 mm dia	No.	1,383
10	450 mm dia	No.	1,537
11	500 mm dia	No.	1,689
12	600 mm dia	No.	2,075
13	700 mm dia	No.	4,995
14	750 mm dia	No.	5,147
15	800 mm dia	No.	5,301
16	900 mm dia	No.	5,455
17	1000 mm dia	No.	5,839
18	1200 mm dia	No.	6,145
19	1400 mm dia	No.	11,061
20	1500 mm dia	No.	11,216
Item No. 13	Labour charges for repairing of Single Acting / Double Acting Air valve including materials, labours and testing etc. comp.		
13.A	(A) Replacing of one floating ball only	No.	
1	25 mm dia	No.	120
2	40 mm dia	No.	203
3	50 mm dia	No.	287
4	65 mm dia	No.	372
5	80 mm dia	No.	456
6	100 mm dia	No.	541
7	150 mm dia	No.	625
8	200 mm dia	No.	878
13.B	(B) Replacing of one Rubber packing only		
1	25 mm dia	No.	65
2	40 mm dia	No.	73
3	50 mm dia	No.	82
4	65 mm dia	No.	89
5	80 mm dia	No.	97
6	100 mm dia	No.	130
7	150 mm dia	No.	171
8	200 mm dia	No.	211
13.C	(C) Replacing of one C.I. Plate only		
1	25 mm dia	No.	86
2	40 mm dia	No.	116
3	50 mm dia	No.	130
4	65 mm dia	No.	164
5	80 mm dia	No.	178
6	100 mm dia	No.	225
7	150 mm dia	No.	300
8	200 mm dia	No.	382
Item No. 14	Restoration		
	Add for restoration of infrastructures like Kharkuwa, Electrical Line, Telephone cables all types, water lines, gas line, septic tanks, etc.		
14.a	Kharkuwa Repairing		
1	0.00 to 1.5 Mt.	No.	1,829
2	1.5 to 3.00 Mt.	No.	1,931
14.b	Cable Repairing		
	Electric/ Telephone cable	LS	712

Item No.	Description	Unit	Rate for 2022-23
Item No. 15	Removing of Existing Pipeline		
	Removing of existing pipeline incl. removal of specials, valves jointing material including carting and stacking of removed material from site of work to the department store as directed excl. excavation and refilling.		
15.a	D.I./ C. I. S. & S. Spun Pipes suitable for tyton joints.		
	Dia. in mm		
1	80	R. Mt.	17
2	100	R. Mt.	20
3	125	R. Mt.	25
4	150	R. Mt.	31
4	200	R. Mt.	42
5	250	R. Mt.	58
6	300	R. Mt.	70
7	350	R. Mt.	86
8	400	R. Mt.	106
9	450	R. Mt.	126
10	500	R. Mt.	145
11	600	R. Mt.	192
12	700	R. Mt.	245
13	750	R. Mt.	275
14	800	R. Mt.	306
15	900	R. Mt.	371
15.b	A. C. Pressure Pipe		
	Dia. in mm		
1	80	R. Mt.	10
2	100	"	11
3	125	"	12
4	150	"	16
5	200	"	21
6	250	"	26
7	300	"	31
8	350	"	38
9	400	"	45
10	450	"	52
11	500	"	63
12	600	"	87
15.c	Galvanised M. S. Tubes		
	Dia. in mm		
1	15	R. Mt.	9
2	20	"	11
3	25	"	12
4	32	"	13
5	40	"	14
6	50	"	18
7	65	"	20
8	80	"	23
9	100	"	29
10	125	"	39
11	150	"	43
15.d	RCC/ Pre-stressed concrete Pipes		
	Dia. in mm		
1	300	R. Mt.	61
2	350	"	70
3	380	"	74
4	400	"	82
5	450	"	89
6	500	"	97
7	525	"	103
8	600	"	120
9	700	"	135

Item No.	Description	Unit	Rate for 2022-23
10.	750	"	144
11	800	"	155
12	900	"	171
15.e	P. V. C./ HDPE/ GRP Pipes		
	Dia. in mm		
1	63	R. Mt.	3
2	75	"	4
3	90	"	5
4	110	"	5
5	125	"	5
5	140	"	5
6	160	"	6
7	180	"	8
8	200	"	10
9	225	"	11
10	250	"	14
11	280	"	21
12	300	"	23
15.f	MS Pipe		
	Dia. in mm		
1	168.3	RMT	44
2	193.7	"	52
3	219.7	"	59
4	244.5	"	64
5	273.1	"	71
6	323.9	"	86
7	355.6	"	93
8	406.4	"	107
9	457	"	119
10	508	"	133
11	559	"	146
12	610	"	158
13	660	"	171
14	711	"	184
15	762	"	197
16	813	"	209
17	864	"	224
18	914	"	239
19	965	"	251
20	1015	"	262
Item No. 16	Shoring or timbering INCLUDING COST OF LOCAL WOOD MATERIAL		
1	Shoring or timbering for trench with 50 mm thick planks and suitable size struts etc. complete.	Sq. M.	71

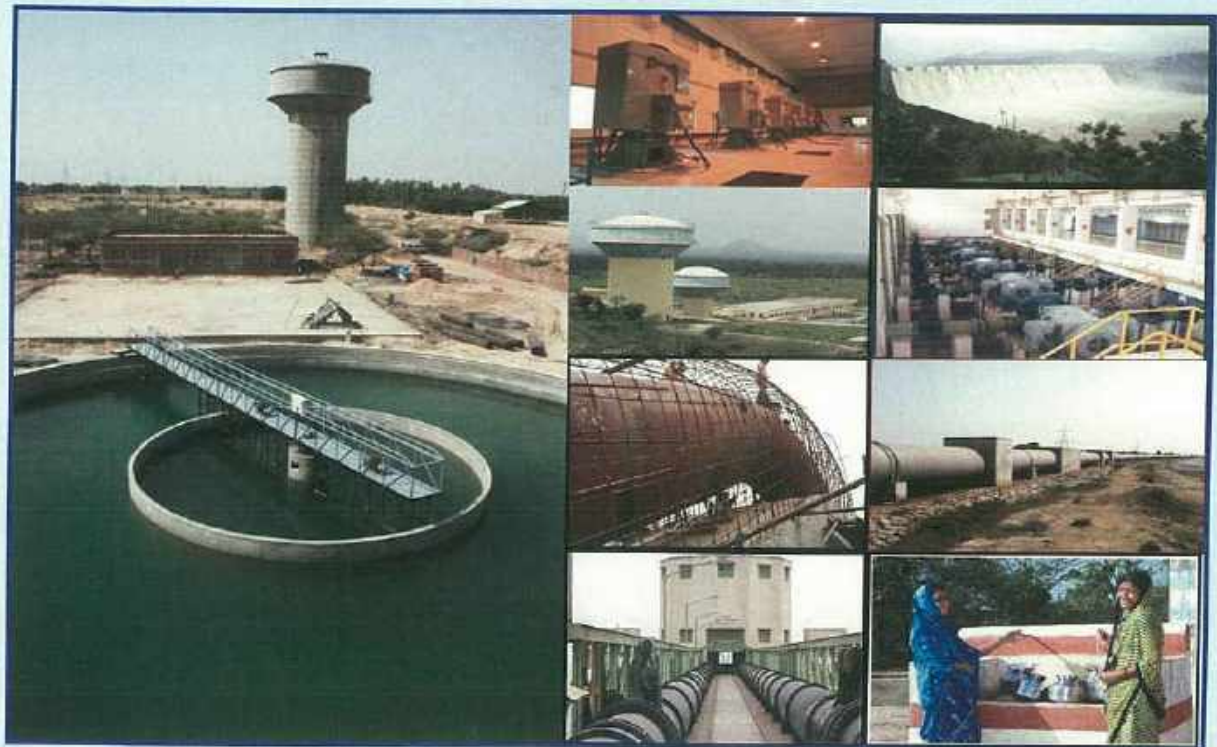


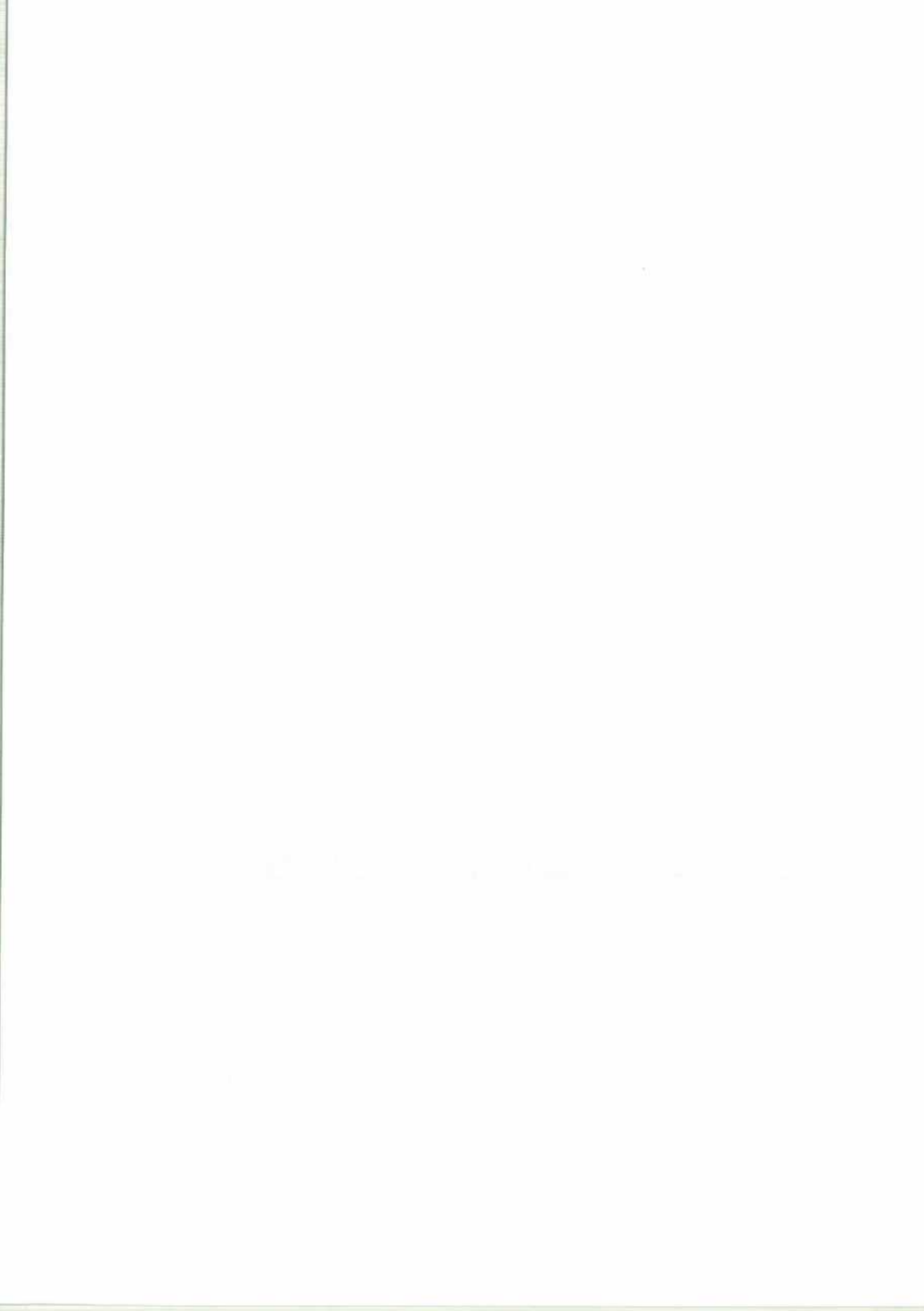
SCHEDULE OF RATES



YEAR : 2022-23

PART-2 DRAINAGE SECTION





SEWERAGE TREATMENT PLANT

SECTION - C



SECTION : 2.C - Sewage Treatment Plant			
ITEM NO.	ITEM DESCRIPTION	UNIT	Rate for 2022-23
1A	Activated Sludge Process based Treatment Plant		
A	Designing (hydraulic, process, structural and aesthetic), constructing and commissioning of Activated Sludge Process based Treatment Plant. Extended Aeration Process and its variants without primary clarification, is preferred for STP capacities less than 10 MLD. Scope of work consists of all Civil, Mechanical, Electrical, Instrumentation components of various sub-works as given below including necessary hydraulic testing, structural testing, equipment testing, trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job), to achieve BOD < 20ppm, TSS < 30 ppm, to meet GFCB standard of inland surface water discharge. The Coagulant Dosing System shall be provided, if required.		
	Minimum free board of 0.3 m shall be maintained unless other wise asked for 0.5 m stipulated for specific units.		
	UNITS INCLUDED:		
A	PRIMARY TREATMENT		
1	Inlet Chamber Designing, providing, and constructing RCC (M30) inlet chamber for the peak flow as per CPHEEO Manual including necessary excavation in all types of strata including walkway all around the periphery. Inlet chamber having minimum HRT of 60 seconds, each compartment will have steel gates with extension rod, head stock operating wheels. GI pipe railing etc. The work includes providing and making necessary arrangements to connect the flow to screen chamber by approach channel as directed and as per specifications.		
2	Screen Chamber Designing, providing, constructing, testing and commissioning of Two approach channels (min 4.5 m long), mechanically cleaned bar rack screen (6 mm clear opening 10 mm flats), Escalator screens, with 100% standby manual fine screen (10 mm clear opening) MCC: SS316, CI sluice gates (one before screen & one after screen), designed for average 1 DWF and maximum peak flow of 2 DWF in RCC (M-300), including inlet pipe/channel from inlet chamber, outlet pipe / channel to detritus tank, free board of 0.5 m minimum, RCC walkway 1.2 m wide with GI pipe railing, RCC stair case of 1.2 m width from GL to screen chamber, with operating platform and belt conveyor system incl. panel & push bottom switch at local level as well as MCC room for two way control.		
3	Grit Chamber Designing, providing and constructing grit Chamber- Detritus or vortex type or aerated type (100% standby), mechanically operated in RCC (M 30) capable of removing 100% of 0.2 mm size particle and above, having specific gravity 2.40, HRT of 1 minute at average flow (Detritus Tank), horizontal velocity not exceeding 0.30 m/sec at peak flow (Detritus Tank) with suitable arrangement of separation of grit from putrescible solids. Inlet and outlet channels of required sizes as may be required to connect the flow to connecting unit etc. Complete including hydraulic testing for water tightness of structure having minimum FB of 0.3 m, wash out arrangement to Grit chamber and platform 1.2 m wide RCC walkway with GI pipe railing shall be provided. A pit for collecting grit conveyed by conveyor shall be provided. It should be suitable to handle the grit for carting. All arrangements shall be as detailed specifications and as directed. CI sluice gates for upstream of grit chamber and for bypass arrangement to be provided.		
4	Parshall flume as per CPHEEO with necessary flow measuring devices/meter consisting of digital indicator in LPS & MLD		
8	SECONDARY TREATMENT		
5	Distribution chamber with CI sluice gates for each clarifier & bypass chamber, having appropriate size, operating platform with CI pipe upto central pier		
6	Primary Clarifier Surface loading rate of 25-30 cum/sq.m/day and free board of 0.5, weir loading limited to 125 cum/day.m. at average flow (upto 10 mld flow & 200 cum/day.m at average flow for larger than 10 mld capacities), scum removal arm, double armed scraper mechanism, launder as required, telescopic valve, sludge removal pit with CI piping for inlet & outlet, 8 mm th. FRP weir plate, upflow velocity in central pier receiving sewage from the pipeline (from distribution chamber) limited to 0.2 m/sec in central pier, sewage outlet fins of required size as per manual of practice (CPHEEO/ ASCE) (One unit upto 10 MLD & two units for more than 10 MLD (maximum diameter 48 m)		
7	Distribution chamber with CI sluice gates for each compartment of anoxic followed by aeration tank & bypass chamber, having appropriate size, operating platform with CI pipe upto central pier		
8	Aeration tank Minimum HRT 5 hours (at average flow + return sludge flow), 2 nos., minimum free board 0.6 m in case of diffused aeration system (disc/ tube type diffusers with retrievable mechanism) & 1 m in case of aspirator aerator, CS piping, air blowers, all biological parameters as per manual, minimum power level 0.915 kW/cum. and energy efficient aerators.		
9	Process Air Blowers or aeration Device The Plant should be based on Dissolved Oxygen/Oxygen Uptake Rate Control with VFD driven Aeration Device. The Aeration System shall be designed for 100 % Capacity of the design Air requirement. The aeration Blower/Aeration Device shall be having 100% installed standby unit. Air diffuser shall be of disc/ tubular, retrievable type installation. The wetted part of the aeration system of non-corrosive materials such as UPVC. Blowers shall be housed in process air blower building. The minimum area of the building is 20 sq.m. and height of 5m (min). The surface Aerators are not acceptable.		
10	Distribution chamber with CI sluice gates for each clarifier (in no case bypass shall be provided after aeration without secondary clarification), having appropriate size, operating platform with CI pipe upto central pier		
11	Secondary Clarifier surface loading rate of 15-35 cum/sq.m/day or less as required and free board of 0.5, weir loading limited to 185 cum/day.m. (at average flow), double armed scraper mechanism, launder as required, telescopic valve, sludge removal pit with CI piping for inlet & outlet, 8 mm th. FRP weir plate, upflow velocity in central pier receiving sewage from the pipeline (from distribution chamber) limited to 0.2 m/sec in central pier, sewage outlet fins of required size as per manual of practice (CPHEEO/ ASCE) (One unit upto 10 MLD & two units for more than 10 MLD (maximum diameter 48 m)		
12	Raw sludge pump house Sump with minimum HRT of 30 minutes & depth of sludge limited to 2 m, separate panel room outside the wet well		

ITEM NO.	ITEM DESCRIPTION	UNIT	Rate for 2022-23
13	Return sludge pump house Sump with minimum HRT of 30 minutes upto flow of 100% of return sludge capacity & depth of sludge limited to 2 m. separate panel room outside the wet well, 100% standby pumps		
D	DISINFECTION		
14	Chlorine Contact Tank:- Designing providing and constructing chlorine contact chamber with baffle walls for adequate capacity to deal with 1 DWF average flow. The chlorine contact tank should be of 30 min capacity, during average flow to achieve 99.99 % coliform reduction. Chlorine dose shall be maintained as per standard provisions, including designing, providing and constructing water supply provision for chlorination, including providing dewatering and by pass arrangement joining to final effluent mains and outlet weir etc complete. The effluent quality should match with the standards laid down by Gujarat Pollution Control Board and as per obligatory provision and as detailed specification and as directed by engineer in - charge.		
15	Chlorinator and Chlorinator Room/Tonner Room: Designing, providing and constructing chlorinators vacuum type 2 Nos. (1 working + 1 stand by) with auto switchover facility and having capacity for dosage of 5ppm or adequate for 0.5ppm FRC, chlorine booster pump (1W-1S), chlorine tonner with 15 days storage, chlorination room with specified area etc. complete. Necessary provision of having chlorinator room of adequate size. The chlorinator equipment shall include cost of chlorine cylinders/tonner, piping, valves, measuring and controlling equipment, safety devices, lifting equipment, etc. complete as per IS-10553 (part II) 1982. The tonner room should have minimum 3 MT capacity Hoist for loading and unloading facility. Tonner storage should be distinctly isolated and should be for minimum storage space as directed in the design specification and as per gas laws 1981 and factory act shall be provided. All other matching amenities shall be provided. Minimum 5 MT gantry rail shall be provided for full length of tonner room at 6 m height from level of tonner room, with outlet chamber and treated effluent outlet channel etc complete as per detailed specification.		
E	Sludge treatment Raw excess sludge to be treated & digested prior to dewatering by means of belt filter press/ centrifuge/ Combi-machine/ Screw Press/ Bag Filter		
16	Sludge Thickener with equipments: Solids loading rate of 25-35 kg/m ² /day. Designing, providing & constructing watertight of sludge thickener-gravity type (picket fence) in RCC (M-30) with inlet & outlet pipes, central feed well & sludge removal arrangement, grouting wherever necessary with walkway all around of 1.20m with GI pipe railing interconnecting CI pipes all complete as per specifications, having bottom slope 1:6 & min. 4.5m SVWD with necessary fixed bridge scraper arrangement as per detailed specifications & necessary inlet & outlet arrangement. All other arrangement as per detailed specifications. (Necessary above 3 MLD). Min sludge concentration of thickened sludge shall be 4%.		
17	Sludge Digester of suitable capacity as per CPHEEO Manual (only cylindrical volume to be considered without hopper bottom), sludge mixing (by gas/mechanical mixing). Sludge digester shall comprise all the fixtures, fasteners, accessories, supernatant handling, PRV, other safety mechanism etc. along with Flare System		
18	Sludge Dewatering Room with Centrifuge or Belt Press or Screw Press or Bag Type or Filter Press or Combi-machine: Designing, providing constructing and installing including foundation etc. Sludge Centrifuge or Belt Press or Screw Press or Bag Type or Filter Press or Combi-machine: to handle the sludge flow as per specifications, with appropriate inlet and outlet provision, sludge dewatering unit drain etc. Complete as per specifications.		
19	Filtrate Pumps with 100% standby, designed to empty Recycle sump in 1 hour		
20	Valves/gates Inlet, outlet, wash water inlet – only CI D/F and minimum size of 200 mm (for sludge) as per approved make/brand.		
21	All types gauges and meters required for Q & M as per design of specified make/brand.		
22	Dewatering during entire work using any technique.		
23	Necessary Instrumentation and control as per specifications		
24	Outfall Sewer: Designing, providing and constructing appropriate outfall sewer of RCC NP2 pipe, up to plot boundary (as specified) and beyond for treated sewage disposal upto 500m, diameter as per design, including necessary chambers for inspection and cleaning including necessary excavation, dewatering, refilling, concrete encasing/bedding concrete steps to reach the disposal/ nallah bed level, pitching and energy dissipation chamber in nallah portion etc. complete up to 500 m length RCC NP2 pipe line and including all above items.		
25	By pass arrangements RCC pipes with manholes and C.I. sluice gates (MH to be raised above TWL of adjacent unit)		
26	Piping work in CI-LA Glass including Sluice valves, Reflux Valves, MS Gates: Providing laying and jointing pipes other than those already included in the above items for interconnection by - pass drains etc. of all units including adequate numbers of manhole chambers. The item includes excavations, refilling and hydraulic testing of pipes, valves, gates, accessories and cost of jointing materials. The items includes required channels with gates for interconnection of units by pass drains etc for all units as directed etc complete as per detailed specifications.		
27	Administrative Building cum Laboratory (G+1): Designing, providing and constructing administrative building, office cum Laboratory including stores. This shall be a building having appropriate carpet area and ground floor and at first floor complete as per specifications including necessary excavation, foundation in RCC M 200 framed structure B. B masonry (1:1 class in C.M. 1:5) 20 mm cement plaster in C.M 1:3 inside and outside painting, Aluminium door and window with glass panels, mosaic tile flooring and skirting and all other allied items, fixtures fastening electrification arrangement water supply arrangement etc complete.		
	a) Ground floor to accommodate administrative office & laboratory		

ITEM NO.	ITEM DESCRIPTION	UNIT	Rate for 2022-23
	b) First floor to accommodate Office of the Plant in Charge, air monitoring equipments to measure wind direction & speed, hydrogen sulphide concentration etc.		
27.1	Laboratory equipments Laboratory equipment (as per specifications), beautification, telephone and intercom arrangement and wireless system.		
27.2	Furniture and Office Equipments, Office furniture (Make: Godrej) or similar approved quality as per specifications.		
27.3	Ventilation and Safety equipments as per specifications		
27.4	Sanitary blocks Carpet area – 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).		
28	Maintenance Workshop of size as per specification		
29	Air blower Building with Air Blowers: Capable of delivering adequate free air for aeration device with suitable pressure (100% standby).		
30	MCC Room of minimum 9 m x 6 m clear inside with safety measures, approval of various statutory/ central/ foreign authority as applicable		
31	Electric installation		
31.1	Both internal and external including entire plant area (as specified).		
31.2	Electric installation - Sub Station Room as per specifications.		
32	DG room with DG sets, as per electric load and specifications (50 % energy requirement).		
33	General Infrastructure Development: Scope also includes, Designing, providing and constructing general infrastructure development such as internal roads, compound wall for STP site, internal street and building lightings, pathways of minimum 1 m wide to access all STP units and Entrance Gate in MS fabrication, etc. all complete as per specifications and directed by engineering in charge.		
33.1	Internal roads Asphalt road (Minimum 4.5 m) to connect all units from main gate of plot.		
33.2	Compound Wall as per the plant layout, along the boundary of STP site (considering plant layout for intermediate and ultimate build out capacity and 33% landscaping area).		
33.3	Green Belt (33% landscaping area) as per specification		
	Notes		
1	All the above conditions shall form a part and parcel of the tender and must be incorporated in draft tender papers of conventional Sewage Treatment Plants.		
2	The necessary changes should be carried out as per Site condition and project requirements at the time of preparing DTPs.		
3	Fine screens (SS 316) are of mechanically cleaned type for working unit and manual bar screen type (SS 316) for standby unit.		
4	Upto 5 MLD Capacity STP chlorination could be done by using sodium hypochlorite solution. Above 5 MLD capacity gas chlorinator to be provided.		
5	Gravity sludge thickener is not provided upto 3 MLD capacity STP. Sludge will be collected into sludge sump & pumped directly to digester or sludge dewatering system.		
6	Filter press or Bag Type for dewatering can be provided for STP's upto 5MLD capacity.		
7	Chlorinator room not provided for STP upto 3 MLD.		
8	Boundary wall, gate, Internal plant roads, storm water drains, site clearance, landscaping is considered in scope. Plant road shall be 4.5m wide. Landscaping area shall be min. 33% of plant area.		
9	All water retaining structures are in M-30 grade of concrete.		
10	Lead for excavation is considered as 500m.		
11	Grade of steel used is Fe 415.		
12	Peak factor considered for design for plants 2 to 5 MLD is 2.5, 6 to 20 MLD is 2.25.		
13	The rates mentioned above STP are considering sites falling in Seismic Zone III. For sites falling in seismic zone IV and V shall be increased by 5% and 8% respectively.		
14	Structural design criteria approved by technical committee shall be applicable for design.		
15	Hydraulic design of the plant shall be considered with free fall discharge of treated sewage to local water body (above HFL). Hydraulic loss shall be worked out for peak flow condition and shall not exceed 4.5m in any circumstances unless otherwise site specific condition and approved by technical committee.		
16	The cost of sewage pumping station and rising main is not included.		
17	Makes of equipment shall be approved by GWSSB.		
18	The rates include excavation, refilling and throwing away extra stuff as directed by the Engineer in Charge.		
19	All other details shall be as per design criteria and detail specifications.		
	The Rates are as under		
1	Fixed cost up to and including up to 1MLD	1No	7,766,663
2	Add (prorata) for capacity above 1MLD up to 2MLD	MLD	7,569,634
3	Cost of 2MLD treatment plant	1No	15,335,696
4	Add (prorata) for capacity above 2MLD up to 5MLD	MLD	7,274,991
5	Cost of 5MLD treatment plant	1No	37,160,670
6	Add (prorata) for capacity above 5MLD up to 10MLD	MLD	5,754,161
7	Cost of 10MLD treatment plant	1No	65,931,477
8	Add (Prorata) for capacity above 10MLD to 25MLD	MLD	5,366,862
9	Cost of 25MLD treatment plant	1No	146,434,408
10	Add (prorata) for capacity above 25MLD to 50MLD	MLD	3,817,812
11	Cost of 50MLD treatment plant	1No	241,879,688
12	Add (prorata) for capacity above 50MLD to 100MLD	MLD	3,698,210
13	Cost of 100MLD treatment plant	1No	426,790,179
14	Add (prorata) for capacity above 100MLD	MLD	3,633,920

SECTION : 2.C - Sewage Treatment Plant			
ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
1B	Modified Activated Sludge Process based Treatment Plant with Biological Nitrogen & Phosphorous Removal		
A	Designing (hydraulic, process, structural and aesthetic), constructing and commissioning of Modified Activated Sludge Process based Treatment Plant with Biological Nitrogen and Phosphorous Removal. Extended Aeration Process and its variants without primary clarification, is preferred for STP capacities less than 10 MLD. For nutrient removal, coagulant dosing system for phosphorus removal and tertiary treatment by filtration to be opted wherever applicable. Scope of work consists of all Civil, Mechanical, Electrical, instrumentation components of various sub-works as given below including necessary hydraulic testing, structural testing, equipment testing, trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job), to achieve BOD < 10ppm, TSS < 10ppm, Biological TN < 10ppm & PO ₄ < 2ppm to get recyclable quality of water for industrial / agricultural purposes. The Coagulant Dosing System shall be provided as an optional/ back up.		
	UNITS INCLUDED:		
A	PRIMARY TREATMENT		
1	Inlet Chamber: Designing, providing, and constructing RCC (M30) inlet chamber for the peak flow as per CPHEEO Manual including necessary excavation in all types of strata including walkway all around the periphery. Inlet chamber having minimum HRT of 60 seconds, each compartment will have steel gates with extension rod, head stock operating wheels, GI pipe railing etc. The work includes providing and making necessary arrangements to connect the flow to screen chamber by approach channel as directed and as per specifications.		
2	Screen Chamber: Designing, providing, constructing, testing and commissioning of Two approach channels (min 4.5 m long), mechanically cleaned bar rack screen (6 mm clear opening 10 mm th. flats), Escalator screens, with 100% standby manual fine screen (10 mm clear opening) MOC: SS316, CI sluice gates (one before screen & one after screen), designed for average 1 DWF and maximum peak flow of 2 DWF in RCC (M - 300), including inlet pipe/ channel from inlet chamber, outlet pipe / channel to detritus tank, free board of 0.5 m minimum. RCC walkway 1.2 m wide with GI pipe railing. RCC stair case of 1.2 m width from GL to screen chamber, with operating platform and belt conveyor system incl. panel & push bottom switch at local level as well as MCC room for two way control.		
3	Grit Chamber: Designing, providing and constructing grit Chamber- Detritus or vortex type or aerated type (100% standby), mechanically operated in RCC (M 30) capable of removing 100% of 0.2 mm size particle and above, having specific gravity 2.40, HRT of 1 minute at average flow (Detritus Tank), horizontal velocity not exceeding 0.30 m/sec at peak flow (Detritus Tank) with suitable arrangement of separation of grit from putrescible solids. Inlet and outlet channels of required sizes as may be required to connect the flow to connecting unit etc. Complete including hydraulic testing for water tightness of structure having minimum FB of 0.3 m, wash out arrangement to Grit chamber and platform 1.2 m wide RCC walkway with GI pipe handling shall be provided. A pit for collecting grit conveyed by conveyor shall be provided. It should be suitable to handle the grit for carting. All arrangements shall be as detailed specifications and as directed. CI sluice gates for upstream of grit chamber and for bypass arrangement to be provided.		
4	Parshall flume as per CPHEEO with necessary flow measuring devices/meter consisting of digital indicator in LPS & MLD		
B	SECONDARY TREATMENT		
5	Distribution chamber with CI sluice gates for each clarifier & bypass chamber, having appropriate size, operating platform with CI pipe up to central pier		
6	Primary Clarifier Surface loading rate of 25-30 cum /sq m/day and free board of 0.5, weir loading limited to 125 cum/day.m at average flow (upto 10 MLD flow & 200 cum/day.m at average flow for larger than 10 MLD capacities), scum removal arm, double armed scraper mechanism, launder as required, telescopic valve, sludge removal pit with CI piping for inlet & outlet, 8 mm th. FRP weir plate, upflow velocity in central pier receiving sewage from the pipeline (from distribution chamber) limited to 0.2 m/sec in central pier, sewage outlet fins of required size as per manual of practice (CPHEEO/ ASCE) (One unit upto 10 MLD & two units for more than 10 MLD (maximum diameter 48 m))		
7	Distribution chamber with CI sluice gates for each compartment of anoxic followed by aeration tank & bypass chamber, having appropriate size, operating platform with CI pipe upto central pier		
8	Anoxic and/ or Anaerobic Tanks with Submersible Mixers: Suitable Anaerobic and/or Pre-Anoxic Tanks for Biological phosphorus removal and denitrification with submersible mixer arrangement, respectively, as per CPHEEO Manual.		
9	Aeration tank Minimum HRT 6 hours (at average flow + return sludge flow), 2 nos., minimum free board 0.6 m in case of diffused aeration system (disk / tube type diffusers with fixed/ retrievable mechanism) & 1 m in case of aspirator aerator, CS piping, air blowers, all biological parameters as per manual, minimum power level 0.015 kW/cu.m and energy efficient aerators		
10	Internal Sludge recirculation pumps Suitable pumps of capacity upto 400% to be provided for internal recirculation of MLSS from Aeration Tank to Anoxic Tank. There should also be the provision of 100% standby pumps in the warehouse.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
11	Process Air Blowers or aeration Device The Plant should be based on Dissolved Oxygen/Oxygen Uptake Rate Control with VFD driven Aeration Device. The Aeration System shall be designed for 110 % Capacity of the design Air requirement. The aeration Blower/Aeration Device shall be having 100% installed standby unit. Air diffuser shall be of disk/ tubular type, retrievable. The wetted part of the aeration system of non-corrosive materials such as UPVC. Blowers shall be housed in process air blower building. The minimum area of the building is 20 sq.m. and height of 5m (min). The surface Aerators are not acceptable.		
12	Distribution chamber with CI sluice gates for each clarifier (in no case bypass shall be provided after aeration without secondary clarification), having suitable size, operating platform with CI pipe upto central pier		
13	Secondary Clarifier surface loading rate of 15-35 cum/sq.m/day or less as required and free board of 0.5, weir loading limited to 185 cum/day.m. (at average flow), double armed scraper mechanism, launder as required, telescopic valve, sludge removal pit with CI piping for inlet & outlet, 6 mm th. FRP weir plate, upflow velocity in central pier receiving sewage from the pipeline (from distribution chamber) limited to 0.2 m/sec in central pier, sewage outlet fins of required size as per manual of practice (CPHEEO/ ASCE) (One unit upto 10 MLD & two units for more than 10 MLD (maximum diameter 48 m)		
14	Raw sludge pump house Sump with minimum HRT of 30 minutes & depth of sludge limited to 2 m, separate panel room outside the wet well		
15	Return sludge pump house Sump with minimum HRT of 30 minutes upto flow of 100% of return sludge capacity & depth of sludge limited to 2 m, 4.5 m minimum diameter, separate panel room outside the wet well, 100% standby pumps		
C	TERTIARY TREATMENT Pressure Sand Filter / Rapid Sand Gravity Filter/ Coagulant Dosing System / Flash Mixer / Flocculator / Settling Tank / Clariflocculator. The design values / specifications for the tertiary treatment units are to be considered from current CPHEEO Manual on Water Supply & Treatment.		
16	Flash Mixer Rapid mixing device design conforming to IS: 7090 of 1985. Detention time 60 sec, velocity gradient 300-400 sec ⁻¹ with fans gear and motor assembly as per design.		
17	Coagulant Dosing System Dosing Tanks- 2Nos. with mixing, carrying, dosing with piping arrangement, Chemical Storage area as per data/specifications		
18	Flocculation & Settling Tank or Clariflocculator RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 20 minutes with flocculator paddles with gear and motor assembly as per design, Flocculator design conforming to IS: 7208-1974 (Type-C). Surface loading rate for clarifier 8,000 litres/hour/sq.m and depth 2.5m using PVC media with supporting arrangement and sludge collecting pipes as per detail specifications.		
19	Filter Feed Sump & Pumps		
20	Pressure Sand Filters for STP capacities less than 10 MLD		
21	Rapid Sand Gravity Filters with shed Applicable to plant capacity above 10MLD only. Filter House (RCC framed structure with infill brick masonry walls) and RCC filter beds with sand and gravel bedding as per hydraulic and process design adopting 6000 Litres/hour/sq.m. Filtration rate with 2m water above sand media with under drainage system and inlet, outlet, backwash (rate 600LPM per Sq.m.) piping, pipe gallery, platform min. 5.5m in width and valves/gates arrangement as per design and detail specifications.		
21.1	a. Filter Sand Effective size 0.45 to 0.7 mm, uniformity coefficient not more than 1.7 nor less than 1.3, depth of sand 0.75m, free board 50cm, gravel 0.45m in depth, sand and gravel conforming to IS: 8491 (I)- 77, backwash by air wash (if specified) and hard wash by water, standard appurtenances (to be specified), rate of flow controller, filter gauge, sand expansion gauge, etc.		
21.2	Wash Water Tank Wash Water tanks of capacity equal to 2% of designed quantity of filtered water in a day (+) 10% with 8 to 10 Mtr. Head (as specified)		
21.3	Wash Water Pumps Wash Water Pumps with 100% Standby		
21.4	Air Blowers Capable of delivering 750 to 833 LPM per sq.m of free air flow area at 0.35 to 0.4 Kg/sq.m at the under drains (100% standby), (For capacity of FP more than 10 MLD)		
21.5	Valves/gates Inlet, outlet, wash water inlet- outlet and all types and sizes of valves/gates as per design of specified make/brand.		
21.6	All types gauges and meters required for filter operations and backwashing etc.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
D	DISINFECTION		
22	Chlorine Contact Tank: Designing providing and constructing chlorine contact chamber with baffle walls for adequate capacity to deal with 1 DWF average flow. The chlorine contact tank should be of 30 min capacity, during average flow to achieve 99.99 % coliform reduction. Chlorine dose shall be maintained as per standard provisions, including designing, providing and constructing water supply provision for chlorination, including providing dewatering and by pass arrangement jointing to final effluent mains and outlet weir etc complete. The effluent quality should match with the standards laid down by Gujarat Pollution Control Board and as per obligatory provision and as detailed specification and as directed by engineer in - charge.		
23	Chlorinator and Chlorinator Room/Tonner Room: Designing, providing and constructing chlorinators vacuum type 2 Nos. (1 working + 1 stand by) with auto switchover facility and having capacity for dosage of 5ppm or adequate for 0.5ppm FRC, chlorine booster pump (1W+1S), chlorine tonner with 15 days storage, chlorination room with specified area etc. complete. Necessary provision of having chlorinator room of adequate size. The chlorinator equipment shall include cost of chlorine cylinders/tonner, piping, valves, measuring and controlling equipment, safety devices, lifting equipment, etc. complete as per IS -10553 (part II) 1982. The tonner room should have minimum 3 MT capacity Hoist for loading and unloading facility. Tonne storage should be distinctly isolated and should be for minimum storage space as directed in the design specification and as per gas laws 1981 and factory act shall be provided. All other matching amenities shall be provided. Minimum 5 MT gantry rail shall be provided for full length of tonner room at 6 m height from level of tonner room, with outlet chamber and treated effluent outlet channel etc complete as per detailed specification.		
E	Sludge treatment Raw/ excess sludge to be treated & digested prior to dewatering by means of belt filter press/ centrifuge/ Combi-machine/ Screw Press/ Bag Filter		
24	Sludge Thickener with equipments: Solids loading rate of 25-35 kg/m ² /day, Designing, providing & constructing watertight of sludge thickener-gravity type (picket fence) in RCC (M-30) with inlet & outlet pipes, central feed well & sludge removal arrangement, grouting wherever necessary with walkway all around of 1.20m with GI pipe railing interconnecting CI pipes all complete as per specifications, having bottom slope 1:6 & min. 4.5m SWD with necessary fixed bridge scraper arrangement as per detailed specifications & necessary inlet & outlet arrangement. All other arrangement as per detailed specifications. (Necessary above 3 MLD). Min sludge concentration of thickened sludge shall be 4%.		
25	Sludge Digester of suitable capacity as per CPHEEO Manual (only cylindrical volume to be considered without hopper bottom), sludge mixing by gas or mechanical mixing system. Sludge digester shall comprise all the fixtures, fasteners, accessories, supernatant handling, PRV, other safety mechanism etc. along with flare system.		
26	Sludge Holding Sump Minimum HRT of 4 hours, Designing, providing and constructing of sludge holding sump and pump for discharging sludge to centrifuge using CI pipe complete as per detailed specification. Agitators/Mixers shall be provided in sump for keeping sludge in suspension. The pump shall be of Helical Screw pumps, 100% standby.		
27	Sludge Dewatering Room with Centrifuge or Belt Pres or Screw Press or Bag Type or Filter Press or Combi-machine: Designing, providing constructing and installing including foundation etc. Sludge Centrifuge or Belt Pres or Screw Press or Bag Type or Filter Press or Combi-machine: to handle the sludge flow as per specifications, with appropriate inlet and outlet provision, sludge dewatering unit drain etc. Complete as per specifications.		
28	Filtrate Pumps with 100% standby, designed to empty Recycle sump in 1 hour		
29	Valves/gates Inlet, outlet, wash water inlet – only CI D/F. and minimum size of 200 mm (for sludge) as per approved make/brand.		
30	All types gauges and meters required for Q & M as per design of specified make/brand.		
31	Dewatering during entire work using any technique.		
32	Necessary Instrumentation and control as per specifications		
33	Outfall Sewer: Designing, providing and constructing appropriate outfall sewer of RCC NP2 pipe, up to plot boundary (as specified) and beyond for treated sewage disposal upto 500m, diameter as per design, including necessary chambers for inspection and cleaning including necessary excavation, dewatering, refilling, concrete encasing/bedding concrete steps to reach the disposal/ nallah bed level, pitching and energy dissipation chamber in nallah portion etc. complete up to 500 m length RCC NP2 pipe line and including all above items.		
34	By pass arrangements RCC pipes with manholes and C.I. sluice gates (MH to be raised above TWL of adjacent unit)		
35	Piping work in CI-LA Class including Sluice valves, Reflux Valves, MS Gates: Providing laying and jointing pipes other than those already included in the above items for interconnection by - pass drains etc. of all units including adequate numbers of manhole chambers. The item includes excavations, refilling and hydraulic testing of pipes, valves, gates, accessories and cost of jointing materials. The items includes required channels with gates for interconnection of units by pass drains etc for all units as directed etc complete as per detailed specifications.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
36	Administrative Building cum Laboratory (G+1): Designing, providing and constructing administrative building, office cum Laboratory including stores. This shall be a building having appropriate carpet area and ground floor and at first floor complete as per specifications including necessary excavation, foundation in RCC M 200 framed structure B, B masonry (1:1- class in C.M. 1:6) 20 mm cement plaster in C.M 1:3 inside and outside painting. Aluminium door and window with glass panels, mosaic tile flooring and skirting and all other allied items, fixtures fastening electrification arrangement water supply arrangement etc complete.		
	a) Ground floor to accommodate administrative office & laboratory		
	b) First floor to accommodate Office of the Plant In Charge, air monitoring equipments: to measure wind direction & speed, hydrogen sulphide concentration etc.		
36.1	Laboratory equipments Laboratory equipment (as per specifications), beautification, telephone and intercom arrangement and wireless system.		
36.2	Furniture and Office Equipments, Office furniture (Make: Godrej/ or similar approved quality) as per specifications		
36.3	Ventilation and Safety equipments as per specifications.		
36.4	Sanitary blocks Carpet area – 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).		
37	Maintenance Workshop of size as per specification		
38	Air blower Building with Air Blowers: Capable of delivering adequate free air for aeration device as well as filter air scouring with suitable pressure (100% standby).		
39	MCC Room of minimum 9 m x 6 m clear inside with safety measures, approval of various statutory/ central/ foreign authority as applicable		
40	Electric installation		
40.1	Both internal and external including entire plant area (as specified).		
40.2	Electric installation - Sub Station Room as per specifications		
41	DG room with DG sets , as per electric load and specifications (50 % energy requirement).		
42	General Infrastructure Development: Scope also includes, Designing, providing and constructing general infrastructure development such as internal roads, compound wall for STP site, internal street and building lightings, pathways of minimum 1 m wide to access all STP units and Entrance Gate in MS fabrication, etc. all complete as per specifications and directed by engineering in charge.		
42.1	Internal roads Asphalt road (4.5 m Minimum) to connect all units from main gate of plot.		
42.2	Compound Wall as per the plant layout, along the boundary of STP site (considering plant layout for intermediate and ultimate build out capacity and 33% landscaping area).		
42.3	Green Belt (33% landscaping area) as per specification		
	Notes		
1	All the above conditions shall form a part and parcel of the tender and must be incorporated in draft tender papers of conventional Sewage Treatment Plants with Biological Nitrogen Removal and Tertiary treatment for phosphorus removal.		
2	The necessary changes should be carried out as per Site condition and project requirements at the time of preparing DTPs.		
3	Fine screens (SS 316) are of mechanically cleaned type for working unit and manual bar screen type (SS 316) for standby unit.		
4	Tertiary units such as flash mixing tanks, coagulant dosing system, flocculation chamber, clarifier or Clariflocculator and filters (optional) shall be provided if required as per process design for AO process to achieve specified effluent quality.		
5	Upto 5 MLD Capacity STP chlorination could be done by using sodium hypochlorite solution. Above 5 MLD capacity gas chlorinator to be provided.		
6	Gravity sludge thickener is not provided upto 3 MLD capacity STP. Sludge will be collected into sludge sump & pumped directly to digester or sludge dewatering system.		
7	Filter press or Bag Type for dewatering can be provided for STP's upto 5MLD capacity.		
8	Chlorinator room not provided for STP upto 3 MLD.		
9	Boundary wall, gate, Internal plant roads, storm water drains, site clearance, landscaping is considered in scope. Plant road shall be 4.5m wide. Landscaping area shall be min. 33% of plant area.		
10	All water retaining structures are in M-30 grade of concrete.		
11	Lead for excavation is considered as 500m.		
12	Grade of steel used is Fe 415.		
13	Peak factor considered for design for plants 2 to 5 MLD is 2.5, 6 to 20 MLD is 2.25.		
14	The rates mentioned above STP are considering sites falling in Seismic Zone III. For sites falling in seismic zone IV and V shall be increased by 5% and 8% respectively.		
15	Structural design criteria approved by technical committee shall be applicable for design.		
16	Hydraulic design of the plant shall be considered with free fall discharge of treated sewage to local water body (above HFL). Hydraulic loss shall be worked out for peak flow condition and shall not exceed 4.5m in any circumstances unless otherwise site specific condition and approved by technical committee.		
17	The cost of sewage pumping station and rising main is not included.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
18	Makes of equipment shall be approved by GWSB.		
19	The rates include excavation, refilling and throwing away extra stuff as directed by the Engineer in Charge.		
20	All other details shall be as per design criteria and detail specifications.		
	The Rates are as under		
1	Fixed cost up to and including up to 1MLD	1No	11,785,714
2	Add(prorate) for capacity above 1MLD up to 2MLD	MLD	11,399,186
3	Cost of 2MLD treatment plant	1No	23,184,900
4	Add (prorate)for capacity above 2MLD up to 5MLD	MLD	7,274,991
5	Cost of 5MLD treatment plant	1No	45,009,873
6	Add (prorate)for capacity above 5MLD up to 10MLD	MLD	6,637,163
7	Cost of 10MLD treatment plant	1No	78,195,689
8	Add (Prorate)for capacity above 10MLD to 25MLD	MLD	5,745,249
9	Cost of 25MLD treatment plant	1No	184,374,422
10	Add (prorate)for capacity above 25MLD to 50MLD	MLD	4,434,375
11	Cost of 50MLD treatment plant	1No	275,233,797
12	Add (prorate)for capacity above 50MLD to 100MLD	MLD	3,928,571
13	Cost of 100MLD treatment plant	1No	471,662,369
14	Add (prorate)for capacity above 100MLD	MLD	3,633,929

SECTION : 2.C - Sewage Treatment Plant				
ITEM NO.	DESCRIPTION	UNIT		Rate for 2022-23
2	Sequential Batch Reactor Technology (SBR TECHNOLOGY)			
A	Designing, providing, constructing, hydraulic testing, commissioning and giving satisfactory trials of STP consisting of Inlet Chamber, Screen Chamber, Detritus Tanks, Distribution Chamber and SBR Basins, Sludge Sump, Chlorine Contact Tank, Chlorinator Room / Shed, Sludge Dewatering Equipment, necessary piping work with required valves, gates, drains, pathways, Administration Block cum Laboratory, Laboratory Equipments, Internal Roads, Pathways, compound wall, Tools and Plants, complete as turnkey job with all involved civil, electrical, instrumentation and mechanical works inclusive of following items, units as per detailed specifications for civil, electrical and mechanical components with all duties and taxes etc, complete to achieve BOD < 10ppm, TSS < 10ppm, Biological TN < 10ppm & PO4 < 2ppm to get recyclable quality of water for industrial / agricultural purposes. The Coagulant Dosing System shall be provided as an optional/ back up. All units shall be interconnected with administration building by Suitable or RCC overhead walkways.			
	UNITS INCLUDED:			
A	PRIMARY TREATMENT			
1	Inlet Chamber : Designing, providing, and constructing RCC (M:30) inlet chamber for the peak flow as per CPHEEO Manual including necessary excavation in all types of strata including walkway all around the periphery, Inlet chamber having minimum HRT of 60 seconds, each compartment will have steel gates with extension rod, head stock operating wheels, GI pipe railing etc. The work includes providing and making necessary arrangements to connect the flow to screen chamber by approach channel as directed and as per specifications.			
2	Screen Chamber : Designing, providing, constructing, testing and commissioning of Two approach channels (min 4.5 m long), mechanically cleaned bar rack screen (8 mm clear opening 10 mm the. flats), Escalator screens, with 100% standby manual fine screen (10 mm clear opening) MCC, SS316, GI sluice gates (one before screen & one after screen), designed fast per CPHEEO Manual in RCC (M-30), including inlet pipe/channel from inlet chamber, outlet pipe / channel to detritus tank, free board of 0.5 m minimum, RCC walkway 1.2 m wide with GI pipe railing, RCC stair case of 1.2 m width from GI to screen chamber with operating platform and belt conveyor system incl. panel & push bottom switch at local level as well as MCC room for two way control.			
3	Grit Chamber : Designing, providing and constructing grit Chamber- Detritus or vortex type or aerated type (100% standby), mechanically operated in RCC (M 30) capable of removing 100% of 0.2 mm size particle and above, having specific gravity 2.40, HRT of 1 minute at average flow (Detritus Tank), horizontal velocity not exceeding 0.30 m/sec (Detritus Tank) at peak flow with suitable arrangement of separation of grit from putrescible solids. Inlet and outlet channels of required sizes as may be required to connect the flow to connecting unit etc. Complete including hydraulic testing for water tightness of structure having minimum FB of 0.3 m, wash out arrangement to Grit chamber and platform 1.2 m wide, RCC walkway with GI pipe handling shall be provided. A pit for collecting grit conveyed by conveyor shall be provided, It should be suitable to handle the grit for carting. All arrangements shall be as detailed specifications and as directed.			
4	Parshall flume having head loss limited to 0.15 m with necessary flow measuring devices/meter consisting of digital indicator in LPS & MLD			
B	SECONDARY TREATMENT			
5	SBR Basins: Designing, providing and constructing in RCC (M 300), CASP basins for biological removal of BOD along with built-in nitrification-denitrification, Bio-P removal in compartments to handle combine flow of 1 DMF incoming flow and recirculation flow including construction of selector compartments and providing 1.2 m wide clear approach walkways, expansion joints wherever necessary, including foundations etc as per specifications, Peak factor shall be 2, F/M ratio shall be 0.15, complete with air blowers, fine diffused aeration grid with Retrivable type installation equipment and FB 0.5 m and SWD as required, DO level in basin to be minimum 2 mg/l complete with "Oxygen Uptake Rate" control system and all related instruments. Stainless steel decanters and automation works, MLSS concentrations shall be 3000 - 5000 mg/l or more, MLVSS to MLSS ratio to be 0.6-0.7, HRT shall be min. 13.5 hrs and SRT suitable for fully digested sludge. SBR process shall have independent steps like Fill & aeration, Settling (Sedimentation/clarification), Decanting without overlapping each other. Since it is complete batch process, filling will not be acceptable during settling or Decanting. Minimum decanting depth shall not be less than 2.20 m. The system should work on a gravity influent condition. No influent/effluent equalization tanks or flash filling is accepted. It should have all other related works.			
	SRT shall be suitably provided to achieve N, P removal. Since these are the technology driven plants, bidders has to adopt well established, well tested and proven, IIT/ NEERI evaluated/approved SBR process /specifications and at least 50 % of the tendered capacity has been in successfully operating condition as per the outlet criteria mentioned in above in Government organizations of India since last two years including one year of standard defect liability period. Bidder has to tie-up with the well qualified technology provider who having experience in India at least 50 % of the tendered capacity with 1 year O & M experience in government organizations of India.			
6	Process Air Blowers or Aspirator Aerator: The Plant should be based on Dissolved Oxygen/Oxygen Uptake Rate Control with VFD driven Aeration Device. The Aeration System shall be designed for 110 % Capacity of the design Air requirement. The aeration Blower/Aeration Device shall be having 100% installed standby unit. Air diffuser shall be of disk/ tubular type, retrievable. The wetted part of the aeration system of non-corrosive materials such as UPVC, Blowers shall be housed in process air blower building. The minimum area of the building is 20 sq.m. and height of 5m (min).			
7	Raw sludge pump house: Raw Sludge Sump minimum HRT of 30 minutes & depth of sludge limited to 2 m, 4.5 m minimum diameter, separate panel room outside the wet well			

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
C	DISINFECTION		
8	Chlorine Contact Tank: Designing providing and constructing chlorine contact chamber of adequate capacity to deal with 1 DWF average flow. The chlorine contact tank should be of 30 min capacity, during average flow to achieve 99.99 % coliform reduction. Chlorine dose shall be maintained as per standard provisions, including designing, providing and constructing water supply provision for chlorination, including providing dewatering and by pass arrangement joining to final effluent mains and outlet weir etc complete. The effluent quality should match with the standards laid down by Gujarat pollution control board and as per obligatory provision and as detailed specification and as directed by engineer in - charge.		
9	Chlorinator and Chlorinator Room/Tonner Room: Designing, providing and constructing chlorinators vacuum type 2 Nos. (1 working+ 1 stand by) with auto-switchover facility and having capacity for dosage of adequate chlorine to ensure 99.99 % coliform reduction as per obligatory provisions and detailed specifications with necessary provision of having chlorinator room of adequate size. The chlorinator equipment shall include cost of chlorine cylinders/tonner, piping, valves, measuring and controlling equipment, safety devices, lifting equipment, etc. complete as per IS -10553 (part II) 1982. The tonner room should have minimum 3 MT capacity Hoist for loading and unloading facility. Tonner storage should be distinctly isolated and should be for minimum storage space as directed in the design specification and as per gas laws 1981 and factory act shall be provided. All other matching amenities shall be provided. Minimum 5 MT gantry rail shall be provided for full length of tonner room at 5 m height from level of tonner room, with outlet chamber and treated effluent outlet channel etc complete as per detailed specification.		
10	Sludge treatment		
10.1	Sludge Thickener with equipments: Solids loading rate of 25-35 kg/m ² /day; Designing, providing & constructing watertight of sludge thickener-gravity type (picket fence) in RCC (M-30) with inlet & outlet pipes, central feed well, sludge it & sludge removal arrangement, grouting wherever necessary with walkway all around of 1.20m with GI pipe railing interconnecting CI pipes all complete as per specifications, having bottom slope 1:6 & min. 4.5m SWD with necessary fixed bridge scraper arrangement as per detailed specifications & necessary inlet & outlet arrangement. All other arrangement as per detailed specifications. (One unit upto 10 MLD and two units for more than 10 MLD). Min sludge concentration in thickened sludge shall be 4%.		
10.2	Sludge Holding Sump : Designing, providing and constructing of sludge sump and pump house of appropriate size with pumps, ceiling height minimum 6 m over sump for discharging sludge to centrifuge using CI pipe complete as per detailed specification.		
10.3	Sludge Dewatering Equipment Room with Centrifuge or belt press or screw press or Filter Press or Combi-machine or Bag Type: Designing, providing constructing and installing including foundation etc. Centrifuge or belt press or screw press or Filter Press or Combi-machine or bag Type to handle the sludge flow as per specifications, with appropriate inlet and outlet provision, sludge dewatering unit drain etc. Complete as per specifications.		
10.4	Sludge/ filtrate Pumps		
	a) Capacity to pump sludge in 1 hour with 100% standby (20-25% efficiency, "C" value to be adopted 50% than that of water to calculate friction loss)		
	b) Filtrate from thickening and dewatering to be conveyed only by PVC 10 kg/sq.cm.		
11	Valves/gates		
	Inlet, outlet, wash water inlet – only CI D/F and minimum size of 200 mm as per approved make/brand.		
12	All types gauges and meters required for O & M as per design of specified make/brand.		
13	Necessary instrumentation and control as per specifications		
14	Outfall Sewer: Designing, providing and constructing appropriate outfall sewer of RCC NP2 pipe, to discharge treated effluent from outlet chamber after chlorination tank to the disposal point at outlet battery limit of STP including necessary chambers for inspection and cleaning including necessary excavation, dewatering, refilling, concrete encasing/bedding concrete steps to reach the disposal/ nallah bed level, pitching and energy dissipation chamber in nallah portion etc. complete up to 500 m length RCC NP2 pipe line and including all above items.		
15	By pass arrangements RCC pipes with manholes and G.I. sluice gates (MH to be raised above TWL of adjacent unit)		
16	Piping work in CI-LA Class including Sluice valves, Reflux Valves, MS Gates: Providing laying and jointing pipes other than those already included in the above items for interconnection by - pass drains etc. of all units including adequate numbers of manhole chambers. The item includes excavations, refilling and hydraulic testing of pipes, valves, gates, accessories and cost of jointing materials. The item includes required channels with gates for interconnection of units by pass drains etc for all units as directed etc complete as per detailed specifications.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23		
17	Administrative Building cum Laboratory (G+1): Designing, providing and constructing administrative building, office cum Laboratory including stores. This shall be a building having appropriate carpet area and ground floor and at first floor complete as per specifications including necessary excavation, foundation in RCC M 200 framed structure B. S masonry (1:1- class in C.M. 1:6) 20 mm cement plaster in C.M 1:3 inside and outside painting, Aluminium door and window with glass panels, mosaic tile flooring and skirting and all other allied items, fixtures fastening electrification arrangement water supply arrangement etc complete.				
	a) Ground floor to accommodate administrative office & laboratory				
	b) First floor to accommodate Office of the Plant in Charge, air monitoring equipments to measure wind direction & speed, hydrogen sulphide concentration etc.				
17.1	Laboratory equipments Laboratory equipment (as per specifications), beautification, telephone and intercom arrangement and wireless system.				
17.2	Furniture and Office Equipments. Office furniture (Make: Godrej/ or similar approved quality) as per specifications				
17.3	Ventilation and Safety equipments as per specifications				
17.4	Sanitary blocks Carpet area – 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).				
18	Maintenance Workshop of size as per specification				
19	Air blower Building with Air Blowers: Capable of delivering adequate free air for aeration device with suitable pressure (100% standby).				
20	MCC Room of minimum 9 m x 6 m clear inside with safety measures, approval of various statutory/ central/ foreign authority as applicable.				
21	Electric Installation				
21.1	Both internal and external including entire plant area (as specified).				
21.2	Electric installation - Sub Station Room as per specifications.				
22	DG room with DG sets , as per electric load and specifications (50 % energy requirement).				
23	General Infrastructure Development: Scope also includes: Designing, providing and constructing general infrastructure development such as internal roads of minimum 6 mtr wide, compound wall for STP site, internal street and building lightings, pathways of minimum 1 m wide to access all STP units and Entrance Gate in MS fabrication, etc. all complete as per specifications and directed by engineering in charge.				
23.1	Internal roads Asphalt road (Minimum 4.5 m) to connect all units from main gate of plot.				
23.2	Compound Wall as per the plant layout, long the boundary of STP site (considering plant layout for intermediate and ultimate build out capacity and 33% landscaping area).				
23.3	Green Belt (33% landscaping area) as per specification				
	NOTES: 1. Fine screens (SS 316) are of mechanically cleaned type for working unit and manual bar screen type (SS 316) for standby unit. 2. Upto 5 MLD Capacity STP chlorination may be done by using sodium hypochlorite solution. Above 5 MLD capacity gas chlorinator to be provided. 3. Gravity sludge thickener is not provided upto 3 MLD capacity STP. Sludge will be collected into sludge sump & pumped directly to sludge dewatering system. 4. Filter press or Bag Type dewatering can be provided for STP's upto 5MLD capacity. 5. Chlorinator room not provided for STP upto 3 MLD. 6. Boundary wall, gate, Internal plant roads, storm water drains, site clearance, landscaping is considered in scope. Plant road shall be 4.5m wide. 7. All water retaining structures are in M-30 grade of concrete. 8. Lead for excavation is considered as 500m. 9. Grade of steel used is Fe 415. 10. Peak factor considered for design for plants 2 to 5 MLD is 2.5, 6 to 20 MLD is 2.25.				
	11. The rates mentioned above STP are considering sites falling in Seismic Zone-III. For sites falling in seismic zone-IV and V shall be increased by 5% and 8% respectively. 12. Structural design criteria approved by technical committee shall be applicable for design. 13. Hydraulic design of the plant shall be considered with free fall discharge of treated sewage to local water body (above HFL). Hydraulic loss shall be worked out for peak flow condition and shall not exceed 4.5m in any circumstances unless otherwise site specific condition and approved by technical committee. 14. The cost of sewage pumping station and rising main is not included. 15. Makes of equipment shall be approved by GVSSB. 16. The rates includes excavation, refilling and throwing away extra stuff as directed by the Engineer in Charge. 17. All other details shall be as per design criteria and detail specifications.				
No.	Capacity of Plant MLD	No. of Basin	Area Req (Ha)	Rate per MLD Rs. In Lakh	
1	Up to 2	2	MLD	0.20	200.89
	Cost of 2MLD treatment plant				401.79
2	2 to 3 mld prorata	2	MLD	0.25	133.93
	Cost of 3MLD treatment plant				535.71

ITEM NO.	DESCRIPTION	UNIT		Rate for 2022-23
3	3 to 5	2	MLD	0.40
	Cost of 5MLD treatment plant			869.64
4	5 to 10	2	MLD	0.70
	Cost of 10MLD treatment plant			982.14
5	10 to 15	2	MLD	0.75
	Cost of 15MLD treatment plant			1,272.32
6	15 to 20	4	MLD	0.80
	Cost of 20MLD treatment plant			1,571.43
7	20 to 25	4	MLD	1.00
	Cost of 25MLD treatment plant			1,897.32
8	25 to 30	4	MLD	1.20
	Cost of 30MLD treatment plant			2,196.43
9	30 to 40	4	MLD	1.60
	Cost of 40MLD treatment plant			2,821.43
10	40 to 50	4	MLD	1.75
	Cost of 50MLD treatment plant			3,392.86
11	50 to 60	4	MLD	1.90
	Cost of 60MLD treatment plant			3,910.71
12	60 to 75	4	MLD	2.25
	Cost of 75MLD treatment plant			4,687.50
13	75 to 100	6	MLD	2.40
	Cost of 100MLD treatment plant			5,982.14
14	100 to 125	6	MLD	3.00
	Cost of 125MLD treatment plant			7,142.86
15	125 to 150	6	MLD	3.50
	Cost of 150MLD treatment plant			8,035.71
3	Moving Bed Bio Reactor Technology (MBBR)			
	Designing (hydraulic, process, structural and aesthetic), providing, construction, hydraulic testing, commissioning and giving satisfactorily trial run for 3 months of STP consisting of Inlet Chamber, Screen chamber, Grit Separator, MBBR (Based on technologies providing attached growth on plastic media kept suspended in the sewage due to low density of plastic & provided with diffused air for aeration with tank, Secondary Clarifier, Sludge collection sump, Gravity Sludge Thickener, Chlorine Contact Tank, Chlorinator room, Sludge Dewatering Equipment, associated piping work with required valves, gates, drains; Administration Block cum Laboratory, associated buildings, Laboratory Equipments, inclusive of mandatory spare parts and instrumentation, etc. complete as turnkey job with all involved civil, electrical, instrumentation and mechanical works inclusive of following items, units as per detailed specifications for civil, electrical, instrumentation and mechanical components with all duties and taxes etc. complete to achieve BOD < 10ppm, TSS < 10ppm, Biological TN < 10ppm & PO4 < 2ppm to get recyclable quality of water for industrial / agricultural purposes. The Coagulant Dosing System is mandatory for chemical phosphorus removal. All units shall be interconnected with administration building by Suitable or RCC overhead walkways.			
	Min. freeboard of 0.3m shall be maintained unless otherwise asked for 0.5m stipulated for specific units.			
A	PRIMARY TREATMENT			
1	Inlet Chamber : Designing, providing, and constructing RCC (M:30) inlet chamber for the peak flow as per CPHEEO Manual including necessary excavation in all types of strata including walkway all around the periphery, Inlet chamber having minimum HRT of 60 seconds, each compartment will have steel gates with extension rod, head stock operating wheels, GI pipe railing etc. The work includes providing and making necessary arrangements to connect the flow to screen chamber by approach channel as directed and as per specifications.			
2	Screen Chamber : Designing, providing, constructing, testing and commissioning of Two approach channels (min 4.5 m long), mechanically cleaned bar rack screen (6 mm clear opening 10 mm the flats), Escalator screens, with 100% standby manual fine screen (10 mm clear opening) MCC/SS316, Cf sluice gates (one before screen & one after screen) , designed as per CPHEEO Manual in RCC (M -30), including inlet pipe/channel from Inlet chamber, outlet pipe / channel to detritus tank, free board of 0.5 m minimum, RCC walkway 1.2 m wide with GI pipe railing, RCC stair case of 1.2 m width from GL to screen chamber, with operating platform and belt conveyor system incl. panel & push bottom switch at local level as well as MCC room for two way control.			
3	Grit Chamber : Designing, providing and constructing grit Chamber- Detritus or vortex type or aerated type (100% standby), mechanically operated in RCC (M 30) capable of removing 100% of 0.2 mm size particle and above, having specific gravity 2.40, HRT of 1 minute at average flow (Detritus Tank), horizontal velocity not exceeding 0.30 m/sec (Detritus Tank) at peak flow with suitable arrangement of separation of grit from putrescible solids: Inlet and outlet channels of required sizes as may be required to connect the flow to connecting unit etc. Complete including hydraulic testing for water tightness of structure having minimum FB of 0.3 m, wash out arrangement to Grit chamber and platform 1.2 m wide RCC walkway with GI pipe handling shall be provided. A pit for collecting grit conveyed by conveyor shall be provided. It should be suitable to handle the grit for carting. All arrangements shall be as detailed specifications and as directed.			
4	Parshall flume having head loss limited to 0.15 m with necessary flow measuring devices/meter consisting of digital indicator in LPS & MLD			
B	SECONDARY TREATMENT			

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
5	Distribution Chamber Distribution chamber with CI sluice gates for each basin of MBBR and bypass chamber, min. 3m x 2m of required depth, operating platform with CI pipe to connect to MBBR basins. Bypass pipe from distribution chamber upto inlet of CCT shall be provided in RCC pipe with manholes and CI sluice gates.		
6	MBBR Tank Minimum Total HRT of 6.0 hours (at average flow with Aerobic Detention Time - 4.5 Hrs & Anoxic Detention Time -1.5 Hrs). Designing, providing & constructing in RCC (M-30) biological reactor tank for removal of BOD and T-N to handle the average flow & having hydraulics suitable to handle peak flow conditions with suitable 1.2m wide walkway, expansion joints as required, including foundation etc as per specifications. The tank shall be equipped with inlet & outlet arrangement, process air blowers for supply of air, fine bubble diffusers of EPDM material / Coarse bubble aeration grid in SS-304, PP (virgin plastic material of minimum 600 m2 specific surface area/ m3) carrier bio media etc. FB of 0.6m & SWD as required should be complete as per detailed specifications. The outlet of tank shall be provided with strainer (SS-304) for preventing escape of Media from the tank. (One unit upto 10 MLD and two units for more than 10 MLD) Air pipe of GI and Sub water pipe of SS316 material. Volume of the bio media shall not be less than 20% of the volume of the tank. Process air blowers of rotary twin lobe shall be capable of providing adequate oxygen for biological process to maintain minimum DO of 2 mg/lit in MBBR basin and also to keep media in suspension. In addition there would be internal sludge recirculation facility from Aerobic Tank to Anoxic Tank as per standard Design practice.		
7	Process Air Blowers or aeration Device The Plant should be based on Dissolved Oxygen/Oxygen Uptake Rate Control with VFD driven Aeration Device. The Aeration System shall be designed for 110 % Capacity of the design Air requirement. The aeration Blower/Aeration Device shall be having 100% installed standby unit. Air diffuser shall be of disk/ tubular type, fixed/retrievable. The wetted part of the aeration system of non-corrosive materials such as UPVC. Blowers shall be housed in process air blower building. The minimum area of the building is 20 sq.m. and height of 5m (min). The surface Aerators are not acceptable.		
8	Secondary Clarifier Designing, providing & constructing in RCC (M-30) water tight secondary clarifier as per design guidelines by CPHEEO manual. The settler shall be provided with a scraper mechanism in MS with epoxy painting for collecting the settled solids at the bottom. The sludge will be collected in sludge sump by gravity & supernatant will flow over a weir & will be collected in a launder. Return Sludge Pump House - wet well with minimum HRT of 60 minutes upto flow of 80% of return sludge capacity and depth of sludge to be limited to 2m, separate panel room outside wet well, 100% standby pumps.		
9	Raw sludge pump house Sump with minimum HRT of 30 minutes & depth of sludge limited to 2 m, 4.5 m minimum diameter, separate panel room outside the wet well		
C	TERTIARY TREATMENT Coagulant Dosing System/ Flash Mixer + Flocculation + Settling Tank/ Clariflocculator. The design values of the tertiary treatment units are to be considered from CPHEEO Manual on Water Supply & Treatment.		
10	Flash Mixer Rapid mixing device design conforming to IS: 7090 of 1985. Detention time 60 sec, velocity gradient 300-400 sec ⁻¹ with fans gear and motor assembly as per design.		
11	Coagulant Dosing System Dosing Tanks- 2Nos. With mixing, carrying, dosing with piping arrangement. Chemical Storage area as per data/specifications.		
12	Flocculation Tank RCC Hopper bottom units having slope >45 Deg as per hydraulic and process design with detention period 20 minutes with flocculator paddles with gear and motor assembly as per design. Flocculator design conforming to IS: 7208-1974 (Type-C). Surface loading rate 8000 liters/hour/sq m and depth 2.5m using PVC media with supporting arrangement and sludge collecting pipes as per detail specifications.		
13	Filter Feed Sump & Pumps		
14	Pressure Sand Filters for STP capacities less than 10MLD		
15	Rapid Sand Gravity Filters with shed Applicable to plant capacity above 10MLD only. Filter House (RCC framed structure with infill brick masonry walls) and RCC filter beds with sand and gravel bedding as per hydraulic and process design adopting 6000 Liters/hour/sq m. Filtration rate with 2m water above sand media with under drainage system and inlet, outlet, backwash (rate 600LPM per Sq.m.) piping, pipe gallery, platform min. 5.5m in width and valves/gates arrangement as per design and detail specifications.		
15.1	a. Filter Sand Effective size 0.45 to 0.7 mm, uniformity coefficient not more than 1.7 nor less than 1.3; depth of sand 0.75m, free board 50cm, gravel 0.45m in depth, sand and gravel conforming to IS: 8491 (I)- 77, backwash by air wash (if specified) and hard wash by water standard appurtenances (to be specified), rate of flow controller, filter gauge, sand expansion gauge, etc.		
15.2	Wash Water Tank Wash Water tanks of capacity equal to 2% of designed quantity of filtered water in a day (+) 10% with 8 to 10 Mtr Head (as specified)		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
15.3	Wash Water Pumps Wash Water Pumps with 100% Standby		
15.4	Air Blowers Capable of delivering 750 to 833 LPM per sq.m of free air flow area at 0.35 to 0.4 Kg/sq.m at the under drains (100% standby). (For capacity of FP more than 10 MLD)		
15.5	Valves/gates Inlet, outlet, wash water inlet- outlet and all types and sizes of valves/gates as per design of specified make/brand.		
15.6	All types gauges and meters required for filter operations and backwashing etc.		
15.7	The filtration system could also be well tested cloth media disk filtration.		
D	DISINFECTION		
16	Chlorine Contact Tank Designing, providing and constructing chlorine contact tank of adequate capacity to deal with average flow. The CCT shall have baffle walls for enhancing mixing of chlorine. One unit of two compartments, contact time 30 minutes of average flow to achieve 99.99% reduction in coliform. Chlorine dosage shall be minimum 5 ppm provision including designing, providing & constructing water supply system for chlorination, chemicals preparation, domestic use, gardening etc. complete.		
17	Chlorinator & Chlorinator Room / Tonner Room Designing, providing and constructing vacuum type chlorinators having adequate capacity for dosage of adequate chlorine to ensure 99.99% coliform reduction as per obligatory provisions detailed specifications with necessary provision of having chlorinator room of adequate size. The chlorinator (min. 1W+1SB) equipment shall include chlorine cylinders, tonners, piping, valves, measuring controlling equipments, safety devices, lifting equipment, chlorine booster pumps (min. 1W+1SB) etc. complete as per IS-10553 (Part-II). The tonner room should have min. 3 MT capacity crane for loading & unloading facility, neutralization pit. Tonner storage should be distinctly isolated and should have min. storage space for 15 days as per the detailed specifications & as per gas law & factory act shall be provided. Chlorination room of minimum 25 m ² area shall be provided. All other matching amenities shall be provided, 5 MT gantry rail shall be provided for full length of tonner room a 6 m Ht from level of tonner room with outlet.		
18	Sludge treatment		
18.1	Gravity Sludge Thickener Solids loading rate of 25-35 kg/m ² /day. Designing, providing & constructing watertight of sludge thickener-gravity type (picket fence) in RCC (M-30) with inlet & outlet pipes, central feed well, sludge it & sludge removal arrangement, grouting whenever necessary with walkway all around of 1.20m with GI pipe railing interconnecting CI pipes all complete as per specifications, having bottom slope 1:6 & min. 4.5m SWD with necessary fixed bridge scraper arrangement as per detailed specifications & necessary inlet & outlet arrangement. All other arrangement as per detailed specifications. (One unit upto 10 MLD and two units for more than 10 MLD). Min sludge concentration in thickened sludge shall be 5%.		
18.2	Sludge Holding Sump Minimum HRT of 4 hours. Designing, providing and constructing of sludge holding sump and pump for discharging sludge to centrifuge using CI pipe complete as per detailed specification. Agitators/Mixers shall be provided in sump for keeping sludge in suspension. The pump shall be of Helical Screw pumps, 100% standby.		
18.3	Sludge Dewatering Equipment Room with Centrifuge or belt press or screw press or Filter Press or Combi-machine or Bag Type: Designing, providing constructing and installing including foundation etc. Centrifuga or belt press or screw press or Filter Press or Combi-machine or bag Type to handle the sludge flow as per specifications, with appropriate inlet and outlet provision, sludge dewatering unit drain etc. Complete as per specifications.		
18.4	Sludge/ filtrate Pumps a) Capacity to pump sludge in 1 hour with 100% standby (20-25% efficiency, "C" value to be adopted 50% than that of water to calculate friction loss) b) Filtrate from thickening and dewatering to be conveyed only by PVC 10 kg/sq.cm.		
19	Valves/gates Inlet, outlet, wash water inlet – only CI D/F and minimum size of 200 mm as per approved make/brand.		
20	All types gauges and meters required for O & M as per design of specified make/brand.		
21	Dewatering during entire work using any technique.		
22	Necessary instrumentation and control as per specifications.		
23	Outfall Sewer It shall be designed for peak flows. Designing, providing, constructing appropriate sized outfall sewer of RCC (NP2 class) pipe to discharge treated effluent to the local water body/malah at the point shown on the drawing including necessary chambers for inspection & cleaning including excavation, dewatering, refilling including appropriate bedding.		
24	Piping work including Valves and Gates Providing, laying and jointing plant pipes as per specifications, including interconnection bypass arrangement etc. of treatment units including adequate numbers of manhole chambers. The item includes excavations, refilling & hydraulic testing of pipes, valves, gates, accessories & cost of jointing materials. The item includes required channels with gates or interconnection of units, etc. for all units as directed etc. complete as per detailed specifications. Sludge pipes shall be sized for maintaining minimum velocity for prevention of solids.		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
25	Administrative Building cum Laboratory (G+1): Designing, providing and constructing administrative building, office cum Laboratory including stores. This shall be a building having appropriate carpet area and ground floor and at first floor complete as per specifications including necessary excavation, foundation in RCC M 200 framed structure B. B masonry (1:1 class in C.M. 1:6) 20 mm cement plaster in C.M 1:3 inside and outside painting. Aluminium door and window with glass panels, mosaic tile flooring and skirting and all other allied items, fixtures fastening electrification arrangement water supply arrangement etc complete.		
	a) Ground floor to accommodate administrative office & laboratory		
	b) First floor to accommodate Office of the Plant In Charge, air monitoring equipments to measure wind direction & speed, hydrogen sulphide concentration etc.		
25.1	Laboratory equipments Laboratory equipment (as per specifications), beautification, telephone and intercom arrangement, and wireless system.		
25.2	Furniture and Office Equipments, Office furniture (Make, Godraj or similar approved quality) as per specifications		
25.3	Ventilation and Safety equipments as per specifications		
25.4	Sanitary blocks Carpet area – 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).		
26	Maintenance Workshop of size as per specification		
27	Air blower Building with Air Blowers: Capable of delivering adequate free air for aeration device with suitable pressure (100% standby).		
28	MCC Room of minimum 9 m x 6 m clear inside with safety measures, approval of various statutory/ central/ foreign authority as applicable		
29	Electric Installation: Both internal and external including entire plant area as per technical specifications. DG set shall be provided for min 50% of electrical load on average flow condition. DG room shall be provided. Instrumentation shall be provided in the plant which includes level sensors, DO sensor, residual chlorine analyser, pressure gauges, flow meters, level switches, pressure indicating and temperature transmitters, alarms, etc. Maintenance workshop of size 5m x 4m x 3.5m shall be provided.		
30	General Infrastructure Development: Scope also includes: Designing, providing and constructing general infrastructure development such as internal roads of minimum 8 mtr wide, compound wall for STP site, internal street and building lightings, pathways of minimum 1 m wide to access all STP units and Entrance Gate in MS fabrication, etc. all complete as per specifications and directed by engineering in charge.		
30.1	Internal roads Asphalt road (Minimum 4.5 m) to connect all units from main gate of plot.		
30.2	Compound Wall as per the plant layout, along the boundary of STP site (considering plant layout for intermediate and ultimate build out capacity and 33% landscaping area).		
30.3	Green Belt (33% landscaping area) as per specification		
Sr. No.	Capacity of Plant (MLD)		Rate (Rs. in Lacs per MLD)
1	Up to 2		189.29
	Cost of 2MLD treatment plant		378.57
2	2 to 3		122.32
	Cost of 3MLD treatment plant		500.89
3	3 to 5		55.36
	Cost of 5MLD treatment plant		611.61
4	5 to 10		54.46
	Cost of 10MLD treatment plant		863.93
5	10 to 15		59.57
	Cost of 15MLD treatment plant		1,151.79
6	15 to 20		44.64
	Cost of 20MLD treatment plant		1,375.00

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
	NOTES: 1. Fine screens (SS 316) are of mechanically cleaned type for working unit and manual bar screen type (SS 316) for standby unit. 2. For chemical precipitation, Flash mixing Tank and Flocculation Chamber are optional. The design values of the coagulation systems are to be considered from CPHEEO Manual on Water Supply & Treatment. 3. Upto 5 MLD Capacity STP chlorination may be done by using sodium hypochlorite solution. Above 5 MLD capacity gas chlorinator to be provided. 4. Gravity sludge thickener is not provided upto 3 MLD capacity STP. Sludge will be collected into sludge sump & pumped directly to sludge dewatering system. 5. Filter press or Bag Type dewatering can be provided for STP's upto 5MLD capacity. 6. Chlorinator room not provided for STP upto 3 MLD. 7. Boundary wall, gate, Internal plant roads, storm water drains, site clearance, landscaping is considered in scope. Plant road shall be 4.5m wide. 8. All water retaining structures are in M-30 grade of concrete. 9. Lead for excavation is considered as 500m. 10. Grade of steel used is Fe 415. 11. Peak factor considered for design for plants 2 to 5 MLD is 2.5, 6 to 20 MLD is 2.25.		
	12. The rates mentioned above STP are considering sites falling in Seismic Zone III. For sites falling in seismic zone IV and V shall be increased by 5% and 8% respectively. 13. Structural design criteria approved by technical committee shall be applicable for design. 14. Hydraulic design of the plant shall be considered with free fall discharge of treated sewage to local water body (above HFL). Hydraulic loss shall be worked out for peak flow condition and shall not exceed 4.5 m in any circumstances unless otherwise site specific condition and approved by technical committee. 15. The cost of sewage pumping station and rising main is not included. 16. Makes of equipment shall be approved by GVSSB. 17. The rates includes excavation, refilling and throwing away extra stuff as directed by the Engineer in Charge. 18. All other details shall be as per design criteria and detail specifications.		
4	Waste Stabilization Pond(Oxidation Pond)		
	Constructing Waste stabilization pond of size as per design and drawing including providing and laying flat brick pitching 12 cm thick in C.M. 1:6 including filling in joints with C.M. and cement pointing 1:2 on surface, providing and laying dry rubble pitching 20 cm thick at side of embankment of oxidation pond, providing and fixing/filling inlets, outlets, distribution boxes, valves and gates levelling the bed and constructing earthen embankment of size and slope in 30cm layers including watering and consolidating to MDG At OMG as per soil expert's advice.		
	A) Up to 2 MLD	MLD	1,091,071.43
	B) Beyond 2MLD but not exceeding 4MLD	MLD	960,714.29
	C) Beyond 4MLD but not exceeding 10 MLD	MLD	974,107.14
	D) Beyond 10MLD	MLD	956,250.00
5	Aerated lagoon type sewage treatment plant		
5	Designing (hydraulic, process, structural and aesthetic), constructing and commissioning Aerated Lagoon Sewage Treatment Plant consisting of all Civil, Mechanical, Electrical, instrumentation components of various sub-works as given below including necessary hydraulic testing, structural testing, equipment testing, trial run for 3 months, etc. complete as directed by Engineer-in-charge (turn-key job).		
5.1	Minimum free board of 0.6 m shall be maintained unless other wise asked for 0.5 m stipulated for specific units.		
5.2	Inlet chamber having minimum HRT of 60 seconds with platform, hand railing & hand wheel operated CI sluice gates for each channel and plant bypass mechanism		
5.3	Two approach channels (min 4.5 m long), mechanically cleaned bar rack screen 100% standby (20 mm clear opening 10 mm ths, flats), CI sluice gates (one before screen & one after screen) with operating platform and walkway on both sides with hand railing, belt conveyor system incl. panel & push bottom switch at local level as well as MCC room for two way control		
5.4	Grit Chamber (100% standby units) of 1 m and surface loading suitable for sp. Gr of 2.4, HRT of 1 minute at average flow, horizontal velocity not exceeding 0.30 m/sec. at peak flow comprising CI sluice gates at upstream to regulate flows to either chamber as well as bypass units		
5.5	Parshall flume having head loss limited to 0.15 m with necessary flow measuring devices/meter consisting of digital indicator in lps & mld		
5.6	Distribution chamber with CI sluice gates for each lagoon & bypass chamber, min 2.4 m x 1.8 m of required depth, operating platform with CI pipe upto central pier		

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
5.7	Facultative aerated lagoons including all excavations/civil works/embankment work/brick/stone pitching, baffles, fixed platforms, walk ways with railings, fixed type surface aerators, polishing pond if required as per specifications etc. complete. The design considerations shall be as stated earlier and shall conform to the latest stipulation of Manual on Sewerage & Sewage Treatment, CPHEEO, Ministry of Urban Development. The design of the Surface Aeration System shall be worked out as per design standard criteria as per the Oxygen transfer efficiency given by the approved manufacturers. Necessary calculations of oxygen demand using standard formula taking into consideration the oxygen saturation value of sewage, temperature, barometric pressure, D.O to be maintained in the waste etc. including calculations for determining conversion factor for assessing oxygen deviations from standard conditions to field conditions should be submitted along with the bidder's design information.		
	Surface fixed type aerators, is worked out. Each radial flow low speed aerator shall comprise:		
	Suitable HP electric motor, 1440 rpm, TEFC type, IP 55 PROTECTION, CLASS F insulation, vertical flange mounted, Aerator duty HELICAL GEAR BOX with service factor of 2, drywell arrangement on output shaft to make it oil leak proof, integrally cast MOUNTING BLOCKS WITH CASTING to facilitate aerator cone immersion adjustment in water. AERATOR CONE of appropriate technical design, statically balanced along with DRIVE TUBE in mild steel, sand blasted epoxy painted construction. Cone speed shall be nearly 55 rpm and shall not exceed 60 rpm. MOUNTING STUDS and FASTENERS shall be in mild steel galvanized construction.		
5.8	After aeration flow shall discharge over outlet which shall be provided with adjustable FRP weir to adjust the TWL in lagoons within range of 100 mm. Suitable baffles of adequate size shall be provided to dampen the waves in lagoon due to aerators. Distribution chamber with CI sluice gates for each compartment of aerated lagoons & bypass chamber, min 2.4 m x 1.8 m of required depth, operating platform with CI pipe upto central pier		
5.9	MCC Room of minimum 9 m x 6 m clear inside with safety measures, approval of various statutory/central/foreign authority as applicable		
5.10	Administrative Building in Two Storays (floor wise area as specified) Ground floor to accommodate administrative office & laboratory		
	First floor to accommodate Office of the Plant In Charge, air monitoring equipments to measure wind direction & speed, hydrogen sulphide concentration etc.		
5.11	By pass arrangements: RCC pipes with manholes and C.I. sluice gates (MH to be raised above TWL of adjacent unit) Drainage arrangements: RCC pipes up to plot boundary (as specified) diameter as per design.		
5.12	Electric installation. Both internal and external including entire plant area (as specified).		
5.13	Laboratory equipments As per requirement (to be specified during tendering).		
5.14	Sanitary blocks.		
5.15	Carpet area: 15 square meter minimum up to 25 MLD and 25 square meter above 25 MLD (or as specified).		
5.16	Administrative block and internal roads. To accommodate office room, laboratory room, and asphalt road to connect all units from main gate of plot.		
5.17	Dewatering during entire work using any technique.		
	Notes (1) Conditions from Sr. No.7 to 7.25 shall form a part and parcel of the tender and must be incorporated in draft tender papers of aerated lagoon type: Sewage Treatment Plants. (2) The necessary changes should be carried out as per Site condition and project requirements at the time of preparing DLP.s Inlet chamber can be dropped when Aerator is proposed otherwise it should be included. (3) Hydraulic loss in entire Aerated lagoon shall not exceed 1.0 m in any circumstances unless otherwise site specific condition design criteria approved by Technical committee shall be referred and item description shall be modified accordingly. (4) Structural design criteria approved by technical committee shall be applicable for design. (5) Design flow shall be specified in mid in data sheet. No separate overloading provision shall be kept in any tender clause. (6) All other details shall be as per design criteria and detail specifications. (7) The following rates are for sites falling in seismic zone III for sites falling in zone IV and V rates shall be increased 5% and 8 % respectively (8) The rates includes excavation, refilling and throwing away extra stuff to lead up to 500m A) Up to 5 MLD B) Beyond 5 MLD		
		MLD	2,272,321.43
		MLD	1,912,500.00

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
5	DEWATS (Decentralized wastewater treatment system) Detailed design and engineering of Providing, construction, testing and commissioning DEWATS (Decentralized waste water treatment system) plant for sewage treatment based on anaerobic treatment systems. Constructing of settling chambers (Primary, secondary), anaerobic baffle reactor, anaerobic filter, treated water storage tank; necessary piping works for inlet, outlet, scouring and Bypass arrangement with required valves, gates, drain, screen, inlet chambers etc. complete including cost of all associated civil, mechanical, electrical works, process and instrumentation diagram, hydraulic diagram, site layout plan and site grading plan, single line diagram, control philosophy, quality assurance plan, civil and mechanical General arrangement drawings, structural designs and drawings, construction drawings, mechanical equipments datasheets and drawings, as-built drawings, operation and maintenance manuals, etc. complete.		
	UNITS INCLUDED: 1. Settling Chambers (Primary and/or secondary) 2. Anaerobic Baffle Reactor 3. Anaerobic Filter 4. Treated water storage tank		
	NOTES: 1.) The necessary changes should be carried out as per Site condition and project requirements at the time of preparing DTP's. 2.) Structural design criteria approved by technical committee shall be applicable for design. 3.) Design flow shall be specified in mld in data sheet. No separate overloading provision shall be kept in any tender clause. 4.) All other details shall be as per design criteria and detail specifications. 5.) The rates includes excavation, refilling and throwing away extra stuff to lead up to 50m.		
	A) Cost of 0.1 MLD capacity DEWATS	No	- 1,607,142.86
	* Add (Prorate) for capacity above 0.1MLD up to 0.25MLD	0.05 MLD	- 517,857.14
	B) Cost of 0.25 MLD capacity DEWATS	No	- 3,160,714.29
	* Add (Prorate) for capacity above 0.25MLD up to 0.5MLD	0.05 MLD	- 491,071.43
	C) Cost of 0.5 MLD capacity DEWATS	No	- 5,616,071.43
	* Add (Prorate) for capacity above 0.5MLD up to 0.75MLD	0.05 MLD	- 446,428.57
	D) Cost of 0.75 MLD capacity DEWATS	No	- 7,848,214.29
	NOTE: Planted Gravel Filter bed shall be provided separately if required and the rate of the same shall be derived.		

CHAMBER & MANHOLE

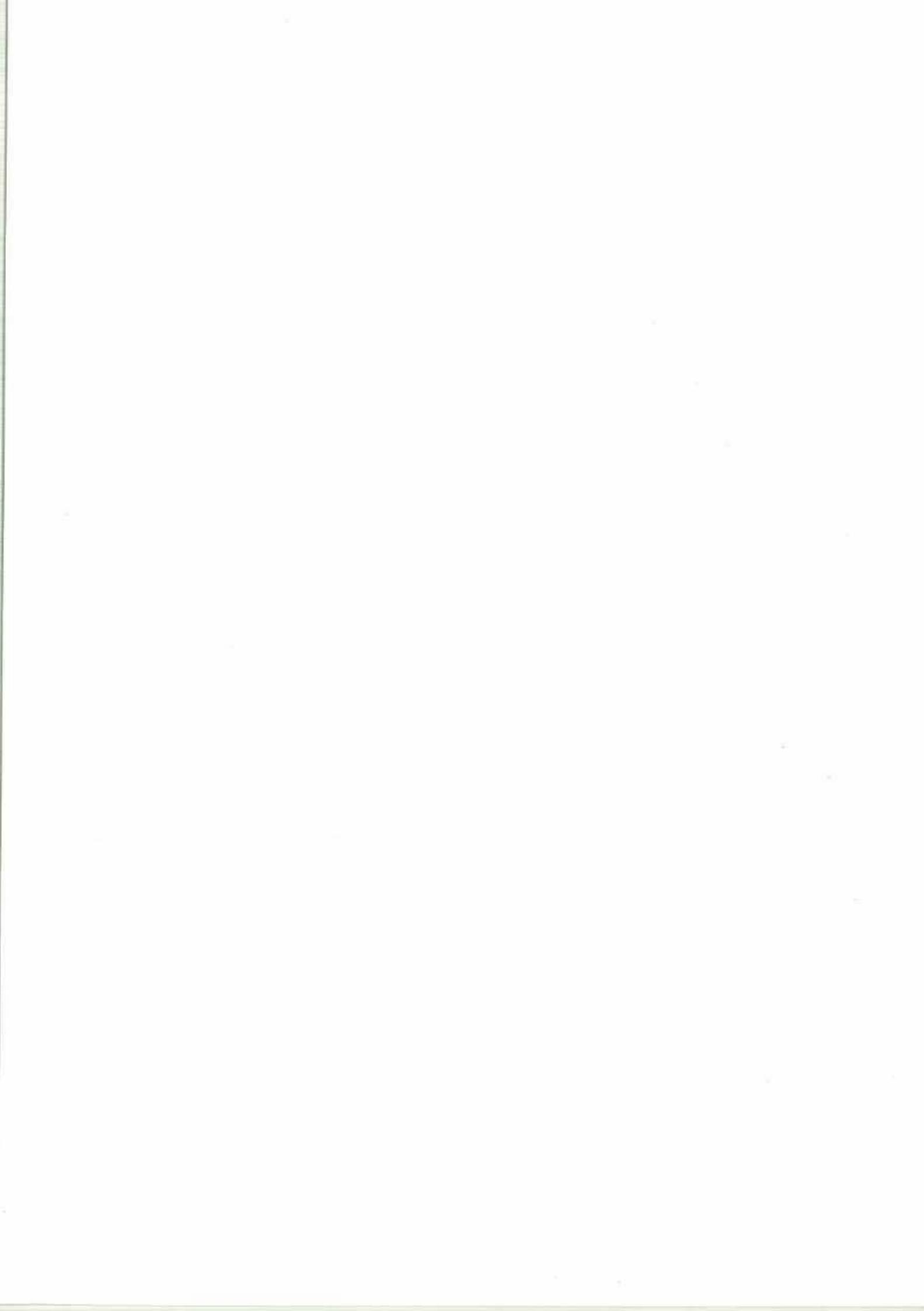
SECTION - D



SECTION : 2.D - Chambers & Manholes				
ITEM NO.	DESCRIPTION	UNIT		Rate for 2022-23
Item no.1	Valve Chambers and Manholes			
	Construction of valves chambers in brick or bela stone masonry, locally available in C. M. 1:3. Foundation concrete 150 mm thick in C. C. 1:4:8 of trap metal size 25 mm to 40 mm thick, inside cement plaster in C. M. 1:3 and cement pointing outside in C. M. 1:3 and top cover of precast RCC slab 100 mm thick (with key hole in two parts, each with handles or MS Bar etc. complete as given size) Up to 1 Mt. depth from G. L. to pipe invert level incl. complete civil works but excl. cost of excavation and refilling, with cast in situ RCC slab in one single piece with fixing of CI-MH Frame and cover (excl. cost of CI-MH Frame and cover) with 23 mm thick brick masonry wall in C.M. 1:6			
a)	Size of 1.30 m x 1.30 m and 1.0 m deep			
1	With precast slab in two parts 15 mm	No.		11,351
2	- do - with single piece 10 cm with fixing M. H. cover	"		10,698
3	With bela in two parts 15 cm	"		11,079
4	- do - in single piece 10cm	"		10,328
5	For 1 Mtr. Extra Depth			6,084
b)	Size of chamber 1.30 m x 0.90 m and 1.0 mt deep			
1	With precast slab in two parts 15 cm	No.		9,189
2	- do - with single piece 10 cm with fixing M. H. cover	"		8,682
3	With bela in two parts 15cm	"		9,179
4	- do - in single piece 10cm	"		8,596
5	For 1 Mtr. Extra Depth			5,282
c)	Size of chamber 0.90 m x 0.90 m and 1.0 mt. deep			
1	With precast slab in two parts 15 mm	No.		7,738
2	- do - with single piece 10 cm with fixing M. H. cover	"		7,343
3	With bela in two parts	"		7,575
4	- do - in single piece	"		7,120
5	For 1 Mtr. Extra Depth			4,479
d)	Size of chamber 0.60 m x 0.60 m and 1.0 mt. deep			
1	With precast slab in two parts 15 mm	No.		5,380
2	- do - with single piece 10 cm with fixing M. H. cover	"		5,138
3	With bela in two parts	"		5,279
4	- do - in single piece	"		5,001
5	For 1 Mtr. Extra Depth			3,276
Item no.2	Sewer Manholes			
	Providing and constructing Sewer manholes, scraper manholes and unit house connection chamber, as per the type design in brick masonry in C. M. 1:5 and inside and outside 20mm thick plastering in C. M. 1:3 necessary 100 mm coping with reinforcement in R.C.C.M. 200 fixing C. I. steps and fixing manhole frame and covers (But excluding supply of manhole frame and covers) over manholes and house connection chambers and fixing Manhole covers (but excluding supplying of manhole covers) over scraper manhole etc. complete, providing and fixing safety chain wherever necessary as per the stipulations in the type design complete as per latest CPHEEO manual. (excl. excavation).			
a)	Manhole type "A" Circular type having inside diameter of 1200 mm for depth upto 1.5 m depth (for 150 mm to 500 mm dia sewer)			
1	Manhole type "A" as above but upto 1.0 M depth.	No.		12,179
2	Extra depth beyond 1.0 M but upto 1.5 M depth for type "A" manhole above.	R.Mt.		6,628
b)	Manhole type "B" circular type having inside diameter of minimum 1500 mm and for depth from 1.5 M to 4.0 M (for 150 mm to 600 mm dia sewers)			
1	Manhole type "B" as above but upto 1.5 M depth.	No.		21,116
2	Extra depth beyond 1.5 M but upto 4.0 M depth for type "B" manhole above.	R.Mt.		12,313
c)	Manhole type "C" circular type having inside diameter of minimum 1500 mm and for depth beyond 4.0 m to 6.0 m (for 150 mm to 1800 mm dia sewers)			
1	Manhole type "C" as above but upto 4.0 M depth.	No.		52,908
2	Extra depth beyond 4.0 M and up to 6.0 M depth for type "C" Manhole above.	R.Mt.		18,785
d)	Manhole type "D1" circular type having inside diameter of minimum 1500 mm and for depth beyond 6 m to 10 m (for 150 mm to 500 mm diameter sewers)			
1	Manhole type "D1" as above but upto 6.0 m depth	No.		91,174
2	Extra depth beyond 6.0 m and upto 10 mt depth but type "D1" manhole above.	R.Mt.		22,110
e)	Manhole type "D2" circular type having inside diameter of minimum 1500 mm and for depth beyond 6.0 M to 10.0 M (for 600 mm to 1000 mm dia sewers)			
1	Manhole type "D2" as above but upto 6.0 m depth	No.		89,818
2	Extra depth beyond 6.0 m and upto 10.0 m depth for type "D2" manhole above	R.Mt.		22,121
f)	Manhole type "D3" circular type having inside diameter of minimum 1900 m and for depth beyond 6.0 m to 10.0 m (for 1100 mm to 1800 mm dia sewers)			
1	Manhole type "D3" as above but upto 6.0 m depth	No.		109,142
2	Extra depth beyond 6.0 m and upto 10.0 m depth for type "D3" manhole above.	R.Mt.		26,015
g)	Scraper manhole type "S1" rectangular type for 600 mm dia to 1200 mm dia sewer pipes and for depth 2.5 m to 9.0 m			

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
1	Scraper manhole type "S1" as above but upto 2.5 m depth.	No.	52,319
2	Extra depth beyond 2.5 m and upto 9.0 m depth for type "S1" scraper manhole above.	R.Mt.	31,907
h) Scraper manhole type "S2" rectangular type for 1400 mm dia. sewer pipes and for depth 2.5 m to 9.0 m			
1	Scraper manhole type "S2" as above but upto 2.5 m depth.	No.	48,103
2	Extra depth beyond 2.5 m and upto 9.0 m depth for type "S2" scraper manhole above.	R.Mt.	20,370
Item no.3			
Vertical Drop Manhole arrangement			
	Providing and constructing vertical drop arrangement of 0.6 m and more height as required including providing and jointing special such as double T. Bend required stoneware pipe fixed in m-100 C. C. at required level as type design cutting, jointing and filling as per specification etc. complete.		
1	Vertical drop arrangement as above upto 0.6 m height.	No.	2,154
2	Extra over item No.3.1 above for additional drop beyond 0.6 m	R.Mt.	1,926
Item no.4			
Chamber for House Connection			
	Providing and constructing rectangular brick masonry chamber for house connection as per type design in brick masonry in C. M. 1:3 including M-100 in foundation M-150 in benching inside plastering in C. M. 1:3 and outside plastering in C. M. 1:3 coping in M200 and fixing RCC precast manhole frame and covers, but Excl. supply of manhole and cover etc. complete excl. excavation.		
		No.	7,922
Item no.5			
Ventilating Column			
	Providing and erecting C. I. and MS ventilating columns 15 cms. dia. with C.I. ornamental cap and Min 6.00 Mtr. Height (Height may be varying as per site) base fixed firmly with necessary foundation with one coat of red lead oxide paint and one coat of any approved colour with 15 cms. dia. 10 Mt.in length with 0.35mt*0.35mt* M100 Encasing, stoneware or R.C.C. pipe connection with M.H. including excavation and jointing as required etc. complete. as per drawing.		
1	For 6 Mtr. Height (6 Mt MS pipe)	No.	33,836
2	For 12 Mtr. Height (2 m CI and 10m MS)	No.	41,230
Item no.6			
Temporary/Permanent plugging and blocking of sewer line, branch connections and diversion of flows and removal of all plugs, etc.			
a	300mm dia. & below sewer line	No.	1,210
b	400 to 500mm dia. Sewer line	No.	1,452
c	600 to 700mm dia. Sewer line	No.	2,420
d	800mm dia.	No.	2,904
e	900mm dia.	No.	3,484
f	1000mm dia.	No.	4,017
g	1200mm dia.	No.	4,839
h	1400 mm dia.	No.	5,324
i	1600mm dia.	No.	6,775
j	1800 mm dia.	No.	7,259
Item No.7			
	Loosen, de-silt and thoroughly clean and remove debris and objects such as boulders, bricks etc. bacteriological slimes, roots, encrustations, grease, carbonated deposits, etc from the sewer line including disposal of silt / debris / malba / objects etc. by super suction machine.		
a	300mm dia.& below	Rmt.	1,190
b	350mm dia. Sewer line	Rmt.	1,389
c	450mm dia. Sewer line	Rmt.	1,785
d	600mm dia.	Rmt.	2,381
e	800mm dia.	Rmt.	3,174
f	900mm dia.	Rmt.	3,582
g	1050mm dia.	Rmt.	4,307
h	1100 mm dia.	Rmt.	4,471
i	1200mm dia.	Rmt.	4,878
j	1400 mm dia.	Rmt.	5,691
k	1600 mm dia.	Rmt.	6,604
l	1800 mm dia.	Rmt.	7,317
m	2000 mm dia.	Rmt.	8,227

ITEM NO.	DESCRIPTION	UNIT	Rate for 2022-23
Item No.8	Sewer Cleaning Equipment		
a	Supplying, testing and Commissioning Jetting cum suction machinery inclusive of four wheeler vehicle TATA 1613/Eicher 20.16 or equivalent make with suitable RPM imported Italian make Triplex Plunger Pump of running on vehicle engine having flow rate of minimum 255 LPM and pressure minimum 140 bar with high pressure jetting hose of I.D. 25.4 mm and length 60 mt with 10S tank of minimum 5 mm thickness having total tank capacity 9000 lit, Partitioned with fresh water of 5000 litre and sludge tank of 4000 litre. With suction unit inclusive of vacuum pump of minimum capacity 390 m3/hr having maximum vacuum pressure of 85 to 95% having maximum operating relative absolute pressure of 1.5 bar running on vehicle engine with tank suction hose 75mm dia and length 15 mt. etc. complete with hydraulic system, hose reel, PTO (power take off unit), control panel, valves, instruments, accessories etc with cost of vehicles, etc. complete conforming with tender specifications and IS:11387-1985 or its latest revision	No.	3,812,123
b	Supplying, testing and Commissioning Jetting machinery inclusive of Four wheeler of MAKE TATA 275/TATA ACE or Equivalent Vehicle with suitable RPM Triplex Plunger Pump having minimum capacity 13 LPM and minimum pressure 200 Bar directly coupled with a separate 10 HP heavy duty, 4 stroke, air cooled diesel Engine, with water tank having capacity 500 lit, with jetting hose of 30 m length with ID 1/4", etc. complete with hose reel, spraying hose and gun, valves, instruments, accessories, with cost of vehicles etc. complete conforming with tender specifications.	No.	890,423
c	Supplying, testing and Commissioning Hydraulic operated cum Winch Driven De-silting Grab Bucket System inclusive of Four wheeler of MAKE TATA 275/TATA ACE or Equivalent Vehicle with system having travelling depth of at least 12 m, steel grab bucket of 20 ltrs capacity, hydraulic system driven by vehicle engine, 6mm wire rope with appropriate size reel, with hydraulic cylinder, hydro motor, flexible hose, oil tank, hopper, boom, hose of appropriate size etc. complete with valves, instruments, accessories, with cost of vehicles etc. complete conforming with tender specifications.	No.	862,597
Item no.9	Desilting of inter septic chamber		
	Desilting of inter-septic chambers incl. fixing of covers. Cleaning etc. with cleaning, rodding etc. for 100 mm dia. S. W. pipe chamber to chamber.	No.	493
Item no.10	Renovation of manhole		
	Renovation of manhole by increasing the height at top including cost of excavation, refitting of C. I. manhole frame and cover curing etc. complete incl. all carting and providing of materials which is required for the purpose (except manhole frame and cover)	No.	3,374
	For all type manhole by providing RCC 1:2:4 Partition walls with required reinforcement 25 cm thick and circular opening with 500mm clear dia and 0.40 mt. av. ht.	No.	1,202
Item no.11	Tracing of old manhole		
1	All Type	No.	1,202
Item no.12	R. C. C. Precast chamber		
	Manufacture, supply and delivery of Chemical fabricated RCC Precast chambers with top cover as per specification and drawing attached with the tender documents for sizes as mentioned below. The delivery of chambers with clamps, nuts, bolts and locking arrangement (without lock) is to be made to GWSSB store or sites any where in Gujarat. The rates includes all taxes, loading, carting, unloading, stacking, including all taxes.		
A)	60 x 60 x 90 cm deep (Suitable to 80 to 300 mm dia pipes)	No.	3,053
B)	Foot rests for above chambers	Pair	814
C)	90 x 90 x 145 cm deep (Suitable to 350 to 600 mm dia pipes)	No.	7,527
D)	Foot rests for above chambers	Pair	1,729
E)	Rates for providing top cover only		
1	For 60 x 60cms size chamber	No.	1,018
2	For 90 x 90 cms size chamber	'	1,831



MISCELLENEUOUS ITEMS

SECTION - E



SECTION : 2.E - Miscellaneous			
ITEM NO.	DESCRIPTION OF ITEM	UNIT	Rate for 2022-23
Item no.1	Dewatering by pumping set		
	Dewatering by pumping set of required capacity including temporary platform carting pumping at site and fixing the same in position including all accessories, and fuel and labour etc. complete.		
	Pump set of Capacity	HP/hr.	18.32
Item no.2	C.C M:100 for Pipe Encasing		
	Providing C.C.M.:100 for encasing pipes using trap metal size 12 mm to 50 mm incl. form work curing consolidation etc. complete for various location on pipe line		
1	using trap metal 20 mm nominal size	Cu.M	4,113.80
2	using trap metal 40 mm size	Cu.M	3,368.55
Item no.3	Loading / Unloading		
(A)	Manual Handling		
	Labour charges for loading or unloading the material such as pipes specials of all types and sizes, cement, steel and other hard ware building materials.(Wt. Upto 200 kg.)		
1	For Cement, Sand, Steel etc.	M.T.	62.83
2	For Metallic pipe specials	M.T.	125.65
(B)	Crane Handling		
	Labour charges for loading or unloading the material such as pipes specials of all types and sizes, cement, steel and other hard ware building materials.(Wt. More than 200 kg)		
	Article having weight up to 1 M.T.	M.T.	242.61
	Article having weight From 1 M.T.to 5 M.T.		284.47
	Article having weight more than 5 M.T.		333.85
Item no.4	Transporting of Pipe		
	Transportation of pipe with manual loading & unloading is as per annexure.(A) &Transportation of pipe with loading & unloading with a crane is as per annexure.(B)		
Item no.5	Unloading from Railway Wagon		
	Unloading from railway wagon to platform for heavy articles such as C.I. Pipes, M.S. Plates, specials etc. where use of unloading equipments are necessary.& loading same material in to truck from railway platform		
		M.T.	325.63

ITEM NO.	DESCRIPTION OF ITEM	UNIT	Rate for 2022-23
Item no.6	Pump House		
	Designing (aesthetically) and constructing R.C.C frame structure of pump room with positive suction / Negative suction		
6A	With Gantry structure (Min. Height 4.5 M)		
	Upto 6.00 M (Plinth Level to Top slab Beam bottom)	Sq.Mt.	15,301.72
	Add for every 1.00 M above 6.00 M	Sq.Mt.	1,596.95
6B	Without Gantry structure (Upto 3.60 M)	Sq.Mt.	10,365.68
	Note:- 1. Minimum 15 % opening for ventilation should be provided. 2. Pump room rolling shutter, door and windows of aluminium section and window grill of iron should be provided (Included in Cost). 3. Plinth level of Pump house should be min.1 meter above GL. 4. Cost does not include foundation for pumping machinery.		
Item no.7	Hiring of JCB including driver & diesel	Hour	
	Hiring of Hydra / Crane with Driver (8 working Hours in Day)		
	Hiring of crane	Day	6,412.47
	Hiring of Hydra		
	12 tone	Day	3,334.49
	16 tone	Day	3,418.65
	20 tone	Day	4,382.53
	Hiring of Tractor with trolley considering 8 hrs. as working day hours incl. Driver	Day	2,104.09
	Hiring of Three wheeler carrier (Chakado Rickshaw) considering 10 hrs. as working day hours incl. Driver	Day	1,153.24
Item no.8	CONVEYANCE OF MATERIALS		
8.a	Transportation Charges for Construction Material (Without Crane)		As per Table-A
8.b	Transportation Charges for Construction Material (With Crane)		As per Table-B

SECTION : 2.E - Miscellaneous

A. Transportation Charges for Construction Material (Without Crane)

Hire Charges of Truck Rs.		w		x		y		z		Cost of Material over 0.5 Km including loading Unloading and stacking (for asphalt, cement, steel etc.)			
Diesel Rate		89.3		245.0		340.0		2040.0					
Mobile Oil Rate													
Mazdoor per Day													
Cost of 6 Mazdoor for loading & unloading													
Sr No.	Lead in Km	Avg. Speed	No. of Trips $N=8/(2L/S)+1$	KM Done $=2NL+6$	Liter of Diesel Consumed	Cost of Diesel Rs. (X*F)	Liter of Mobile Oil Consumed	Cost of Mobile Oil Rs. (Y*H)	Total Cost (W+G+H+Z)	Cost Per Trip Rs. (J/D)			
A	B	C	D	E	F	G	H	I	J	K			
						89 Rs/Ltr		245 Rs/Ltr					
1	0.50	15.00	7.50	13.50	3.38	301.49	0.09	22.97	5102.19	680.00			
2	1.00	16.00	7.11	20.22	5.06	451.61	0.14	34.41	5246.45	738.00			
3	1.50	16.50	6.77	26.31	6.58	587.52	0.18	44.76	5377.03	794.00			
4	2.00	17.00	6.48	31.90	7.98	712.51	0.22	54.28	5497.14	849.00			
5	2.50	17.30	6.21	37.03	9.26	827.00	0.26	63.00	5607.15	903.00			
6	3.00	17.50	5.96	41.74	10.44	932.26	0.29	71.02	5708.29	958.00			
7	3.50	17.80	5.74	46.19	11.55	1031.62	0.32	78.59	5803.76	1011.00			
8	4.00	18.00	5.54	50.31	12.58	1123.50	0.35	85.59	5892.04	1064.00			
9	4.50	18.30	5.36	54.26	13.57	1211.84	0.38	92.32	5976.94	1115.00			
10	5.00	18.50	5.19	57.93	14.48	1293.72	0.40	98.56	6055.61	1166.00			
11	6.00	19.00	4.90	64.84	16.21	1448.01	0.45	110.32	6203.86	1265.00			
12	7.00	19.50	4.66	71.19	17.80	1589.94	0.49	121.13	6340.24	1362.00			
13	8.00	20.00	4.44	77.11	19.28	1722.08	0.54	131.20	6457.21	1455.00			
14	9.00	20.50	4.26	82.68	20.67	1846.35	0.57	140.66	6586.62	1546.00			
15	10.00	21.00	4.10	87.95	21.99	1964.17	0.61	149.64	6699.83	1635.00			
16	15.00	23.50	3.51	111.42	27.86	2488.30	0.77	189.57	7203.45	2050.00			
17	25.00	28.50	2.90	151.22	37.81	3377.19	1.05	257.29	8057.57	2774.00			
18	50.00	35.00	2.07	213.41	47.42	4236.37	1.48	363.09	8919.16	4300.00			
19	100.00	40.00	1.33	272.67	54.53	4871.46	1.89	463.91	9576.23	7182.00			
20	200.00	45.00	0.81	329.60	65.92	5888.55	2.29	560.77	10570.82	13067.00			
21	400.00	50.00	0.47	382.47	76.49	6833.22	2.66	650.73	11494.60	24426.00			

No. of Trips = N

Hours Working = 8

Trip Km distance = L

Average Speed of vehicle = S

KM = Kilometer travel in 8 hours

Km travel per ltr Diesel Consumption

= As per CPWD

=2NL+6

= 5 Km

B. Transportation Charges for Construction Material (With Crane)												
Hire Charges of Truck Rs.		3350.0	w1									
Hire Charges of Crane Rs.		6400.0	w2									
Diesel Rate		89.3	x									
Mobile Oil Rate		245.0	y									
Mazdur per Day		340.0										
Cost of 2 Mazdoor for loading & unloading		680.0	z									
Cost of Heavy Material over 0.5 Km including loading Unloading and stacking (for Pipes etc.)												
Sr No.	Load in Km	Avg. Speed	No. of Trips $N=8/(2L/S)+1$	D	E	F	Cost of Diesel Consumed	Cost of Diesel Rs. (X*F)	Liter of Mobile Oil Consumed	Cost of Mobile Oil Rs. (Y*H)	Total Cost (W1+W2+G+I+Z)	Cost Per Trip Rs. (J/D)
A	B	C					89 Rs/Ltr			245 Rs/Ltr		
1	0.50	15.00	7.50	13.50	3.38	301.49	0.09	72.97	9602.2	1280.00		
2	1.00	16.00	7.11	20.22	5.06	451.61	0.14	34.41	9746.4	1371.00		
3	1.50	16.50	6.77	26.31	6.58	587.52	0.18	44.76	9877.0	1459.00		
4	2.00	17.00	6.48	31.90	7.98	712.51	0.22	54.28	9997.1	1544.00		
5	2.50	17.30	6.21	37.03	9.26	827.00	0.26	63.00	10107.2	1629.00		
6	3.00	17.50	5.96	41.74	10.44	932.26	0.29	71.02	10208.3	1714.00		
7	3.50	17.80	5.74	46.19	11.55	1031.62	0.32	78.59	10303.8	1794.00		
8	4.00	18.00	5.54	50.31	12.58	1123.50	0.35	85.59	10392.0	1876.00		
9	4.50	18.30	5.36	54.26	13.57	1211.84	0.38	92.32	10476.9	1954.00		
10	5.00	18.50	5.19	57.93	14.48	1293.72	0.40	98.56	10555.6	2033.00		
11	5.00	19.00	4.90	64.84	16.21	1448.01	0.45	110.32	10703.9	2183.00		
12	7.00	19.50	4.66	71.19	17.80	1589.94	0.49	121.13	10840.2	2328.00		
13	8.00	20.00	4.44	77.11	19.28	1722.08	0.54	131.20	10967.2	2468.00		
14	9.00	20.50	4.26	82.68	20.67	1846.35	0.57	140.66	11086.6	2603.00		
15	10.00	21.00	4.10	87.95	21.99	1964.17	0.61	149.64	11199.8	2733.00		
16	15.00	23.50	3.51	111.42	27.86	2488.30	0.77	189.57	11703.5	3331.00		
17	25.00	28.50	2.90	151.22	37.81	3377.19	1.05	257.29	12557.6	4324.00		
18	50.00	35.00	2.07	213.41	47.42	4236.37	1.48	363.09	13419.2	6470.00		
19	100.00	40.00	1.33	272.67	54.53	4871.46	1.89	463.91	14076.2	10557.00		
20	200.00	45.00	0.81	329.60	65.92	5888.55	2.29	560.77	15070.8	18629.00		
21	400.00	50.00	0.47	382.47	76.49	6833.22	2.66	650.73	15994.6	33989.00		
Average Load in MT/Trip												
Material												
PVC/HDPE Pipe												
Metallic Pipe												
Cement/M.S. Bar/Steel												
Sand												
Earth												
Lime/Murram												
Average Load in MT/Trip												
Bricks												
Roofing Tiles												
Excavated Rock												
Timber												
Concrete Block												
Aggregate of size 40mm &												
Average Load in MT/Trip												
3500 nos.												
10												
3												
5												
6												
5.75												

ROAD / RAILWAY CROSSINGS

SECTION - F



1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

SECTION : 2.F - Road/Railway Crossings			
Item No.	Description	Unit	Rate for 2021-22
1	Drilling of 300mm dia Horizontal borehole for watermain pipeline under the railway tracks incl all strata with required length including fixing of 250mm dia MS casing pipe of minimum 5mm thick Or IRS Casing Pipe with welding pushing etc complete. Providing & fixing various size of pipe for 150/168mm dia watermain of G.I./M.S pipe of minimum 6.3mm thick for railway permits as per instruction & regulations of Railway authority & under supervision of Railway authority incl Providing, supplying & fixing of spacer at specified interval if required between Casing pipe and water main, ISI make sluice valve of required size at both side of railway boundary with construction of brickedge pavement including C/C encasing 1:3:6 in 10mtr length at both side. Incl providing & fixing of M.S/iron Manhole frame with cover for valve chamber with locking arrangement etc complete with all material labour fabrication,hydraulic testing of pipe & valve etc complete for total 45 mt Length which includes horizontal pushing and with open excavation.		
1.0	MS Casing Pipe & Water Main Pipe-168	No.	282,012
1.1	Without Water main & with MS Casing Pipe-250 thick:5	No.	196,359
1.2	IRS casing pipe in place of MS Pipe + Water main -168mm	No.	196,980
1.3	Without Water main & with IRS Casing Pipe	No.	111,328
2	Drilling of 500mm dia Horizontal borehole for watermain pipeline under the railway tracks incl all strata with required length including fixing of 400mm dia M.S.casing pipe of minimum 6mm thick with welding pushing etc complete Providing & fixing various size of pipe for 193.7mm/219.10mm/244.5mm dia watermain of G.I./M.S pipe of minimum 6.3mm thick for railway permits as per instruction & regulations of Railway authority & under supervision of Railway authority incl Providing, supplying & fixing of spacer at specified interval if required between Casing pipe and water main, ISI make sluice valve of required size at both side of railway boundary with construction of brickedge pavement incl C/C encasing 1:3:6 in 10mtr length of pipe at both side. Incl providing & fixing of M.S/iron Manhole frame with cover for valve chamber with locking arrangement etc. complete with all material labour fabrication,hydraulic testing of pipe & valve etc complete for 45 mt Length,which includes horizontal pushing and with open excavation.		
2.0	MS Casing Pipe + Water Main -193.7mm	No.	496,362
2.1	MS Casing Pipe + Water Main Size-219.1mm	No.	497,617
2.2	MS Casing Pipe + Water Main Size-244.5mm	No.	529,903
2.3	Without Water main & with MS Casing Pipe	No.	407,844
2.4	IRS casing pipe in place of MS Pipe + Water main -193.7mm	No.	393,824
2.5	IRS casing pipe in place of MS Pipe + Water main -219.1mm	No.	395,078
2.6	IRS casing pipe in place of MS Pipe + Water main -244.5mm	No.	427,364
2.7	Without Water main & with IRS Casing Pipe	No.	365,304
3	Drilling of 600mm dia Horizontal borehole for watermain pipeline under the railway tracks incl all strata with required length incl fixing of 500mm dia M.S.casing pipe of minimum 8mm thick Or IRS Casing Pipe with welding pushing etc complete Providing & fixing various size of pipe for 273.1mm/323.9mm/355.6mm dia watermain of G.I./M.S pipe of minimum 6.3mm thick for railway permits as per instruction & regulations of Railway authority & under supervision of Railway authority incl Providing, supplying & fixing of spacer at specified interval if required between Casing pipe and water main, ISI make sluice valve of required size at both side of railway boundary with construction of brickedge pavement incl C/C encasing 1:3:6 in 10mtr length of pipe at both side. Incl providing & fixing of M.S/iron Manhole frame with cover for valve chamber with locking arrangement etc. complete with all material labour fabrication,hydraulic testing of pipe & valve etc complete for 45mt Length,which includes horizontal pushing and with open excavation.		
3.0	MS Casing Pipe + Water Main -273.1mm	No.	655,594
3.1	MS Casing Pipe + Water Main Size-323.9mm	No.	679,949
3.2	MS Casing Pipe + Water Main Size-355.6mm	No.	690,349
3.3	Without Water main & with MS Casing Pipe	No.	525,591
3.4	IRS casing pipe in place of MS Pipe + Water main -273.1mm	No.	526,073
3.5	IRS casing pipe in place of MS Pipe + Water main -323.9mm	No.	552,428
3.6	IRS casing pipe in place of MS Pipe + Water main -355.6mm	No.	562,828
3.7	Without Water main & with IRS Casing Pipe	No.	398,070
4	Drilling of 900mm dia Horizontal borehole for watermain pipeline under the railway tracks incl all strata with required length incl fixing of 800mm dia M.S.casing pipe of minimum 12mm thick Or IRS Casing Pipe with welding pushing etc complete Providing & fixing various size of pipe for 406.4 mm/457mm/508mm dia watermain of G.I./M.S pipe of minimum 6.3mm thick for railway permits as per instruction & regulations of Railway authority & under supervision of Railway authority incl Providing & supplying fixing of spacer at specified interval if required between Casing pipe and water main, ISI make sluice valve of required size at both side of railway boundary with construction of brickedge pavement incl C/C encasing 1:3:6 in 10mtr length of pipe at both side. Incl Providing & fixing of M.S/iron Manhole frame with cover for valve chamber with locking arrangement etc. complete with all material labour fabrication,hydraulic testing of pipe & valve etc complete for 45 mt Length,which includes horizontal pushing and with open excavation.		
4.0	MS Casing Pipe + Water Main -406.4mm	No.	1,370,112
4.1	MS Casing Pipe + Water Main Size-457mm	No.	1,412,457
4.2	MS Casing Pipe + Water Main Size-508mm	No.	1,465,336
4.3	Without Water main & with MS Casing Pipe	No.	1,135,834
4.4	IRS casing pipe in place of MS Pipe + Water main -406.4mm	No.	1,127,922
4.5	IRS casing pipe in place of MS Pipe + Water main -457mm	No.	1,169,280
4.6	IRS casing pipe in place of MS Pipe + Water main -508mm	No.	1,221,612
4.7	Without Water main & with IRS Casing Pipe	No.	897,621

Item No.	Description	Unit	Rate for 2021-22
5	Drilling of 1300mm dia Horizontal borehole for watermain pipeline under the railway tracks incl all strata with required length incl fixing of 1200mm dia M.S.casing pipe of minimum 15mm thick Or IRS Casing Pipe with welding pushing etc complete Providing & fixing various size of pipe for 559mm/610mm/660mm/711mm dia watermain of G.I./M.S pipe of minimum 6.3mm thick for railway permisses as per instruction & regulations of Railway authority & under supervision of Railway authority incl Providing, supplying & fixing of spacer at specified interval if required between Casing pipe and water main,ISI make sluice valve of required size at both side of railway boundary with construction of brickedge pavement incl C/C encasing 1:3.6 in 10mtr length of pipe at both side. Incl Providing & fixing of M.S/Iron Manhole frame with cover for valve chamber with locking arrangement etc, complete with all material labour fabrication,hydraulic testing of pipe & valve etc complete for 45mtr Length.		
5.0	MS Casing Pipe + Water Main -559mm	No.	2,393,679
5.1	MS Casing Pipe + Water Main Size-610mm	No.	2,456,579
5.2	MS Casing Pipe + Water Main Size-660mm	No.	2,628,105
5.3	MS Casing Pipe + Water Main Size-711mm	No.	2,647,985
5.4	Without Water main & with MS Casing Pipe	No.	2,044,065
5.5	IRS casing pipe in place of MS Pipe + Water main -559mm	No.	1,896,657
5.6	IRS casing pipe in place of MS Pipe + Water main -610mm	No.	1,959,458
5.7	IRS casing pipe in place of MS Pipe + Water main -660mm	No.	2,130,984
5.8	IRS casing pipe in place of MS Pipe + Water main -711mm	No.	2,150,844
5.9	Without Water main & with IRS Casing Pipe	No.	1,546,944
6	Drilling of 200mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 150mm dia M.S casing pipe of minimum 5mm thick Or IRS Casing Pipe with pushing etc complete, providing and fixing various size of carrying pipe for 80mm dia (Complete for 45 mt. length)		
6.0	MS Casing Pipe + Water Main -80mm	No.	150,150
6.1	Without Water main & with MS Casing Pipe-150 thick:5	No.	50,836
6.2	RCC casing pipe in place of MS Pipe + Water main -80mm	No.	63,331
6.3	Without Water main & with RCC Casing Pipe	No.	17,365
7	Drilling of 250mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 200mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 100mm dia (For 45 mt Length)		
7.0	MS Casing Pipe + Water Main -100mm	No.	174,295
7.1	Without Water main & with MS Casing Pipe-200 thick:5	No.	131,441
7.2	RCC casing pipe in place of MS Pipe + Water main -100mm	No.	116,807
7.3	Without Water main & with RCC Casing Pipe	No.	73,952
8	Drilling of 300mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 250mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 168mm dia watermain (For 45 mt Length)		
8.0	MS Casing Pipe + Water Main -168mm	No.	196,873
8.1	Without Water main & with MS Casing Pipe-250 thick:5	No.	156,055
8.2	RCC casing pipe in place of MS Pipe + Water main -168mm	No.	142,206
8.3	Without Water main & with RCC Casing Pipe	No.	101,389
9	Drilling of 500mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 400mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 193.7 to 244.5mm dia watermain (For 45 mt Length)		
9.0	MS Casing Pipe + Water Main -193.7mm	No.	412,357
9.1	MS Casing Pipe + Water Main -219.1mm	No.	412,357
9.2	MS Casing Pipe + Water Main -244.5mm	No.	426,730
9.3	Without Water main & with MS Casing Pipe-400 thick:6	No.	358,789
9.4	RCC casing pipe in place of MS Pipe + Water main -193.7mm	No.	309,819
9.5	RCC casing pipe in place of MS Pipe + Water main -219.1mm	No.	309,819
9.6	RCC casing pipe in place of MS Pipe + Water main -244.5mm	No.	324,190
9.7	Without Water main & with RCC Casing Pipe	No.	256,260
10	Drilling of 600mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 500mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 273.1 to 355.6mm dia watermain (For 45 mt Length)		
10.0	MS Casing Pipe + Water Main -273.1mm	No.	596,452
10.1	MS Casing Pipe + Water Main -323.9mm	No.	621,381
10.2	MS Casing Pipe + Water Main -355.6mm	No.	631,416
10.3	Without Water main & with MS Casing Pipe-500 thick:6	No.	522,187
10.4	RCC casing pipe in place of MS Pipe + Water main -273.1mm	No.	440,186
10.5	RCC casing pipe in place of MS Pipe + Water main -323.9mm	No.	465,116
10.6	RCC casing pipe in place of MS Pipe + Water main -355.6mm	No.	475,151
10.7	Without Water main & with RCC Casing Pipe	No.	365,921
11	Drilling of 900mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 800mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 406.4 to 508mm dia watermain (for 45 Mtr. Length)		

Item No.	Description	Unit	Rate for 2021-22
11.0	MS Casing Pipe + Water Main -406.4mm	No.	1,146,879
11.1	MS Casing Pipe + Water Main -457mm	No.	1,168,319
11.2	MS Casing Pipe + Water Main -508mm	No.	1,186,970
11.3	Without Water main & with MS Casing Pipe-800 thick:12	No.	1,006,148
11.4	RCC casing pipe in place of MS Pipe + Water main -406.4mm	No.	937,005
11.5	RCC casing pipe in place of MS Pipe + Water main -457mm	No.	962,615
11.6	RCC casing pipe in place of MS Pipe + Water main -508mm	No.	982,473
11.7	Without Water main & with RCC Casing Pipe	No.	782,308
12	Drilling of 1300mm dia Horizontal borehole for watermain pipeline crossing under the road incl in all strata with required length incl fixing of 1200mm dia M.S./RCC casing pipe with pushing etc complete various size of pipe for 559 to 711mm dia watermain. (for 45 Mtr. Length)		
12.0	MS Casing Pipe + Water Main -559mm	No.	2,051,597
12.1	MS Casing Pipe + Water Main -610mm	No.	2,069,890
12.2	MS Casing Pipe + Water Main -660mm	No.	2,089,227
12.3	MS Casing Pipe + Water Main -711mm	No.	2,108,616
12.4	Without Water main & with MS Casing Pipe-1200 thick:16	No.	1,853,522
12.5	RCC casing pipe in place of MS Pipe + Water main -559mm	No.	1,574,597
12.6	RCC casing pipe in place of MS Pipe + Water main -610mm	No.	1,486,679
12.7	RCC casing pipe in place of MS Pipe + Water main -660mm	No.	1,654,559
12.8	RCC casing pipe in place of MS Pipe + Water main -711mm	No.	1,677,293
12.9	Without Water main & with RCC Casing Pipe	No.	1,356,401
	Note: The above rates are for 45 mt length for all Road/Railway crossing, if crossing length is increased or decreased than correction of Rs- (Rate of SOR)45 per meter shall be + or - as per actual length.		
13	Drilling of Horizontal bore hole for water main pipeline under the Railway / Road tracks in all strata with required length including fixing of M.S.(or as specified by Railway / Road authority) casing pipe of suitable size and Thickness. Rate includes the cost of Drilling of bore hole , Casing pipe & welding pushing etc complete but excluding the cost of water main, valves and other items. Entire work should be as per Approved Drawing and as per instruction of Railway / Road authority for Following diameter of Bore hole. for MS pipe		
13.0	Horizontal Drilling-1300;& MS Casing Pipe-1200 thick:16	RMT	36,583
13.1	Horizontal Drilling-900;& MS Casing Pipe-800 thick:12	RMT	18,142
13.2	Horizontal Drilling-600;& MS Casing Pipe-500 thick:8	RMT	9,166
13.3	Horizontal Drilling-500;& MS Casing Pipe-400 thick:6	RMT	6,439
13.4	Horizontal Drilling-300;& MS Casing Pipe-250 thick:5	RMT	2,553
13.5	Horizontal Drilling-250;& MS Casing Pipe-200 thick:5	RMT	2,148
13.6	Horizontal Drilling-200;& MS Casing Pipe-150 thick:5	RMT	1,510
14	Drilling of Horizontal bore hole for water main pipeline under the Railway / Road tracks in all strata with required length including fixing of M.S.(or as specified by Railway / Road authority) casing pipe of suitable size and Thickness. Rate includes the cost of Drilling of bore hole , Casing pipe & welding pushing etc complete but excluding the cost of water main, valves and other items. Entire work should be as per Approved Drawing and as per instruction of Railway / Road authority for Following diameter of Bore hole. for IRS pipe		
14.0	Horizontal Drilling-1300;& IRS Casing Pipe-1200	RMT	36,583
14.1	Horizontal Drilling-900;& IRS Casing Pipe-800	RMT	18,142
14.2	Horizontal Drilling-600;& IRS Casing Pipe-500	RMT	9,166
14.3	Horizontal Drilling-500;& IRS Casing Pipe-400	RMT	6,439
14.4	Horizontal Drilling-300;& IRS Casing Pipe-250	RMT	2,553
14.5	Horizontal Drilling-250;& IRS Casing Pipe-200	RMT	2,148
14.6	Horizontal Drilling-200;& IRS Casing Pipe-150	RMT	1,510
>	Gas/Oil Pipeline crossing(excluding cost of water carrier pipe and it's laying charges)		
	(I) In Hard Rock (Item No 15 to 19)		
15	Drilling of 1000mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in Hard rock with required length incl fixing of 900mm dia M.S./RCC casing pipe with pushing etc complete various size of pipe for 550 to 700mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
15.0	Auger Boring-1000;& IRS Casing Pipe-900	Job	1,721,772
15.1	Auger Boring-1000;& RCC Casing Pipe-900	Job	1,665,433
16	Drilling of 900mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in Hard rock with required length incl fixing of 800mm dia M.S./RCC casing pipe with pushing etc complete various size of pipe for 400 to 500mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
16.0	Auger Boring-900;& IRS Casing Pipe-800	Job	1,380,463
16.1	Auger Boring-900;& RCC Casing Pipe-800	Job	1,289,143
17	Drilling of 500mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in Hard rock with required length incl fixing of 500mm dia M.S./RCC casing pipe with pushing etc complete various size of pipe for 250 to 350mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
17.0	Auger Boring-500;& IRS Casing Pipe-500	Job	685,233

Item No.	Description	Unit	Rate for 2021-22
17.1	Auger Boring-600 & RCC Casing Pipe-500:	Job	588,825
18	Drilling of 500mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in Hard rock with required length incl fixing of 400mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 180 to 200 mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
18.0	Auger Boring-500 & IRS Casing Pipe-400:	Job	454,510
18.1	Auger Boring-500 & RCC Casing Pipe-400:	Job	386,743
19	Drilling of 300mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in Hard rock with required length incl fixing of 250mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for less than 200 mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
19.0	Auger Boring-300 & IRS Casing Pipe-250:	Job	184,661
19.1	Auger Boring-300 & RCC Casing Pipe-250:	Job	160,272
	(II) Other than Hard Rock (Item No 20 to 24)		
20	Drilling of 1000mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in other than Hard rock with required length incl fixing of 900mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 550 to 700mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
20.0	Auger Boring-1000 & IRS Casing Pipe-900:	Job	676,521
20.1	Auger Boring-1000 & RCC Casing Pipe-900:	Job	620,182
21	Drilling of 900mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in other than Hard rock with required length incl fixing of 800mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 400 to 500mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
21.0	Auger Boring-900 & IRS Casing Pipe-800:	Job	631,197
21.1	Auger Boring-900 & RCC Casing Pipe-800:	Job	443,012
22	Drilling of 600mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in other than Hard rock with required length incl fixing of 500mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 250 to 350mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
22.0	Auger Boring-600 & IRS Casing Pipe-500:	Job	288,942
22.1	Auger Boring-600 & RCC Casing Pipe-500:	Job	212,535
23	Drilling of 500mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in other than Hard rock with required length incl fixing of 400mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for 180 to 200 mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
23.0	Auger Boring-500 & IRS Casing Pipe-400:	Job	193,198
23.1	Auger Boring-500 & RCC Casing Pipe-400:	Job	125,430
24	Drilling of 300mm dia Horizontal borehole by auger method for watermain pipeline crossing under the gas & oil pipeline incl in other than Hard rock with required length incl fixing of 250mm dia M.S/RCC casing pipe with pushing etc complete various size of pipe for less than 200 mm dia watermain(for crossing length of 30 mts, excluding cost of water carrier pipe and laying charges)		
24.0	Auger Boring-300 & IRS Casing Pipe-250:	Job	80,136
24.1	Auger Boring-300 & RCC Casing Pipe-250:	Job	56,747
	Note: The above rates are for 30 mt length for all Gas/Oil Pipeline crossing, if crossing length is increased or decreased than correction of Rs- (Rate of SOR/30 per meter shall be + or - as per actual length).		
25	Replacement of air valve riser by Dismantling the existing air valve by excavation, dismantling conc and cutting/shifting of riser from top of pipe and install new M.S pipe of 6mm th and 3.2mt length with necessary fittings such as flange of appropriate size, nut bolts and embed the pipe in R.C.C M:15 with offset of 10 cm around pipe with necessary steel etc complete		
	Dia of A.V		
25.0	Dia of Air Valve 50mm	Nos	487
25.1	Dia of Air Valve 80mm	Nos	545
25.2	Dia of Air Valve 100mm	Nos	558
25.3	Dia of Air Valve 150mm	Nos	573
25.4	Dia of Air Valve 200mm	Nos	589
26	Erection of air valve riser by installing new M.S pipe of 6mm thick and 3.2mt length with necessary fittings such as flange of appropriate size, nut bolts and embed the pipe in R.C.C M:15 with offset of 10 cm around pipe with necessary steel etc complete		
	Dia of A.V		
26.0	Dia of Air Valve 50mm & MS Pipe	Nos	3,112
26.1	Dia of Air Valve 80mm & MS Pipe	Nos	4,350
26.2	Dia of Air Valve 100mm & MS Pipe	Nos	5,543
26.3	Dia of Air Valve 150mm & MS Pipe	Nos	7,792
26.4	Dia of Air Valve 200mm & MS Pipe	Nos	10,122

Item No.	Description	Unit	Rate for 2021-22
27	Designing, providing and casting reinforced concrete M-35 design mix box, including providing and casting steel cutting edge for front shield, MS rear shield RCC M-20 thrust bed, thrust wess for pushing the box below railway embankment under railway, SH, NH roads under running traffic condition as per contractors own design/ drawing including arrangement for intermediate jacking station with provision of intermediate shield and its connection with the box drag sheet as may be required for smooth controlled pushing etc complete in all respects, including cost of necessary excavation with its all lead and lift for constructing thrust bed at designed level as directed by engineer-in-charge including providing all temporary works as required and approved by Railway or statutory authority, required protection of existing road pavement/ railway track including providing water tight joints in RCC box segments using CC grout with epoxy paint on exposed facing and providing RCC saddles in the box as per details given with drawing for supporting pipe in the box as directed, including all plants machinery, equipments, all labour material and all temporary works in all respects, dismantling and removal of temporary work, restoring ground to its original profile on completed work. Rate is inclusive of construction of pushing pit, receiving pit and intermediate pit if required and inclusive of all tools & tackle etc complete.		
27.1	Size 2.0 x 2.0 in all strata of Soil	RMT	136,878
27.2	Size 2.5 x 2.5 in all strata of Soil	RMT	213,872
27.3	Size 2.5 x 3.0 in all strata of Soil	RMT	256,647
27.4	Size 3.0 x 3.0 in all strata of Soil	RMT	307,976
27.5	Size 3.0 x 3.5 in all strata of Soil	RMT	359,306
27.6	Size 3.5 x 3.5 in all strata of Soil	RMT	419,189
27.7	Size 4.0 x 4.0 in all strata of Soil	RMT	547,512

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