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INSTITUTE OF HIGHER EDUCATION AND RESEARCH

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

## 6.3.4 - Does your University as a body apply building standards to minimize water use?

The rainwater harvesting will help in raising the ground water table. The roof top rainwater harvesting through recharge pit process is used in the campus.

The buildings in the campus have different heights ranging from G to G+8. The total roof top area in the campus is 100098.53Sq.M exposed to rain. Considering a run off factor of 0.9 and the average yearly rainfall of 0.9m/Hr, we have a potential harvesting capacity of 8107.98Cu.M.

This much water flows through a series of open and paved trench to the nearest recharge pit and into the open wells located in the campus.

The existing rain water harvesting pits has the dimension of 1.2 m dia and 3m depth. Mesh will be provided at the roof so that leaves or any other solid waste/debris will be prevented from entering the pit. Rainwater from roofs will be taken to collection chambers located on ground. These collection chambers are interconnected to the harvesting pit through pipes. The harvesting pit is circular in shape and back-filled with graded material, boulder at the bottom, gravel in the middle and sand at the top. The final disposal of storm/rain water done through multiple recharge / rain harvesting pits to recharge the ground water. The water collected is used for replenishing the ground water aquifers and creating surface storages for utilization in non-rainy season.

### 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 4.5 m diameter and 15 m depth.

Volume of the open well/rainy well =  $3.14 \times 2.25 \text{ m} \times 2.25 \text{ m} \times 15 \text{ m} = 238.4$

Cum. No. of the open well/rainy well provided in the site = 9 Nos

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.

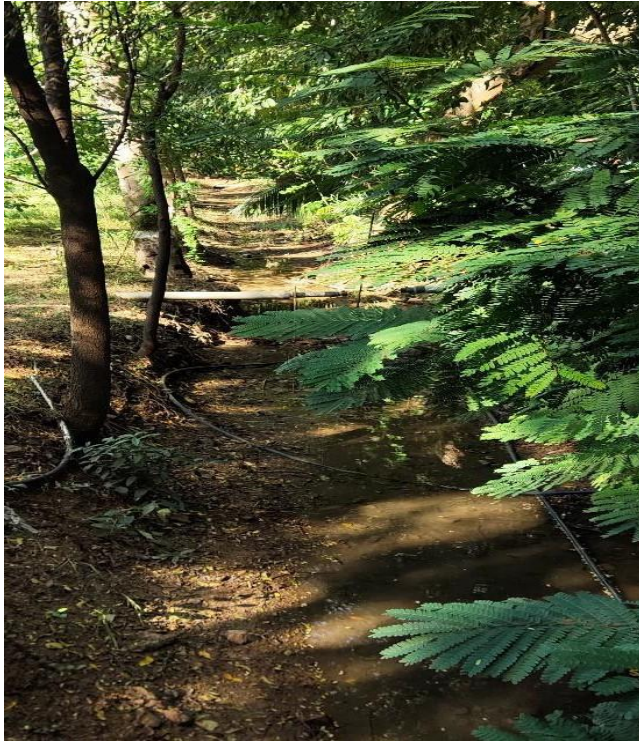
$$\begin{aligned}\text{Volume of the single harvesting pit} &= 3.14 \times 0.6 \text{ m} \times 0.6 \text{ m} \times 3 \text{ m} \\ &= 3.4 \text{ Cum}\end{aligned}$$

$$\begin{aligned}\text{Total Volume of the rain water harvesting pit} &= 3.4 \text{ Cum} \times 36 \\ &= 122.4 \text{ Cum}\end{aligned}$$

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.

$$\text{Volume of the trench} = 3359 \text{ m} \times 1.0 \text{ m} \times 1.5 \text{ m} = 5039 \text{ cum}$$

**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**

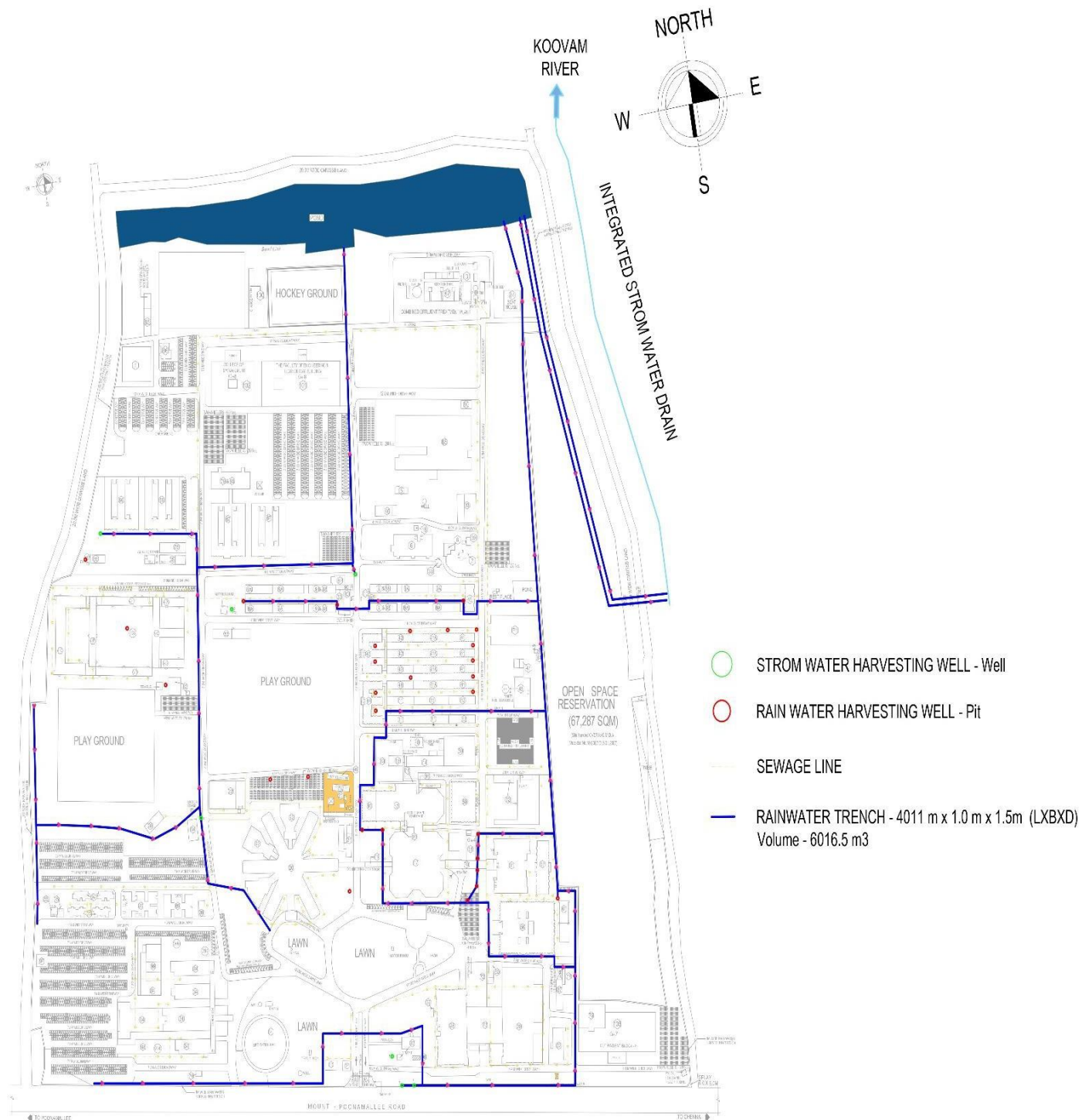


## Functional Status

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.



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