Proposal: Water System at Suryodaya Education Foundation School

Abstract

After the destructive earthquakes on April 25th and May 12th 2015, our generous friends of Suryodaya Education Foundation have rebuilt 13 classrooms in three separate structures. A proper rain water harvesting system is needed because our school has no access to a good source of clean water. During the monsoon season we will be able to collect and save rain water for future use. The rain water harvesting system also helps provide proper drainage for the school grounds. Furthermore, the rain water harvesting system can help promote and educate our students and community about the importance of water conservation. The rain water harvesting system could be ready within 1 month, and before the rainy season starts.

Reasons for Necessity

1. The school has no reliable water systems.

2. There is no source of clean underground water, and the ground water in the Kathmandu is contaminated.

3. The system will help eliminate the need to bring in expensive portable water by trucks. Thus, the project would help in reducing the school carbon emissions.

4. We need a supply of good water for sanitary purposes such as toilet use and hand washing.

5. After treatment, we would be able to use the harvested rain water for drinking.

6. The harvested water could be used to water our school garden and other green landscaping elements on the campus.

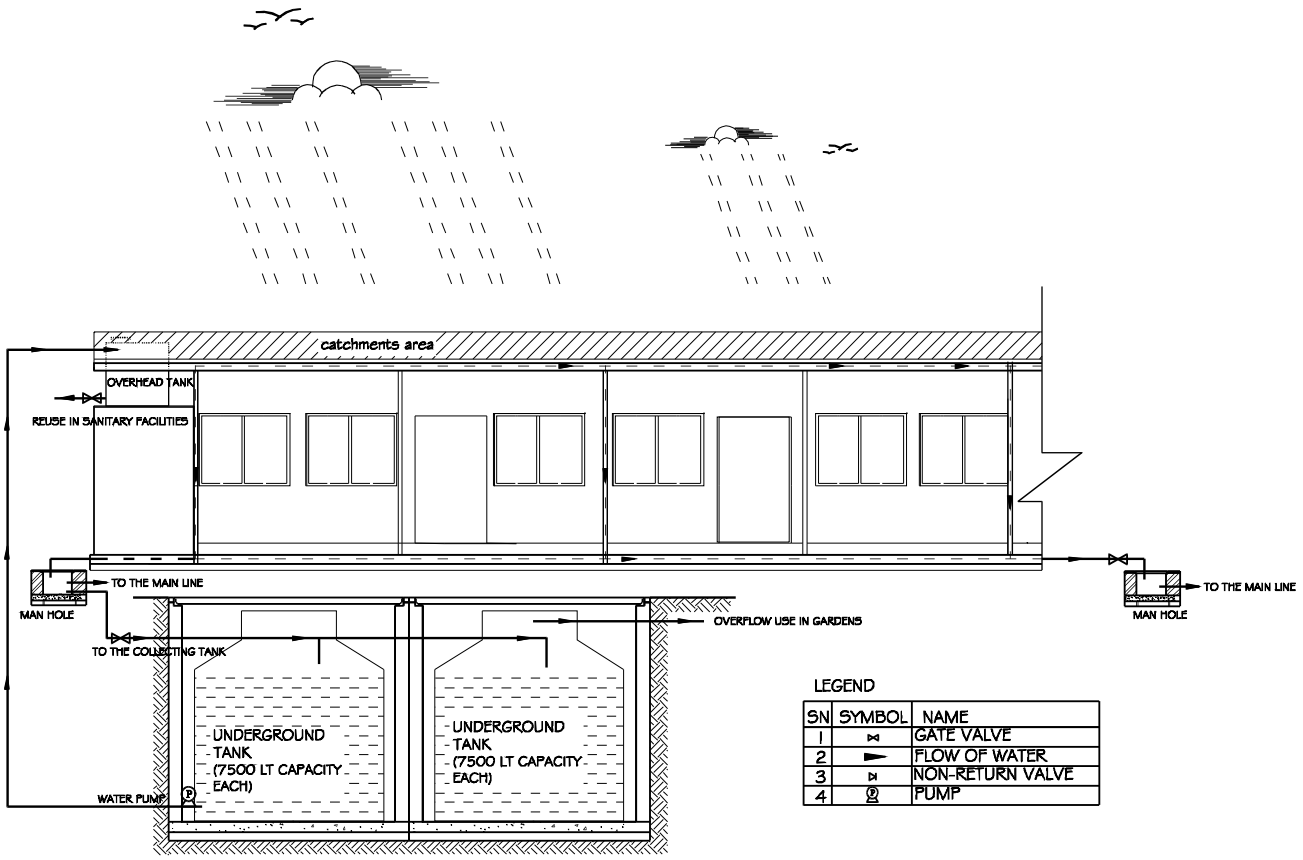
7. The system helps with providing a proper drainage system for the school grounds. The school has had problems with flooding in the past.

8. Aids in educating our students of the community about environmental awareness and the importance of water conservation.

9. The rain water harvesting system is elemental to our school's goal of becoming self-sufficient.

Scope

The scope of this project is to provide rain water harvesting for all 13 classrooms, computer lab, office and teachers' room. This system will help us use the water for future and continual use.



CROSS SECTION OF THE RAIN WATER HARVESTING

Cost and Requirements

Construction of Rain Water Harvesting System

Suryodaya Secondary School

Dillibazar, Kathmandu, Nepal

s.n.	activities	UNIT	Length	Breadth	Height	Quantity	Rate	Total quantity
1	**construction of the base for water tank**							
	earth work excavation	Cu.m	6	2.72	3.6	58.752	544.87	32,012.20
	Back filling of excavated earth (40%)	Cu.m				23.5008	554.01	13,019.68
	Brick soling work	sq.m	6	2.72		16.32	1009.26	16,471.12
	PCC (1:2:4)	Cu.m	6	2.72	0.075	1.224	13988.33	17,121.72
	Brick wall 1:4 c/s 230 brick wall for periphery	sq.m	9.8125	0.23	3.6	16.2495	15408.52	250,380.75
	metal Steel cover	each				2	43000	86,000.00
	Total for base for water tank							**415,005.47**
2	**water tank**							
	PVC water tank 7500 litre	each				2	97500	**195,000.00**
3	**Man hole**							
	construction of the 2 man hole	each				2	25000	50,000.00
	metal grating cover	each				2	5000	10,000.00
	Total for man hole							**60,000.00**
4	**water tank connection system**							
	water tank stand metal	no				1	25000	25,000.00
	1000 litre tank	no				1	11000	11,000.00
	PVC pipe 6 Kg/cm2 of 75 mm	m	54			54	250.86	13,546.44
	Pvc pipe 6 Kg/cm2 of 110 mm	m	65			65	462	30,030.00
	Mulitlayer composite pipe 20-25mm 3/4 "	m	12			12	200	2,400.00
	Mulitlayer composite pipe 26-32mm 1 "	m	51			51	352.56	17,980.56
	1/2 H.P water pump (Multi stage pump)	no				1	10568	10,568.00
	110 gate valve	no				3	12000	36,000.00
	32mm double metal ball valve 1"	no				1	1284	1,284.00
	25 mm double metal ball valve 3/4"	no				1	887	887.00
	plumber fee					1	35000	35,000.00
	Total for connection system							**183,696.00**
	Sub total cost of rain water harvesting system							**853,701.47**
	Provisional (5%)							42,685.07
	Contingencies (5%)							42,685.07
	VAT (13%)							110,981.19
	Total cost							**1,050,052.80**