



Conventional Rain Water Harvesting by Life Green Systems

Project Report

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Introduction about Life Green Systems Limited

Life Green Systems (GS) is a sustainability expert providing green technologies to assist Architects, City Planners, and Developers in creating Green Cities. GS is one of the pioneers in Modular Technology in India and has established a strong presence over the past 13 years. We are dedicated to technologies that are efficient, eco-friendly, and inspired by nature.

Life Green Systems provides cutting edge technology and customer friendly consultation, along with execution of projects related to - *Rooftop gardens, Vertical gardens, Permeable pavers, Efficient subsurface drainage, Rain water harvesting, Watershed management, Recharging groundwater, Ecological storm water drains, Lake Clean-up, Urban flood mitigation, Grey/wastewater treatment and many more.* Our products and solutions qualify for Green Ratings, obtaining Carbon Credits as well as LEED points.

Life Green Systems would like to help you create sustainable and vibrant living and working spaces. We are proud of meeting and exceeding the expectations of our clients in terms of customer service, project schedule and end product.

Conventional Rainwater Harvesting (RWH)

RWH means capturing rain where it falls or capturing the run off in your premises and taking measures to keep that water clean by not allowing polluting activities to take place in the catchment.

Therefore, water harvesting can be undertaken through a variety of ways

- Capturing runoff from rooftops
- Capturing runoff from local catchments
- Capturing seasonal floodwaters from local streams
- Conserving water through watershed management

Why harvest rainwater?

There are many reasons but following are some of the important ones:-

- To arrest ground water decline and augment ground water table
- To beneficiate water quality in aquifers
- To conserve surface water runoff during monsoon
- To reduce soil erosion
- To inculcate a culture of water conservation

Central Ground Water Board Requirement for Rainwater Harvesting

Categor y	Stage of Development (%)	Recycle / Reuse	Other Water Conservation Practices	Withdrawal permitted (%age of proposed recharge)
Safe	< 70	Mandatory recycling and reuse of water	Water audit measures to be adopted	RWH to be adopted.
Semi- critical	70 – 100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	At least 50% recharge is made mandatory.
Critical	90 – 100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	The quantum of recharge should be equal to or more than the proposed withdrawal.
Over- exploited	>100	Efficient utilization of recycled water and reuse of water should be mandatory.	Water audit measures to be adopted	Withdrawal may be permitted up to 60 % of proposed recharge. Also withdrawal should not exceed a maximum limit of 1500 m³/day for each unit.

Rainwater yield depends largely on roof size, tank capacity and the frequency and magnitude of rainfall, but also on the daily water requirements of the household

Project Location: Dharuhera – 123110 Distt. Rewari (Haryana.)

Date of Commencement: 06th March 2014

Date of Completion: 12th June' 2014

The Design Solution

Life Green Systems has designed and developed conventional rain water harvesting at project site located at Rewari, Haryana. Our in-depth knowledge and expert civil work are a crucial element of this installation. The architects involvement and civil contractor honest work were the prime reason behind the successful installation at the site.

This project makes use of:

- Borewell – 1 Number
- Gravel & bolders based filtration
- Total Recharge Capacity: 40 cum/hr.

RCC material is used for construction. This system provides spatial flexibility to ensure maximum available water volume is captured and recharged. Rainwater can fall onto the courtyard, being filtered through the grass, soil, river sand and gravel layers into the tank, clean as a whistle, ready for the future use and even improves the quality of ground water.

******The Maintenance of Our Conventional RWH Systems Requires Every Year******

Technical Description

A rainwater harvesting system consists of three basic elements: a collection area, a conveyance system, and storage facilities. The collection area in most cases is the roof of a house or a building. The effective roof area and the material used in constructing the roof influence the efficiency of collection and the water quality.

A conveyance system usually consists of gutters or pipes that deliver rainwater falling on the rooftop to cisterns or other storage tank. RCC material is used for construction.

All conventional rainwater civil tank designs include as a minimum requirement:

- A solid secure cover
- A coarse inlet filter
- An overflow pipe
- A manhole, sump, and drain to facilitate cleaning
- An extraction system that does not contaminate the water; e.g., a tap or pump
- A soak away to prevent spilled water from forming puddles near the tank

Additional features might include:

- A device to indicate the amount of water in the tank
- A sediment trap, tipping bucket, or other "foul flush" mechanism
- A lock on the tap
- A second sub-surface tank to provide water for livestock, etc.



Installation of Conventional Rain Water Harvesting



Installation of Conventional Rain Water Harvesting

Components of the Installation of Conventional Rain Water Harvesting

1 Borewell

Injection well insertion pipes.

Injection well insertion slotted pipes for clog resistant of rain water and reducing possibility of carrying solid.

Solvent & screws for joining pipes with each other also for joining end caps and bell plugs

Bell Plug: Supplying and Fixing of bell plug with each bore well.

End Caps: Supplying and Fixing of end caps at the top on each bore well.

Gravel filling for packing of empty space in the bore and to provide stability to the inserted pipes. This is calculated by subtracting the area of bore with area of pipe and usually we take 20 % extra material if there is Any loss.

Compressor cleaning

Earth work excavation with JCB/ excavators in all type of soil and with a lift

Soil disposal- disposal of extracted soil from the site to inside the boundary walls of the building up to a maximum distance

Thick PCC for Foundation of Walls

Foundation of walls including Cement concrete with reinforcement steel

Brick work including bricks, cement mortar duly thick plaster from both side of the walls

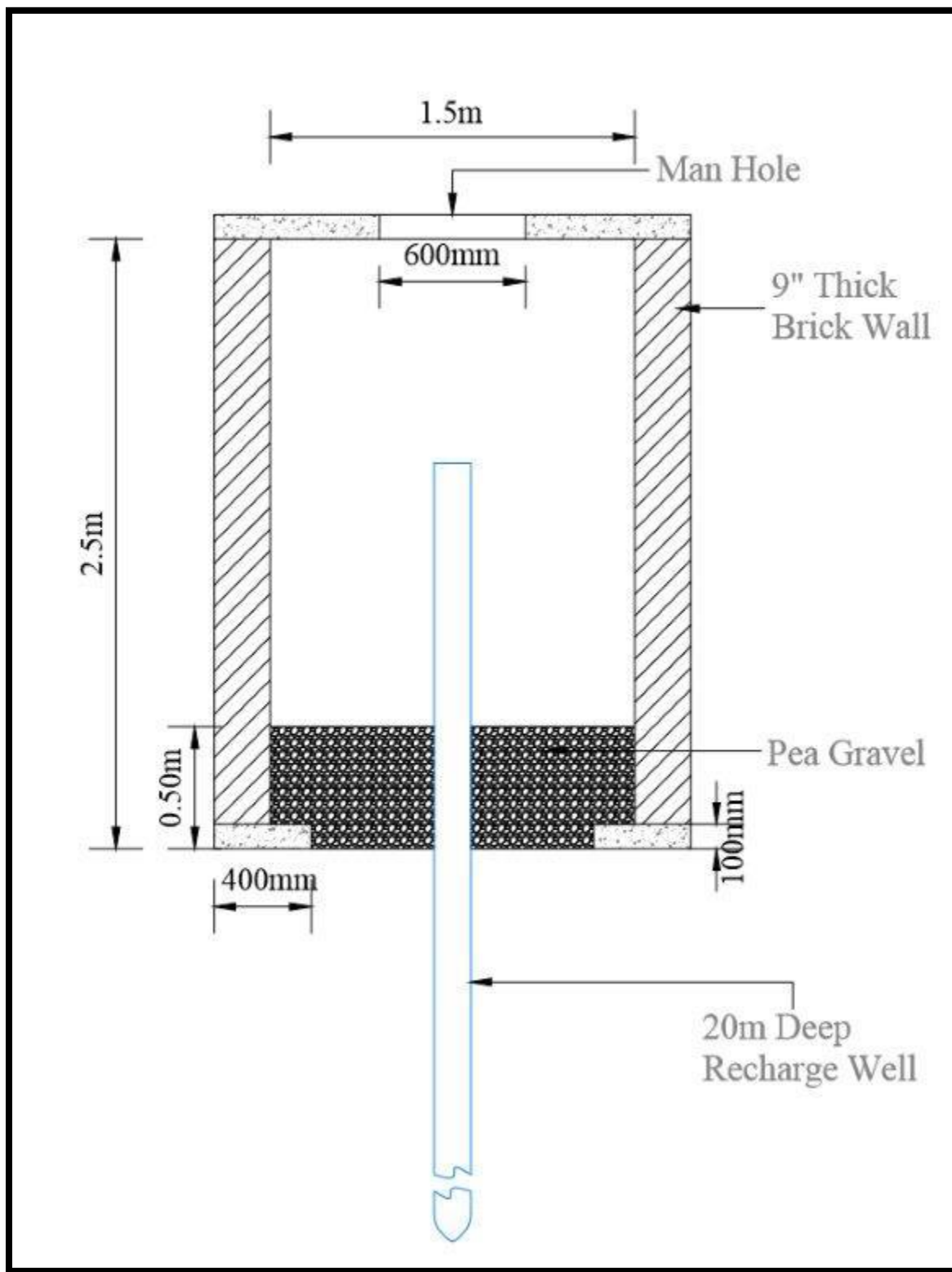
Filtration media including Sand, Gravels, Boulders

Top Slab including Shuttering, steel reinforcement and cement concrete.

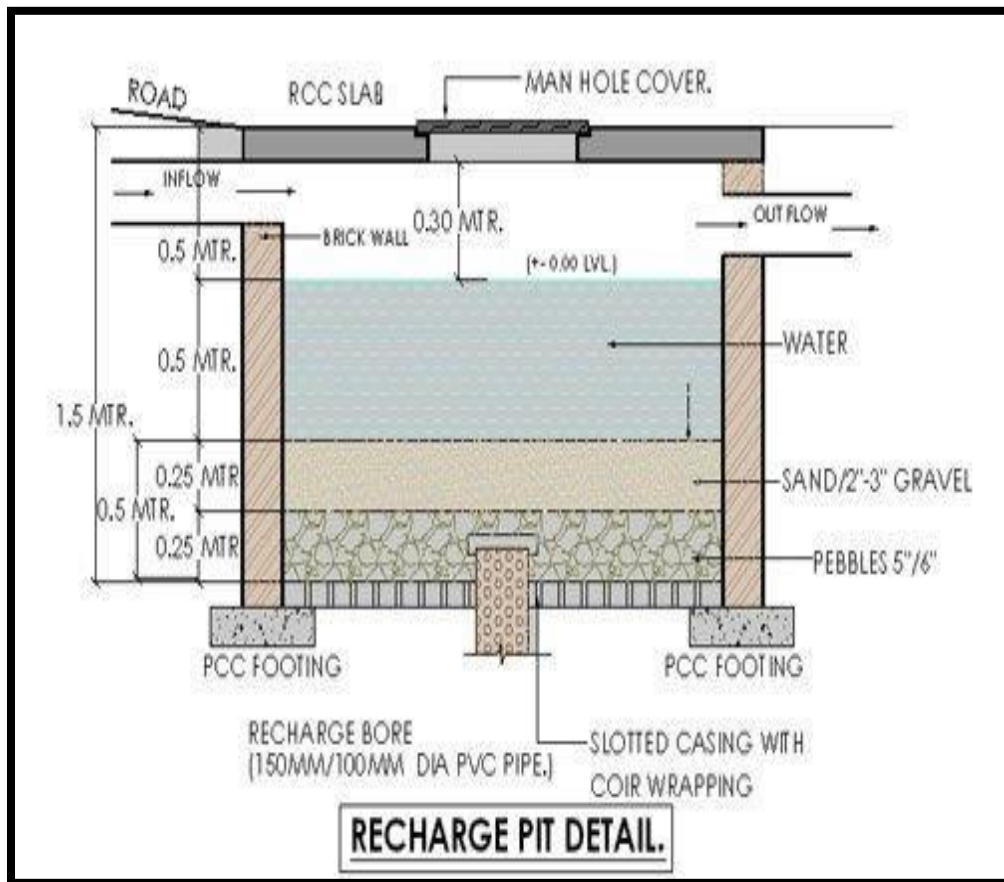
Concrete Manhole frame.

Backfilling of the area constructed in and around after compacting them properly. This is calculated by subtracting excavated volume of soil by tank volume, filter volume and desilting chamber volume.

Cross Section of Life Green Systems Conventional Rain Water Harvesting:



Recharge Pit Detailing Of Conventional Rain water Harvesting:



Together we can work to achieve fresh water resource goals. We look forward to helping you find your balance.

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