

Estimate for Artificial Ground Water Recharge Scheme by Rain water Harvesting at Rooftops of Government Buildings

Abstract of Cost

S.No.	Description of item	CSR item No.	Unit	Quantity	Rate	Amount in Rs
1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer – in-charge, upto 90 metre depth below ground level.	28.91 a	meter	40	468.53	18741.2
2	Making electric Logging of borehole with electronic well logger including cost of equipment at site etc.complete in all respect	28.87	No.	1	15848.57	15848.57
3	Supplying, assembling, lowering and fixing in vertical position in bore well,unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818-2010, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer – in- charge (b) 150 mm nominal size dia.	28.92 b	meter	28	1012.58	28352.24
4	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS:12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge for (b) 150 mm nominal size dia. Of slotted pipe	28.93 b	meter	11	1344.64	14791.04
5	Providing, Laying , fixing & jointing of P.V.C. Pipes as per ISI-4985 (ISI marked with the prior approval of Engineer-in-Charge) along the Trenches and laying the same in Trenches to correct alignment and gradients, cutting, jointing and testing complete as per specifications	28.13	metre			
	xxii 110mm o/d PVC pipe of 4 Kgf. / sqcm		metre	80	197.83	15826.4
	xxiii 160mm o/d PVC pipe of 4 Kgf. / sqcm		metre	40	408.57	16342.8
6	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes single socketed (working pressure 4 kgf / cm ²) conforming to IS : 4985, including fixing with MS clamps (i) U-PVC pipes (working pressure 4 kgf. / sqcm) pipe 110 mm dia.	13.74 a	metre	24	252	6048

S.No.	Description of item	CSR item No.	Unit	Quantity	Rate	Amount in Rs
7	Providing and fixing 110 mm dia. U.P.V.C bend for Rain water pipe as per IS:14735 including jointing complete as per specifications and to the entire satisfaction of Engineer- in- charge. a) UPVC 110 mm bend	13.75	Nos.	6	135	810
8	Supplying & Fixing of well cap having thread to fix on housing pipe complete in all respect (b) 150mm internal diameter	28.80 b	No.	2	396.52	793.04
9	Development and Stabilizing of the tubewell with air compressor of required capacity as directed by the engineer-in- charge including cost of tools, appliances & consumable to the satisfaction of Engineer-in-charge (a) Capacity of Air compressor 300 cfm at 250 PSI	28.81 a	Hours	3	3001.17	9003.51
10	Development and Stabilizing of the tubewell with submersible pump of required capacity as directed by the engineer-in- charge including cost of tools, appliances & consumable to the satisfaction of Engineer-in- charge.	28.82	Hours	3	1631.62	4894.86
11	Excavation manually in trenches for pipe lines with straight or open cutting in streets and lanes in builtup area where width of street / Lane from wall to wall is less than 3 meter including trimming and dressing sides levelling of beds of trenches to correct grade, cutting joint holes ,refilling consolidation, watering , including the cost of dewatering of rain water, diversion for traffic, night signals. Providing & fixing caution boards, watching, fencing, etc. and removal of surplus soil from the site upto 15 meter distance complete in all respects (b) Exceeding 1.5 m depth but not exceeding 2.25 m depth (i) All classes of soil except rocky	28.1 (b-i)	cum	34.17	175.1	5983.167
12	Cement concrete 1:8:16 (b)With stone aggregates 20mm gauge (i)mixing by manual means	10.7 (b-i)	cum	4.92	3027	14892.84
13	Cement concrete 1:2:4 a With stone ballast or shingle (i) mixing by manual means	10.13 (a-i)	Cum	2.46	4564	11227.44
14	Supplying & fixing of M.S Clamp of size 150mm X 12mm made out of MS Flat 1.52m long, suitable to fit Housing pipe including the cost Nut & Bolts of Suitable size complete in all respect.	28.77	No.	1	2673.23	2673.23
15	First class burnt brick work laid in cement sand mortar 1:4 in foundation and plinth	11.7	cum	8.55	5109	43681.95
16	12.5 mm thick cement plaster 1:4	15.9	Sqm.	42.12	189	7960.68

S.No.	Description of item	CSR item No.	Unit	Quantity	Rate	Amount in Rs
17	Supplying at quarry site of gravel of 1/16" to 1/8" sizes including pouring and packing in the annular space between the pipes assembly and the bore.The gravel should be free from dust,dirt or the vegetables manner as per IS 4097/1967 with latest amendments	28.88	Cum	2.01	738.68	1484.7468
18	Providing and placing in horizontal layers filtering media screened, washed and cleaned as described below:-	28.51				
	Bajri (Coarse)screened, cleaned and washed and graded from 20mm to 25mm (fromPathankot or approved equivalent quarry)	28.51(b)	cum	0.8	1319.7	1055.8
	Bajri screened, cleaned and washed and graded from 6mm to 20mm (from Pathankot or approved equivalent quarry).	28.51(c)	cum	0.6	1398.01	838.8
	Coarse sand screened, cleaned and washed and graded from 3mm to 6mm (fromPathankot or approved equivalent quarry)	28.51(d)	cum	0.4	2037	814.8
19	Providing and fixing 14 gauge MS sheet garage doors with 40mmx40mmx6mm angle iron frame with diagonal braces 3.15mm gusset plates including locking arrangement with handles etc. complete in respects	18.1	sqm	4	3900	15600
20	Providing & fixing 650 mm x 650 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD). 650 x 650 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)650 x 650 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty	29.34 d (Analysis)	Nos.	4	1455	5820

S.No.	Description of item	CSR item No.	Unit	Quantity	Rate	Amount in Rs
21	Providing & fixing 1050 mm x 1050 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD). 1050 x 1050 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)1050 x 1050 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty	29.34 d (Analysis)	Nos.	2	3797	7594
22	Operation and maintenance for 5 years		Lumpsum	Lumpsum		30000
	Total				Rs	281079.08
						say 2.81 Lakh

**Estimate for Artificial Ground Water Recharge Scheme by Rain water Harvesting at Rooftops of Government Buildings
DETAIL OF QUANTITIES**

S.No.	Description of item	CSR item No.	Unit	Quantity in Detail	TOTAL QUANTITY
1	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Engineer – in-charge, upto 90 metre depth below ground level.	28.91 a	meter	40	40 meter
2	Making electric Logging of borehole with electronic well logger including cost of equipment at site etc.complete in all respect	28.87	No.	1	1 JOB
3	Supplying, assembling, lowering and fixing in vertical position in bore well,unplasticized PVC medium well casing (CM) pipe of required dia, conforming to IS: 12818-2010, including required hire and labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer – in- charge (b) 150 mm nominal size dia.	28.92 b	meter	28	28 meter
4	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS:12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Engineer-in-charge for (b) 150 mm nominal size dia. Of slotted pipe	28.93 b	meter	1+10=11	11 meter
5	Providing, Laying , fixing & jointing of P.V.C. Pipes as per ISI-4985 (ISI marked with the prior approval of Engineer-in-Charge) along the Trenches and laying the same in Trenches to correct alignment and gradients, cutting, jointing and testing complete as per specifications	28.13	metre		
a	xxii 110mm o/d PVC pipe of 4 Kgf. / sqcm		metre	4+4+7+7+ 10=32	32 meter
b	xxiii 160mm o/d PVC pipe of 4 Kgf. / sqcm		metre	3	3 meter
6	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes single socketed (working pressure 4 kgf / cm ²) conforming to IS : 4985, including fixing with MS clamps (i) U-PVC pipes (working pressure 4 kgf. / sqcm) pipe 110 mm dia.	13.74 a	metre		24 metre
7	Providing and fixing 110 mm dia. U.P.V.C bend for Rain water pipe as per IS:14735 including jointing complete as per specifications and to the entire satisfaction of Engineer- in- charge. a) UPVC 110 mm bend	13.75	Nos.		6 Nos.

S.No.	Description of item	CSR item No.	Unit	Quantity in Detail	TOTAL QUANTITY
8	Supplying & Fixing of well cap having thread to fix on housing pipe complete in all respect (b) 150mm internal diameter	28.80 b	No.	2	2 No.
9	Development and Stabilizing of the tubewell with air compressor of required capacity as directed by the engineer-in- charge including cost of tools, appliances & consumable to the satisfaction of Engineer-in-charge (a) Capacity of Air compressor 300 cfm at 250 PSI	28.81 a	Hours	3	3 hours (1 job)
10	Development and Stabilizing of the tubewell with submersible pump of required capacity as directed by the engineer-in- charge including cost of tools, appliances & consumable to the satisfaction of Engineer-in- charge.	28.82	Hours	3	3 hours (1 job)
11	Excavation manually in trenches for pipe lines with straight or open cutting in streets and lanes in builtup area where width of street / Lane from wall to wall is less than 3 meter including trimming and dressing sides levelling of beds of trenches to correct grade, cutting joint holes ,refilling consolidation, watering , including the cost of dewatering of rain water, diversion for traffic, night signals. Providing & fixing caution boards, watching, fencing, etc. and removal of surplus soil from the site upto 15 meter distance complete in all respects (b) Exceeding 1.5 m depth but not exceeding 2.25 m depth (i) All classes of soil except rocky	28.1 (b-i)	cum	(A) For main rain water harvesting structure[1*(3.46*1.46*2) =10.10 Cum] (B) For main haudi (1No.) [2*(1.46*1.46*1.15)=4.9Cum] (C) For small haudi (4 No.) [4*(1.06*1.06*0.75) = 3.37Cum] (D) For pipeline connection from main haudi to Main RWH structure [2*(20*0.3*1) =12Cum] (E) For pipeline connection from small haudis to Main haudi [(80*0.3*0.45) =10.8 Cum] TOTAL =34.17 Cum	34.17 Cum
12	Cement concrete 1:8:16	10.7 (b-i)	cum	(A) At bottom of trench[(3.46*1.46*0.10)=0.50 cum] (B) IN Main haudis2*[(1.46*1.46*0.10)=0.42 Cum] (C) IN small haudis[4*(1.0*1.0*0.10)=0.40 Cum] (D) IN Trench connecting Main haudi to RWH structure[(20*2*0.3*0.10)=1.2 Cum] (E) IN Trench connecting Small haudis to Main haudi[(80*0.3*0.10)=2.4 Cum] TOTAL=4.92 Cum	4.92 Cum
	(b)With stone aggregates 20mm gauge				
	(i)mixing by manual means				
13	Cement concrete 1:2:4 a With stone ballast or shingle (i) mixing by manual means	10.13 (a-i)	Cum	Quantity equals to half the quantity of 10 no. Item [(4.92/2)=2.46Cum]	2.46Cum
14	Supplying & fixing of M.S Clamp of size 150mm X 12mm made out of MS Flat 1.52m long, suitable to fit Housing pipe including the cost Nut & Bolts of Suitable size complete in all respect.	28.77	No.	1	1 No.

S.No.	Description of item	CSR item No.	Unit	Quantity in Detail	TOTAL QUANTITY
15	First class burnt brick work laid in cement sand mortar 1:4 in foundation and plinth	11.7	cum	(A) For main chamber RWH long walls [2*(3.46*2*0.23)=3.18Cum] short walls[2*(1.0*2*0.23)=0.92Cum] intercepting walls [1*(1.0*1.5*0.23)=0.35Cum] Total(A)=4.45 Cum (B) For main haudi long walls [2*(1.46*1.0*0.23)=0.67Cum] short walls[2*(1.0*1.0*0.23)=0.46Cum] Total(B) for 2 haudis=2.26 Cum (C) For small haudis(4 No. of haudis) long walls [2*(1.06*0.6*0.23)=0.29Cum] short walls[2*(0.6*0.6*0.23)=0.17Cum [TOTAL(C) 4 No. of haudis]=1.84Cum	8.55 Cum
16	12.5 mm thick cement plaster 1:4	15.9	sqm	(A)Main RWH structure (a)long walls[2*(3.0*2.0)-2*(1.0*2.3)=11.54sqm] (b)short walls[2*(1.0*2.0)=4sqm] (c)intercepting walls[2*(1.0*1.5)=3.0sqm] (d) Top of brick work[2*(3.46*0.23) + (1+2)*(1.0*0.23)=2.28sqm] TOTAL(A)=20.82sqm (B)For Main haudi (a)long walls[2*1.0*1.0=2.0sqm] (b)short walls[2*1.0*1.0=2.0sqm] (c)on top of brick work of long wall[2*1.46*0.23=0.67] (d)on top of brick work of short wall[2*1.0*0.23=0.46] TOTAL(B for 2 haudis)=10.26sqm (C)For small haudi (a)long walls[2*1.06*0.6=1.27sqm] (b)short walls[2*0.6*0.6]=0.72sqm] (c)Top of wall [2*1.06*0.23+280.6*0.23=0.77] Total(C) haudis 4No. Hence total 4*2.76 =11.04sqm Grand Total(A+B+C)= 20.82+10.26+11.04=39.75sqm	42.12 sqm
17	Supplying at quarry site of gravel of 1/16" to 1/8" sizes including pouring and packing in the annular space between the pipes assembly and the bore.The gravel should be free from dust,dirt or the vegetables manner as per IS 4097/1967 with latest amendments	28.88	Cum	(A)In Bore hole (($\pi/4$)*d*d [0.785*{(0.30*0.3)-(0.15*0.15)}]*38]=2.01Cum	2.01 Cum
18	Providing and placing in horizontal layers filtering media screened, washed and cleaned as described below:-	28.51			
	Bajri (Coarse)screened, cleaned and washed and graded from 20mm to 25mm (fromPathankot or approved equivalent quarry)	28.51(b)	cum	In main chamber(2*1*0.4)=0.80Cum	0.8Cum

S.No.	Description of item	CSR item No.	Unit	Quantity in Detail	TOTAL QUANTITY
	Bajri screened, cleaned and washed and graded from 6mm to 20mm (from Pathankot or approved equivalent quarry).	28.51(c)	cum	In main chamber (2*1*0.3)=0.60Cum	0.6 cum
	Coarse sand screened, cleaned and washed and graded from 3mm to 6mm (from Pathankot or approved equivalent quarry)	28.51(d)	cum	In main chamber (2*1*0.2)=0.40Cum	0.4Cum
19	Providing and fixing 14 gauge MS sheet garage doors with 40mmx40mmx6mm angle iron frame with diagonal braces 3.15mm gusset plates including locking arrangement with handles etc. complete in respects	18.1	sqm	3.24*1.23=4.0sqm	4.0sqm
20	Providing & fixing 650 mm x 650 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD). 650 x 650 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)650 x 650 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty	29.34 d (Analysis)	Nos.	4	4
21	Providing & fixing 1050 mm x 1050 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD). 1050 x 1050 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)1050 x 1050 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty	29.34 d (Analysis)	Nos.	2	2
22	Operation and maintenance for 5 years		Lumpsum	Lumpsum	1 Job

Estimate for Artificial Ground Water Recharge Scheme by Rain water Harvesting at Rooftops of Government Buildings		
Analysis of rates		
Item Sr. no	Description	Analysis
18	<p>Providing & fixing 650 mm x 650 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD).</p> <p>650 x 650 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)650 x 650 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty</p>	<p>Rate for cover of size 450 mm x 600 mm= Rs 956 CSR item 29.34 d) iii) rate for 650*650 size = $956 * 650 * 650 / (455 * 610)$ =Rs 1455</p>
19	<p>Providing & fixing 1050 mm x 1050 mm clear inside opening rectangular RCC manhole cover and frame ISI marked as per IS:12592-2002 including carriage from the stores of the Engineer-in-charge to site of work, loading, unloading including stacking and setting the same to correct lines over manholes including cement concrete copping (M:20) around the frame etc. Dia of steel for lifting hook is 16mm. (for EHD and HD).</p> <p>1050 x 1050 mm rectangular RCC man hole cover only as per ISI RCC Man hole cover with Frame d)1050 x 1050 mm rectangular clear opening RCC man hole cover with (iii) Medium Duty</p>	<p>Rate for cover of size 450 mm x 600 mm= Rs 956 CSR item 29.34 d) iii) rate for 1050*1050 size = $956 * 1050 * 1050 / (455 * 610)$ =Rs 3797</p>

S No	Name of Building/ Headworks	District	Total Rooftop area available (.)	No of structures
2	Canal Rest House Mehna	Shri Muktsar Sahib	2880	1
16	CANAL REST HOUSE, ZIRA	FEROZEPUR	1650	1
18	Talwandi Bhai Canal Rest House	FEROZEPUR	2160	1
36	Rajasthan feeder canal rest house Gidderbaha	Sri Muktsar sahib	4309	1
66	Drainage Circle Gidderbaha	Sri Muktsar Sahib	3600	1
67	Drainage Construction division, Faridkot at Gidderbaha	Sri Muktsar Sahib	2550	1
68	Canal Lining Division, Sri Muktsar Sahib	Sri Muktsar Sahib	3300	1
69	Project Division No. 1 Drainage Gidderbaha	Sri Muktsar Sahib	3000	1
70	Drainage Construction Division, Ferozepur At Fazilka	Fazilka	1850	1
71	Fdk Drg Const Div Faridkot	Faridkot	4840	1
79	Drainage Const.Circle Canal Colony	Ferozepur	4554	1
93	Lining Divisin no 1, Ferozpur	Ferozpur	4800	1