

Specification for Landscape Works and 5 Year Management Plan for Extensive Green Roof System

Proposed Development at:

12 – 18 Crown Street, Reading

OS 2879-24-Doc1

May 2024

Specification for Landscape Works and 5 Year Management Plan for Extensive Green Roof System

For

Proposed Development at

12 – 18 Crown Street, Reading

Written by:

Signature:



Name: Adam Yardley

Title: Assistant Landscape Architect
BSc(Hons), Dipl.LA

Date: 16th May 2024

Revision History:

Rvs No	Date	Description

Open Spaces Landscape & Arboricultural Consultants Limited is a Registered Practice with the Landscape Institute.

**Open Spaces
Landscape & Arboricultural Consultants Limited**

Head Office:
2 Monument Offices,
Hall Farm, Maldon Road,
Woodham Mortimer,
Essex
CM9 6SN
Tel: 01277 356511

os@open-spaces.co.uk

For internal use only:

V 1.1

Registered in England No. 6519033

Contents

1.0	INTRODUCTION	3
2.0	DESCRIPTION OF WORKS	4
3.0	SCOPE OF WORKS	5
4.0	EXECUTION	7
5.0	LANDSCAPE INSTALLATION	8
6.0	COMPLETION	9
7.0	MAINTENANCE	10

1.0 INTRODUCTION

1.1 PURPOSE OF SPECIFICATION

Open Spaces Landscape & Arboricultural Consultants Ltd (**Open Spaces**) were commissioned by Marson Property Ltd to provide a specification for a proposed extensive green roof system in regard to the following planning application; Change of use of building from 44 serviced apartments (Class C1) to 44 flats (C3) comprising of 4no studios, 27 x one bedroom and 13 x two bedroom units with associated parking (Application Number. 201138)

To discharge condition 17 requires the provision of 'Details of green/brown biodiverse roofs to be provided on the existing building, to include a maintenance and management programme and schedule detailing all operations to be carried out to allow successful establishment of the green/brown biodiverse roofs, shall be submitted to and approved in writing by the Local Planning Authority prior to first occupation. The approved green/brown biodiverse roofs shall be installed in full prior to occupation of the development and retained as such thereafter in accordance with the approved maintenance and management programme and schedule.' Reason: 'To incorporate biodiversity in and around developments in accordance with Policy EN12 of the Reading Borough Local Plan 2019.'

This specification document accompanies (OS 2879-24.1) 'Extensive Green Roof Plan' and specifies details related to the green roof materials, its construction and maintenance. The purpose of the document is to ensure the best possible chance of success for the green roof. Information within the specification has been gathered from approved manufacturers and suppliers. The information within this specification is for the purposes of planning and should be verified by the approved suppliers and manufactures before construction.

Site conditions can vary. For scenarios where this specification document does not make allowances, Open Spaces should be contacted in the first instance. The accompanying 'Extensive Green Roof Plan' is to be used for planning purposes only and should not be used for construction. Its purpose is to indicate general areas and features within the roof spaces. Any dimensions should be confirmed on site at time of construction.

2.0 DESCRIPTION OF WORKS

This document deals with the design of the Bauder Green Roof landscaping system, installation and various related elements i.e. substrates, Bauder supplied planting and accessories such as Fire Breaks, Edging etc.

It is intended for use on this specific project. Detailed design has been completed by the specifier, Open Spaces Landscape and Arboricultural Consultancy Ltd (Landscape Architects) with technical assistance from the manufacturer, Bauder (Roofing Specialist) as required and should be read in conjunction with any project specific drawings provided.

2.1 SETTING OUT

The Contractor is responsible for setting out of all plants/sown areas and undulations in accordance with the drawings. The Contractor should ensure that his work will not interfere with, or damage any part of existing cables, pipes or other services, above or below ground level. Any damage to existing services caused by the Contractor must be rectified at his own expense.

2.2 DELIVERY OF PLUG PLANTS/BLANKETS

The Contractor shall ensure that adequate protection is given to all plants and their root systems to prevent failure due to lack of moisture or exposure during transportation to the site. Where plants cannot be planted immediately upon arrival, they shall be stored safely until required.

2.3 PLANTS – GENERALLY

- i) Any stock which subsequently deteriorates in quality through mishandling or maltreatment shall be replaced by the Contractor at his own expense.

2.4 PLANTING GENERALLY

- i) Individual plants shall be planted at the same depth at which they were previously growing. Care should be taken to avoid damage to the root system.
- ii) All plastic and other imperishable items shall be removed before planting.
- iii) Planting/laying is to be carried out in suitable weather. On no account shall stock be planted in conditions of frost, frozen ground, strong winds or heavy rainfall that renders the soil water logged or in a “sticky” condition.

3.0 SCOPE OF WORKS

3.1 GREEN ROOFS

- i) Green roof areas to the building are to be constructed using a BAUDER Flat roof Solutions system to BAUDER's recommendation and engineer's approval.
- ii) Where specified BAUDER 'XF 301 Sedum Roof' blanket is to be applied to a BAUDER recommended extensive substrate and additional suitable plug planting is to be added.
- iii) Installation of all green/biodiverse roof areas are to conform to manufacturer's specifications and recommendations and to be carried out by approved contractors.

3.2 EXTENSIVE RETROFIT GREEN ROOF – Sedum Roof

Roof Area:

- Fourth Floor

Vegetation:

- BauderGREEN XF 301 sedum blanket 28mm depth, 44kg per m2.

Edging Trim (if required):

- BauderGREEN AL 40/80/100.

Drainage, Filtration and Protection Layer

- BauderGREEN SDF, depth 20mm.

Fire Break:

- 20 - 40mm round washed pebble fire break/vegetation barrier 80mm depth, 300mm width.

3.3 IRRIGATION

Supplier: Access Irrigation Ltd.

Crick, Northampton NN6 7XS Tel: 01788 823811

Fax: 01788 824256

E-mail: sales@access-irrigation.co.uk

Product: Permadrip Pro - drip line irrigation system with anti-syphon design to resist clogging and pressure regulation.

Material: Perforated UV resistant plastic - Colour: Dark Brown

Height: 10mm

Operating Range: 0.8 -4.3bar.

Wall Thickness: 1.2mm

Nozzle Output: 1.6L/h

Spacing: 150mm.

Pipe Connection: For Gree/Biodiverse Roofs, all irrigation systems using Permadrip Pro must use PoziLock compression fittings for both the dripline and water feed pipework.

Location:

- **Green Roof Sedum Mat:** Irrigation system to be installed flush with the surface of the growing medium and tested to ensure that it is fully operational prior to installation of the vegetation.

Additional Comments:

- Irrigation is to be on a Bluetooth Tap Timer to prevent overwatering, under the control of the Site Management Team. Irrigation is only required in times of drought.
- Irrigation to be detailed at construction stage by specialist irrigation engineer.
- Generally Sedums are more drought tolerant than wildflower roofs however they will still benefit from a prolonged soaking to prevent fully drying out.

4.0 EXECUTION

Watering / Irrigation:

- Irrigation should only be activated during periods of dry weather, or if the sedum plants are showing signs of distress. The irrigation system is best run at night or at dawn or dusk to minimize unnecessary evaporation. Then once every 4-6 days for the duration of the hot weather.

Final Inspection:

- No landscaping work should be installed until Bauder have carried out a final inspection to the waterproofing and have passed this as suitable for guarantee. It is the responsibility of the roofing contractor to advise and organise this inspection with Bauder.

Sign-off Inspections:

- Bauder Extensive Green Roofs: Bauder Extensive green roof installations require an inspection and it is the responsibility of the installing contractor to inform Bauder Ltd when the installation has been completed.

5.0 LANDSCAPING INSTALLATION

5.1 BAUDER SEDUM MAT FOR GREEN ROOFS

General:

- Lay blankets within 36 hours of lifting from growing position. Two man operation to lay blankets manually with staggered joints. Lay after the growing medium has been thoroughly watered and do not lay blankets if they are excessively dry, damaged, frosty or waterlogged. Finish edges with full blankets.

Watering:

- Thoroughly water immediately after installation and ensure area is fully saturated before moving onto the next area.

5.2 INSTALLATION OF IRRIGATION PIPEWORK

- Pipe work should be installed and connected in accordance with the irrigation supplier's installation guidelines. Full detailed irrigation design will be completed at the construction stage by irrigation specialist engineer.
- Bauder Plug Plants / Flora 3 Seed Mixes / Sedum - Pipework should be secured at intervals to the substrate as required using plastic pegs, these should be installed in a manner so as not to cause damage to the waterproofing.

Important Note: Ensure that a suitably sized hole has been cut out of the underlying drainage board / protection layer to allow water to flow freely into the outlet.

5.3 VEGETATION BARRIER / DRAINAGE BARRIER

- A vegetation barrier has been included to all perimeters, abutments, penetrations including protrusions including lift overrun, flue pipes and automatic opening vents of 20/40mm rounded river washed pebbles. Stones/ aggregates with sharp edges must not be used i.e. flint.
- In accordance with current GRO guidelines, the specified barrier widths are as follows: Minimum 300mm width, 80mm depth.
- At all open drainage perimeters, drainage trim must be used to contain the vegetation barrier.

6.0 COMPLETION

6.1 ESTABLISHMENT WATERING REQUIREMENTS

- i) BauderGREEN SB sedum blankets are drought tolerant once established however should be watered for 4-6 weeks after installation. Ensure the substrate remains damp to touch. Note that Sedum turns red when stressed due to lack of water.
- ii) Refer to the Bauder Watering Guide document for further information on watering.

6.2 POST INSTALLATION MAINTENANCE

- i) Following completion of the landscaping installation and handover, the responsibility for future on-going maintenance of the green roof planting becomes the responsibility of the building owner or the Main Contractor, where this element forms part of the contract.
- ii) Minimum period of maintenance contract: 5 years.
- iii) The green roof should be retained and maintained for the life time of the building. This specification document is relevant for the initial 5 years after completion and thereafter shall be reviewed and updated accordingly.
- iv) For further maintenance please refer to section '7.0 Maintenance' of this specification

6.3 COMPLETION

- i) **General:** Leave the works in a clean, tidy condition.
- ii) **Surfaces:** Clean immediately before handover.
- iii) **Outlets:** Clean and clear of obstructions.

7.0 MAINTENANCE

7.1 MAINTENANCE PROCEDURES

The below procedures should be carried out annually in spring as part of a structured maintenance regime.

- i) Ensure that health and safety measures are followed when working at heights.
- ii) Maintenance personnel must use only battery-operated power tools (no combustible fuels to be used on the roof areas).
- iii) The maintenance contractor should carry out a robust risk assessment before every visit.
- iv) Prior to any maintenance works the contractor should organise with the site management team the nature of, duration and time/date of the visit.
- v) Any waste products as a result of maintenance are to be collected in sacks and moved through the building via the stairwell to street level and disposed of offsite.
- vi) Ensure that all rainwater outlets and downpipes are free from blockages and that water can flow freely away.
- vii) Examine all mastic sealant and mortar pointing for signs of degradation. Repair or replace as necessary.
- viii) Ensure that any new items of plant/equipment that may have been introduced to the roof are mounted on suitable isolated slabs and that any fixings used to secure the plant/equipment in place do not penetrate the waterproofing.
- ix) A record should be kept of all inspections and maintenance carried out on the roof. Any signs of damage, contamination or degradation to the waterproofing should be reported immediately.
- x) When carrying out any maintenance to adjoining roof areas, care must be taken not to damage either the green roof landscaping or the waterproofing system.
- xi) General maintenance shall include weeding, pruning, removal of litter from planted areas, repair of minor washouts and other horticultural operations necessary for the proper growth of the plants.
- xii) No chemical weed killer, insecticide or fungicide shall be allowed in the first year, or subsequent 4 years of maintenance.
- xiii) To protect the validity of the waterproofing system guarantee, all maintenance procedures should follow the Bauder 'General Maintenance Document'.

7.2 ESTABLISHMENT PERIOD - YEAR 1

7.2.1 MAINTENANCE SCHEDULE FOR BIODIVERSE ROOF AREAS

- i) Items to be carried out as required:
- ii) Resow unsuccessful areas as required.
- iii) Keep planted areas free from rubbish and weed growth. No chemical weed killer shall be allowed.

- iv) Water sufficiently to allow water to fully penetrate the rooting zone.
- v) Any vegetation which has invaded drainage outlets, inspection chambers, walkways and the vegetation barriers (pebbles) should be removed. Additional washed stoned pebbles, similar to existing, can be added if movement or settlement of the pebble vegetation barrier has occurred.
- vi) Visit the roof to check weed infestation in the early spring, in time for the growing season. Weed infestation is only an aesthetical issue unless it is considered excessive or it is saplings, in which case remove by hand.

7.2.2 MAINTENANCE SCHEDULE FOR SEDUM ROOF

- i) Items to be carried out as required:
- ii) Patch repair unsuccessful areas in growing season Bauder 'Sedum Patching Maintenance Guide'
- iii) Keep planted areas free from rubbish and weed growth. No chemical weed killer shall be allowed.
- iv) Sedum roofs are drought tolerant but should be watered at times of extreme drought. Sedum will turn red if stressed due to lack of water.
- v) Any vegetation which has invaded drainage outlets, inspection chambers, walkways and the vegetation barriers (pebbles) should be removed. Additional washed stoned pebbles, similar to existing, can be added if movement or settlement of the pebble vegetation barrier has occurred.
- vi) Check weed infestation in the early spring, in time for the growing season. Weed infestation is only an aesthetical issue unless it is considered excessive or it is saplings, in which case remove by hand.

7.3 MAINTENANCE IN YEARS 2-5

7.3.1 MAINTENANCE SCHEDULE FOR SEDUM ROOF

- i) Replace plants as required.
- ii) Visit the roof to check weed infestation in the early spring, in time for the growing season. Weed infestation is only an aesthetical issue unless it is considered excessive or it is saplings, in which case remove by hand.
- iii) Drainage outlets and inspection chambers cleared of vegetation as in the 1st year.
- iv) Ensure stone vegetation barriers are clear of dead and live plants.
- v) Where infestations of grass and other weeds die off due to insufficient substrate depth and become unsightly, these are to be removed.
- vi) Ensure drainage system is in full working order, replace components as required, by approved contractor only, OR carry out maintenance procedures as recommended by manufacturer Bauder and by approved contractor.
- vii) Irrigation is to be controlled by the Site Management Team and is only required in times of extreme drought.