

Rainwater Storage Plan

12 Barrington Court

Document information

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Introduction

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About the scheme

Eight Associates has been appointed to carry out an assessment of the surface water runoff from the proposed out house roof at 12 Barrington Court, NW5 4AT, in the London Borough of Camden.

The development proposal comprises the new construction of an out house at 12 Barrington Court, to create a new storage area in the existing garden area with a roof surface area of approximately 13m².

Aim of this study

The purpose of this report is to carry out an assessment of the surface water runoff from the proposed out house at 12 Barrington Court.

The report will outline recommendations for managing surface water runoff from the out house area, using sustainable drainage systems.

Recommendations

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Recommendations

Runoff can be collected from roofs through rainwater harvesting (RWH) systems. RWH systems have a number of key benefits, including:

- Reducing the volume of surface water runoff from the impermeable roof surface;
- Meeting non-potable water demand, such as irrigation (CIRIA, 2015)¹.

A small-scale gravity-based RWH system is recommended for the out house. The RWH system will incorporate a water storage butt at the base of the guttering system serving the roof area of the out house. The water storage butt will be fed by a diverter from the downpipe, at the base of which a rain garden area will be implemented (Figures 1, 2 and 3). The diverter will prevent overflow of the water storage butt when capacity is reached, instead redirecting the remaining water volume to the rain garden area (Figure 4).

A water storage butt with a minimum capacity of 110 litres is proposed. The system storage capacity has been proposed based on the following:

- The standard interception rainfall depth is 5mm, for which best-practice is to ensure that no runoff is generated (CIRIA, 2015). Over the 13m² roof area this equates to a volume of 65 litres, which would be comfortably stored in the storage butt.
- The rainfall depth of the median annual rainfall event (1:2 year event) is 8.44mm². Over the 13m² roof area this equates to a volume of 110 litres, which is the maximum capacity of the storage butt.

It is acknowledged that small-scale RWH systems for individual residential properties may be suitable for surface water volume control for smaller design rainfall events, which will prevent sustained runoff into landscaped surfaces that in extreme cases can potentially lead to the erosion of soils.

For volumes exceeding 110 litres, the diverter pipe will redirect the exceedance volumes via a controlled outlet to the nearby rain garden area.

The management of surface water runoff from the proposed roof area will use the most appropriate approach given the scale of the works, and will demonstrate compliance with the principles of the sustainable drainage hierarchy, as outlined in the London Plan (GLA, 2015) and the current best-practice guidance for surface water management provided in the SuDS Manual (CIRIA, 2015).

¹ CIRIA (2015) The SuDS Manual (C753)

² Average annual rainfall depth of 633mm, average 150 number of effective rainfall events in the UK, so (633mm / 150) x 2 = 8.44mm (CIRIA, 2015)

Figures

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Figures



Figure 1: Example of 110 litre-capacity rainwater storage butt



Figure 2: Example of 114 litre-capacity rainwater storage butt



Figure 3: Example of downpipe to storage butt diverter



Figure 4: Examples of rain garden areas