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(Category - I Deemed to be University) Porur, Chennai

S.No	Description of the work done	Pre Implementation	Post Implementation	Remarks
1	Aquifer Pond (500m x 70 m x 3.5m) having a capacity of 98000Cu.M	The usage of the treated water is limited to some purposes as allowed by the TNPCB. The excess treated water from the STP was draining out of the campus.	The excess water is stored in the Aquifer Pond and the campus is operating at Zero Discharge condition.	Water Conservation and the fresh water intake is limited to that extent during the requirement for irrigation.
2	UV Treatment of STP treated water.	As per the norms of the TNPCB, the treated water could be used only for irrigation without the UV treatment facility.	After the introduction of the UV treatment, we are able to increase the usage of the treated water by around 1000Cu.m per day for the toilet flushing application in the hostels and the cooling tower in the HVAC Plants.	Recycling of treated water for the purpose of Toilet flushing and colling tower operation possible by the implementation of the UV treatment.
3	Ultra Filtration and Softening Plant for further treating the STP treated water.	The finer bio particles escaping the Pressure sand filter / Activated Carbon filter were accumulating and affecting the cooling tower operation. Consequently we were burdened with filter chocking and sediments in the cooling tower.	Post implementation, there is no accumulation of the bio mass and the operation of the cooling towers and the condenser water circulation pumps are working efficiently.	The capacity of the plant is 500KL/day and this implementation had resulted in the improvement of the cooling tower and the chillers.
4	Modernisation of Football field irrigation system. By this modernisation, the football field has layers of soil and channels are created below to let the excess water flow back to the tanks.	The draining of the water sprinkled takes time. During the rains the field is badly affected wit accumulation of water.	The excess water drains from the field quickly without making issues for the players. Also during the rains, this works like a rain water harvesting system and flows into the recharging wells and pits around the football field.	The campus gets good amount of rain water during the rains and the regular irrigation of the field does not affect the usage of the field.

5	Rain water Conservation system linking the aquifer pond and the buildings.	Due to the absence of the trenches for the water to flow, there were accumulation of rain water in many places.	According to the slope of the campus geography, paved and unpaved trenches carry the rain water to the aquifer Pond and other recharging wells strategically located inside the campus.	Water availability is increased by the storage of the rain water and that helps to keep the greenery fresh irrespective of the season.
6	Condensate drain water from the B6 Cath Lab air conditioners is taken to a storage tank and pump it as the “make up water” for the chilled water system.	The condensate water was draining into the domestic sewage and wasted.	This facility is providing “make up water” for the Chilled water System with the quality of the distilled water, thereby maintaining the chilled water quality in the system.	Besides saving a quantity of the fresh water needed for this purpose, this arrangement has resulted in maintaining the chilled water quality.
7	Using the RO Plant reject water in the Water Treatment plant to augment the fresh water needs.	RO plant reject water was getting wasted into the domestic sewage.	First stage reject water is used in the potable water aeration tank and the second stage reject water is used as drinking water.	The quality of the reject water varies from first stage RO and the second stage RO and the usage was accordingly decided to reduce the fresh water intake.

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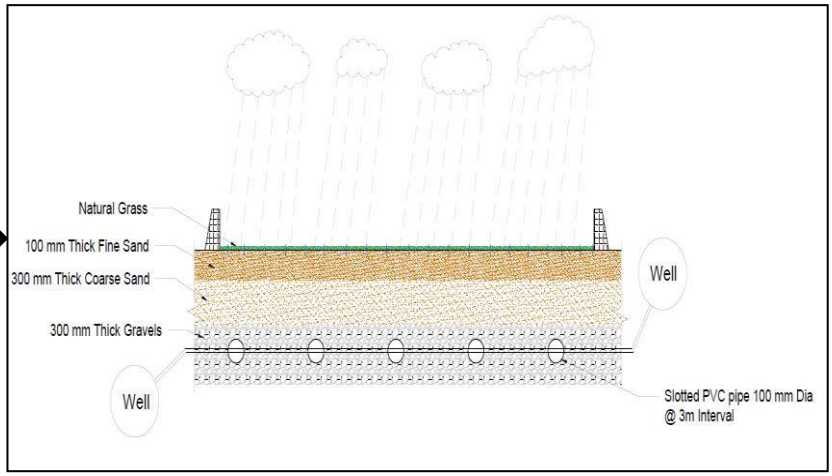
Campus Rainwater Harvesting System

The rainwater harvesting will help in raising the ground water table.

Campus rain water harvesting system: Annual Recharge Potential

Sl. No.	Description of Area	Area (m^2)	Run-off Factor	Yearly Rainfall (m/Hr)	Volume of Water Available for Rain Water Harvesting Yearly (m^3/Hr)
1	Roads and Pavement Area	52,608.66	0.7	0.09	3314.35
2	Surface Parking	43,117.00	0.15	0.09	582.08
3	Green Belt	3,83,525.00	0.15	0.09	5177.59
4	Unpaved Area	67,286.94	0.15	0.09	908.37
Annual Recharge Capacity					**9982.39**

Rainwater Harvesting system in the football field



Common Open well and Recharge Pits

Total Number of existing open well and rainy well within the site is 9 Nos.
The dimension of the well 4.5m diameter and 15m depth.
Volume of the open well/rainy well = 3.14 x 2.25m x 2.25m x 15m = 238.4
Cum. No. of the open well/rainy well provided in the site = 9Nos

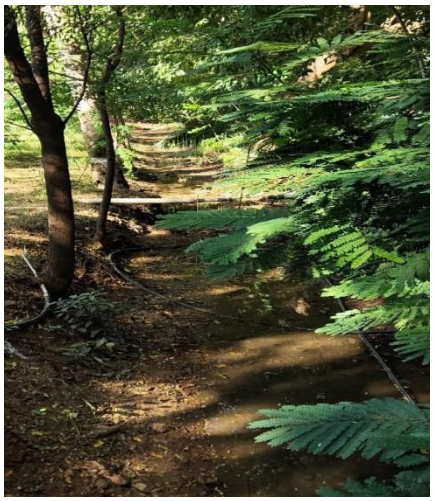
Total volume of the rain water harvested through open well/rainy well = 2,145.9 Cum.

Open Well for rainwater storage	Recharge Pits
	

The total existing rain water harvesting pit is 36 Nos and the size of the harvesting pit will be 1.2 m diameter and 3 m depth.

Volume of the single harvesting pit = 3.14 x 0.6 m x 0.6 m x 3 m
= 3.4 Cum
Total Volume of the rain water harvesting pit = 3.4 Cum * 36
= 122.4 Cum

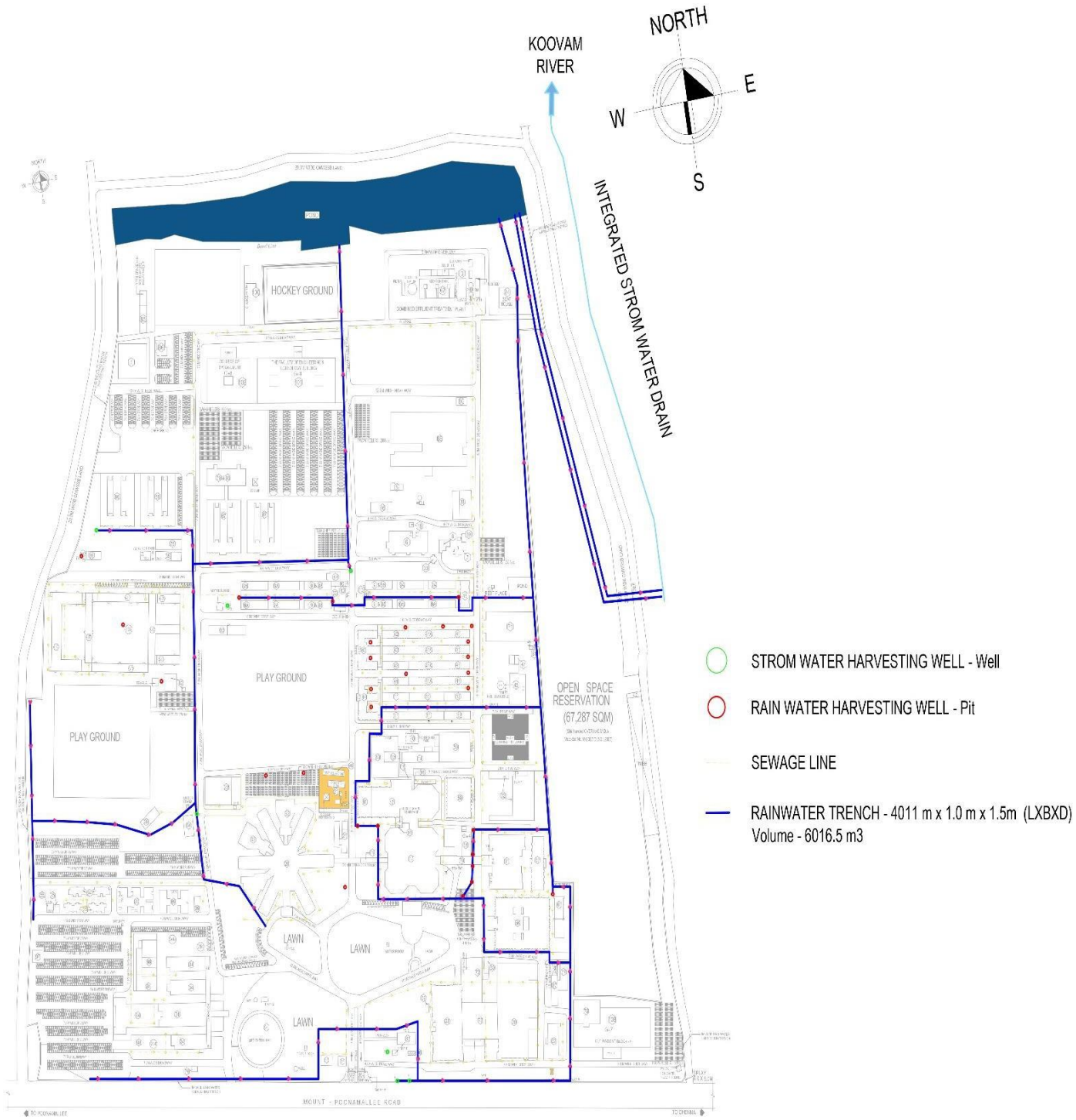
Volume of the trench = 3359 m x 1.0 m x 1.5 m = 5039 cum

Unpaved Trench	Paved Concrete Trench
	

Aquifer System

Size of the aquifer (Length x Width x Depth) (m)	500 x 70 x 3.5
Storage volume of the aquifer (cu.m) – 80%	98,000

Aquifer Pond



CAMPUS Layout of the Rain and Storm water canals into the Aquifer Pond

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Roof Top Rainwater Harvesting System

Common Open well and Recharge Pits

Total Number of existing open well and rainy well within the site is 9 Nos.
The dimension of the well 4.5m diameter and 15m depth.
Volume of the open well/rainy well = 3.14 x 2.25 m x 2.25 m x 15 m = 238.4
Cum. No. of the open well/rainy well provided in the site = 9nos
Total volume of the rain water harvested through open well/rainy well = 2,145.9 Cum.

Open Well for rainwater storage	Recharge Pits
	

The total existing rain water harvesting pit is 36 nos and the size of the harvesting pit will be 1.2 m diameter and 3 m depth.

Volume of the single harvesting pit = 3.14 x 0.6 m x 0.6 m x 3 m
= 3.4 Cum
Total Volume of the rain water harvesting pit = 3.4 Cum * 36
= 122.4 Cum

Two types of trenches are provided in the campus. In paved area concrete trenches of size 0.5 m x 1 m depth provided for storm water drain which is connected to the aquifer within the campus. In unpaved area, natural drainage trench provided which will percolate the rain water to the ground to improve the water table. Storm water will flow through the trench which is connected to the aquifer. Trench maintained all along the boundary, the depth of the trenches will be around 1.00 m and width 1.5 m.

Volume of the trench = 3359 m x 1.0 m x 1.5 m = 5039 cum

Unpaved Trench	Paved Concrete Trench
	

Aquifer System

The aquifer system is located at north end of the campus based on the site contour level Storm water trenches are connected with the aquifer to conserve rain water. The size and the capacity of the aquifer is mentioned below.

Size of the aquifer (Length x Width x Depth) (m)	500 x 70 x 3.5
Storage volume of the aquifer (cu.m) – 80%	98,000

Aquifer Pond

Functional Status

All the systems as detailed above are functional. The aquifer Pond is used to store excess treated water as well as the rain water harvested.

Usage of water

The harvested water flows into the Aquifer Pond and used for irrigation.

Activities in the Aquifer Pond.

Pond is used for rowing competition and practice using the length of 500m.

Campus Layout of the rain and storm water canals to the Aquifer Pond