

Feasibility of Rainwater Recycling
at Garages South of 27a West End
Lane, NW6 4QJ

Revision: P1

Date: 01.05.19

Contents

1. Introduction	2
2. Rainwater Recycling Options	2
3. Evaluation of Design Options	4
4. Conclusion	5

StreetPlot

Unit 1.25 East London Works

London E1 1DU

info@streetplot.co.uk

020 3817 9008

1 Introduction

1.1 The objective of this report is to review how the proposed development at Garages South of 27a West End Lane, NW6 4QJ would meet the requirements for discharging planning condition 13 (rainwater recycling).

Condition 13:

Prior to commencement of any development other than site clearance & preparation, details of the feasibility of rainwater recycling proposals should be submitted to the local planning authority and approved in writing. The development shall thereafter be constructed in accordance with the approved details.

2 Rainwater Recycling Options

Option 1 - Rainwater Harvesting System

2.1 Basic collection of the recycled rainwater into an underground collection tank which would be gravity fed. A mechanical pump would be required in all houses to raise water from the tank to all the required points within the building.

Roof Area Schedule

	Living Roof
House 01	35m ²
House 02	39m ²
House 03	38m ²
Cycle Store	9m ²
Total	121m ²

2.2 A highly absorbent living roof is considerably less effective at collecting rainwater for recycling than a none absorbent grey roof.

2.3 It not recommended that rainwater run-off from living roofs is used for rainwater recycling due to the risk off contamination from the chemicals associated with the roof planting.

2.4 The run-off water from extensive living roofs requires extensive filtering and can often become discoloured. When it is discoloured it can require chemical colouring before it can be re-used in internal plumbing systems.

2.5 When the amount of water available to a rainwater system is lower, there is an increased risk of lower quality water and greater costs are associated.

Option 2 - Collection of rainwater in water butts

2.6 As the roof catchment area is small, water from the living roof could be collected smaller capacity water butts which are more appropriate for a development of this scale.

2.7 The water cannot be used for water supply use, however it can be used for garden irrigation and cleaning. This method is a conventional and traditional water of rainwater collection and eliminates the need for extensive mechanical equipment. It is a less intrusive and simple approach.

2.8 A small rainwater butt as detailed below could be located in each of the rear private gardens to each house to collect rainwater from the down pipes.

2.9 This method requires virtually no plant and allows flexibility in use. There is less intrusion on the internal building, less mechanical plant required and less maintenance costs for future occupants.



Fig 1. 150L Compact Water Butt

3 Evaluation of Design Options

3.0 Evaluation Table

Options	Advantages	Disadvantages	Remarks
Option 1: Rainwater Harvesting System	<ul style="list-style-type: none"> Maximum collection of grey water 	<ul style="list-style-type: none"> The roof area is covered by an extensive green roof which will reduce the volume of water collected compared with a less absorbent roof material Even with fine filtration the water may be slightly discoloured and require additional colouring chemicals Risk of contamination from chemicals present in living roof Potential risk of damage to filters and pumps Extensive plumbing and electrics required Requires skilled person to maintain Increases maintenance overheads Expensive to implement 	This option is not viable due to the small roof areas, absorbent extensive living roof and risk of contamination. When the amount of water available to a rainwater system is lower, there is an increased risk of lower quality water and greater costs are associated
Option 2: Collection of rainwater in water butts	<ul style="list-style-type: none"> Simple and easy to set up Easy to maintain Requires minimum space for plant Financially viable to implement 	<ul style="list-style-type: none"> Uses up garden space Rainwater pipes must be re-routed externally 	This option is the most feasible as the collected rainwater can be used for garden irrigation. A compact and aesthetically pleasing water butt would be an appropriate and attractive solution

4 Conclusion

4.1 Due to the limited the limited area of roof (approximately 40m² per dwelling) and the absorbent nature of an extensive living roof combined with the risk of contamination and the excessive capital expenditure required to implement a rainwater harvesting system on such a small roof with a low water catchment capacity, option 1 is not considered viable or feasible on this project.

However, option 2 would be feasible if rain water pipes can be rerouted and made to discharge into rainwater butts located in the private rear gardens to each house. The water from these butts could be tapped manually and recycled for garden irrigation and cleaning.

StreetPlot

Unit 1.25 East London Works

London E1 1DU

info@streetplot.co.uk

020 3817 9008