

# GREEN ROOF STATEMENT

MAY 2020

## TURING HOUSE SCHOOL

HOSPITAL BRIDGE ROAD

TWICKENHAM





# 1 / SUMMARY

This statement is intended to present a summary of the previous and current development of the Green Roof proposals for Turing House School and provide justification for the proposed area quantum of Green Roof.

London Borough of Richmond upon Thames (LBRuT) Policy LP 17 requires major developments with roof plates over 100sqm to aim for at least 70% of any potential roof plate area to be provided as green/brown roof.

The Policy is reflected in Condition NS 23 of Planning Permission 18.3561. FUL which states;

a) Unless otherwise agreed in writing by the LPA, prior to the commencement of the development hereby permitted, a scheme shall be submitted to the Local Planning Authority demonstrating 70% Green Roof, or justification as to why 70% is not feasible, for approval in writing.

The scheme shall include the following details:

- species mix;
- depth of substrate;
- type of membrane;
- how levels of light, moisture, aeration and nutrients will be achieved;
- maintenance plan, including access.

b) The development shall not be occupied until the approved scheme has been fully implemented and is thereafter maintained in accordance with the approved scheme.

REASON: To preserve the ecological value of the site hereby approved, to promote sustainable development and ensure that the proposed development is in keeping with the existing building(s) and does not prejudice the appearance of the locality.

This policy (and condition) is recognised and, throughout the scheme development, substantial efforts have been made to provide the largest feasible area of Green Roof for the scheme. The quantum of Green Roof was reviewed throughout the design development and planning process and periodically increased in response to LPA and Consultation feedback as follows:

- Pre-application Scheme: 220m<sup>2</sup> (7% of roof area).
- Approved Scheme: 922m<sup>2</sup> (28% of roof area).

Between planning approval and the current date, detailed design has been undertaken on the scheme which has enabled the area of Green Roof provided to be further increased:

- Updated Scheme: 1665m<sup>2</sup> (43% of roof area).

In addition to the Green Roof, substantial areas of Green Wall are also proposed. This Green Wall consists of a stainless steel tensioned wire system affixed to brickwork, with suitable climbing plants as detailed by the landscape architect.

This Green Wall provides 343m<sup>2</sup> additional area of greening. When this is added to the Green Roof area proposed within the updated scheme this results in a total equivalent area as follows:

- Green Roof: 1665m<sup>2</sup> (43% of roof area).
- Green Wall: 343m<sup>2</sup> (9% of roof area).

- **Total Equivalent area: 2008m<sup>2</sup> (52% of roof area).**

Whilst this total does not achieve the target 70%, it represents a significant provision for biodiversity enhancement as part of the building and needs to be seen alongside the additional biodiversity enhancements proposed for the wider site.

The area of Green Roof realised within the updated scheme, as presented within this document, represents the maximum feasible quantity that can be achieved for this development.

All other areas of the roof are unavailable for Green Roof provision due to the following reasons:

- Large structural spans over sports hall and activity studio
- Roof sunken to provide plant well.
- Taken up by roof plant installations
- Taken up by rooflights and roof hatches
- Required for access walkways
- Required for photovoltaic panels

It should also be recognised that, being publicly funded, new school buildings are required to be cost effective and are driven by guidelines set by the Government.

Further detail and illustration of the above is presented later in this document in addition to breakdown of roof by areas proposed.

## 2 / PRE-APPLICATION SCHEME

During pre-application planning discussions, the roofing proposal presented on the page overleaf was presented to LBRuT planning team.





This proposal provided the following Green Roof area:

- Pre-application Scheme: 220m<sup>2</sup> (7% of roof area).

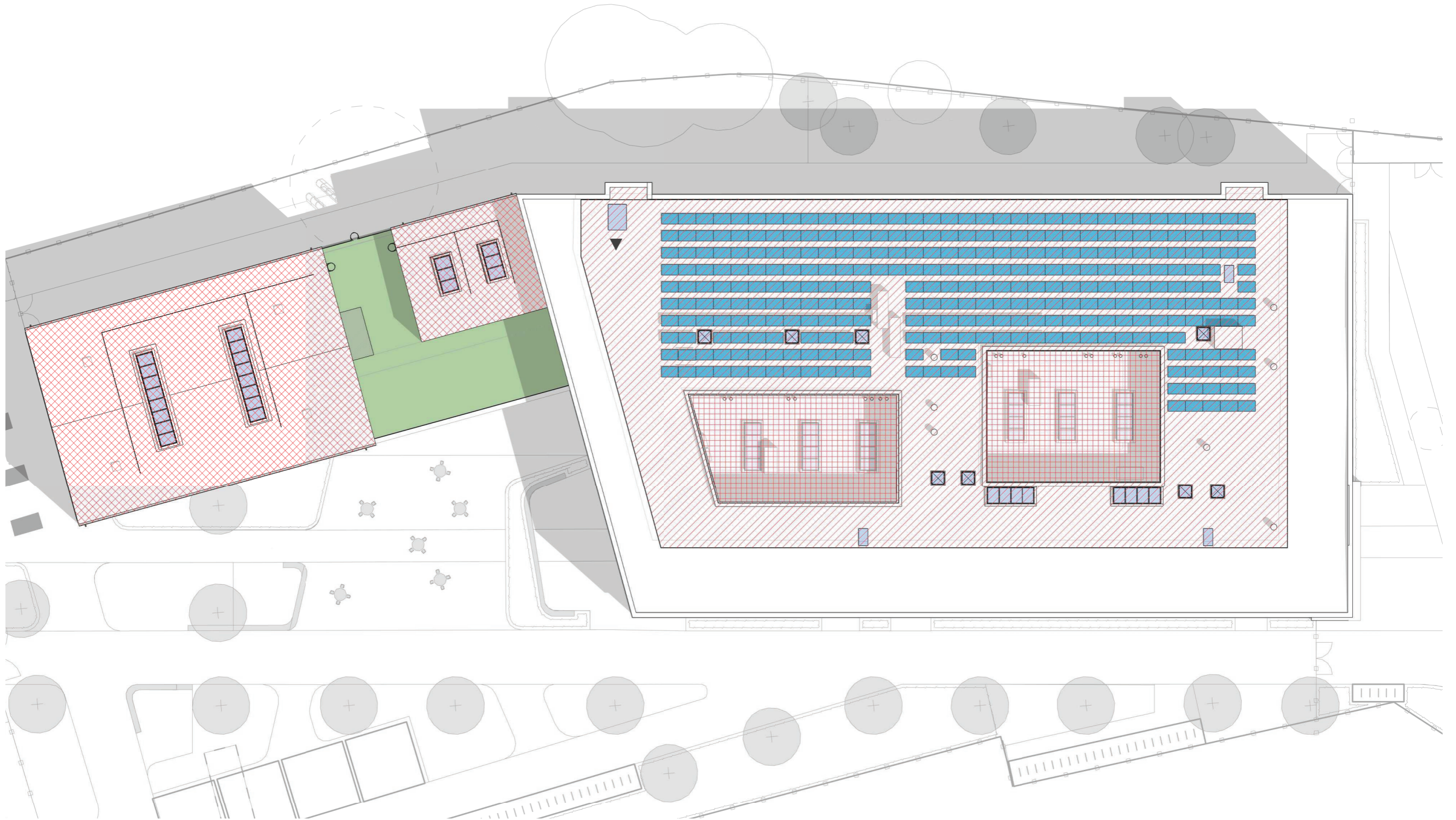
Although this proposal is significantly below the Local Policy target, it represents a reasonable baseline quantum for Green Roof that may be achievable within a typical publicly new school.

Pre-application discussions established that the area of Green Roof presented on these pages was insufficient. The scheme was therefore revised for planning submission to reflect a substantially increased amount as presented in the following pages.

This plan is presented within this document for comparison purposes and to illustrate how much additional Green Roof has been realised in the approved and subsequently updated scheme through pro-active and responsive design development.

KEY	
Potential for Green Roofs	
	<b>No Potential: Long Span Hall Structures</b> It would be cost prohibitive to add green roof due to additional weight requiring additional steel, building height etc.
	<b>No Potential: Plant/PV/Highly Trafficked</b> Majority of area is covered by rooftop plant and photovoltaic plant, remainder is highly trafficked by maintenance staff
	<b>No Potential: Plant/In shade</b> Area is covered by rooflight, plant, rest is highly trafficked. Location predominantly in shade which would affect viability.
	<b>Potential for Green Roof</b> Area could be provided with green roof Indicated green roof area: 220m <sup>2</sup>

### Pre-Application Scheme - Roof Areas Summary



**Pre-Application Scheme - Roof Areas Summary**

# 3 / APPROVED SCHEME


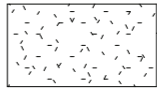


The plan on this page reproduces the roof arrangement in the approved scheme.

This proposal provided the following Green Roof area:

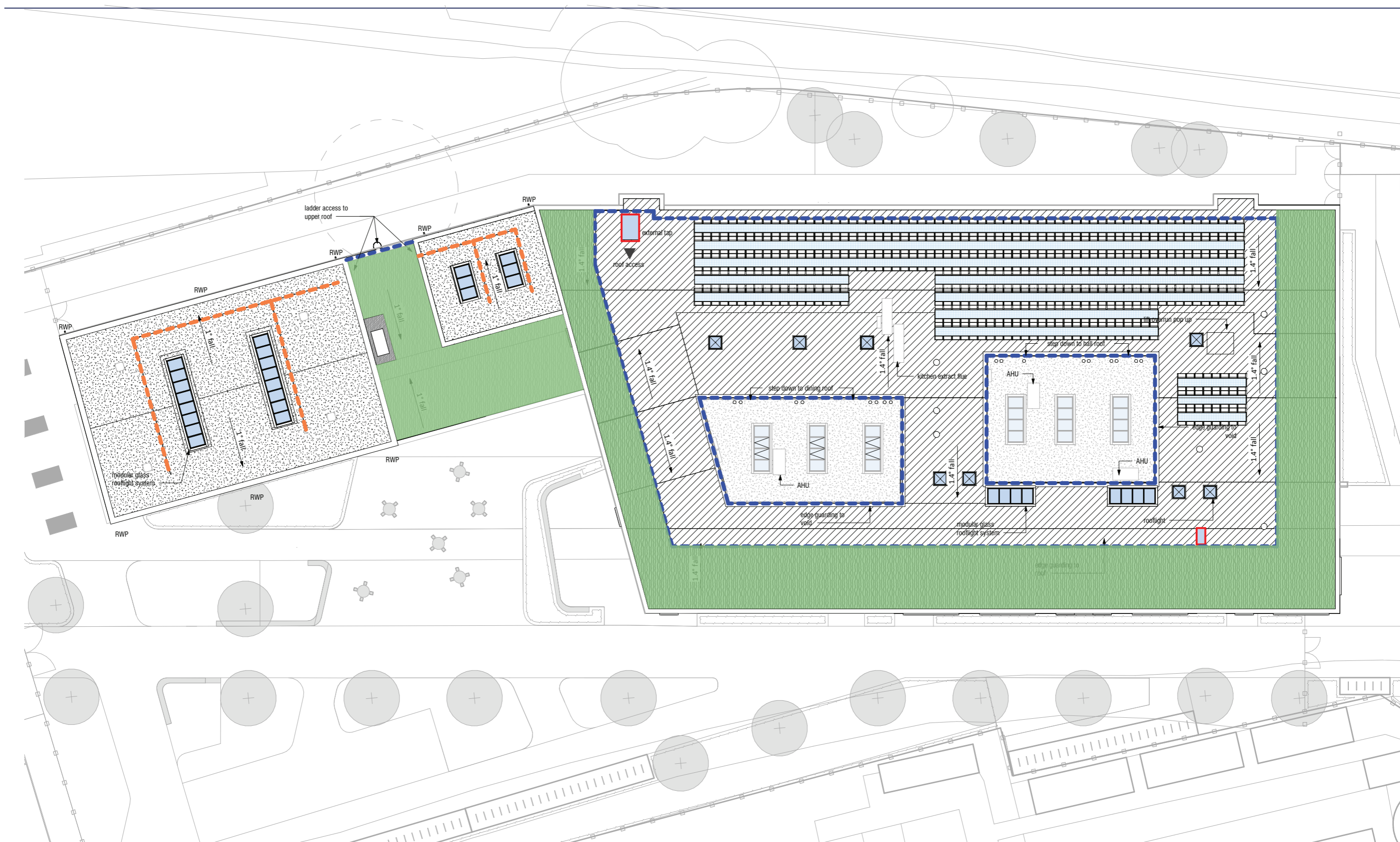
- Approved Scheme: 922m<sup>2</sup> (28% of roof area).

As is demonstrated by comparison to the pre-application scheme, this quantum represents a substantial increase over the baseline proposal. Although still below the Local Policy requirements, the constraints of maintenance, access, structure and geometry meant that this was the maximum that could be proposed at the point of submission.

Further to the scheme's planning approval, subsequent development has been undertaken which has increased the area available for Green Roof further as presented on the following pages.

KEY	
	Robust, low maintenance single ply roof finish on rigid insulation with planks laid to falls
	Robust low maintenance single ply roof on purlins and primary structure laid to full
	Robust pad construction for roof mounted AHU
	<b>Green Roof</b> Area provided with green roof Indicated green roof area: 922m <sup>2</sup> % of overall roof: 28% (exc. rooftop plant)

Approved Scheme - Roof Areas Summary



**Approved Scheme - Roof Plan**

## 4 / UPDATED SCHEME

Following planning approval and receipt of conditions, further detailed design work has been undertaken to develop the scheme and establish whether additional Green Roof may be achievable.










This design development has allowed us to increase the area of Green Roof proposed to 1665m<sup>2</sup> (or 43% of roof area), as illustrated within the table presented on this page.

This represents the maximum potential coverage for the reasons set out in the table.

In addition we then have further areas of Green Walling which results in an equivalent area of 2008m<sup>2</sup> of roof/wall or 52% of the total roof area.

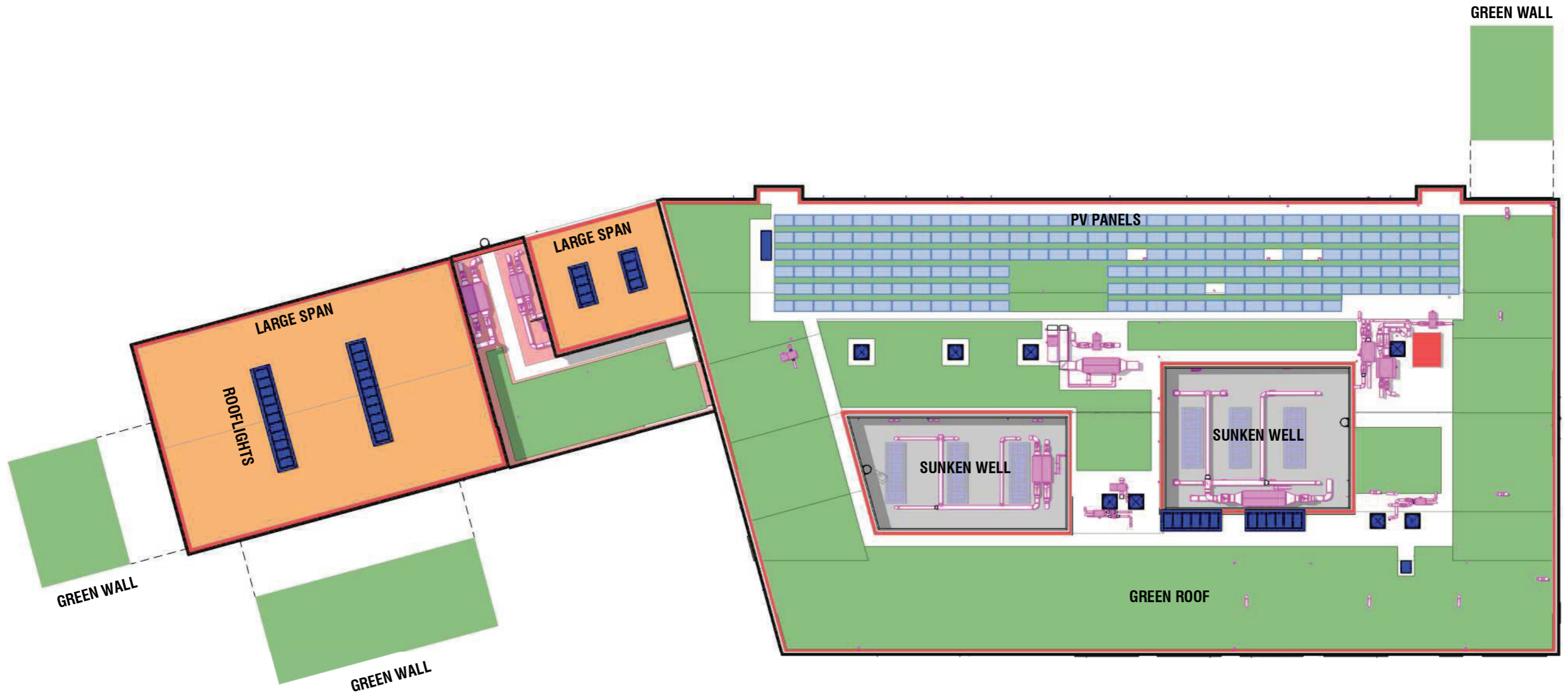
- Green Roof: 1665m<sup>2</sup> (43% of roof area).
- Green Wall: 343m<sup>2</sup> (9% of roof area).
- **Total Equivalent: 2008m<sup>2</sup> (52% of roof area).**

Whilst not the target 70%, it represents a significant provision for biodiversity enhancement as part of the building and needs to be seen alongside the additional biodiversity enhancements proposed for the wider site.

Zone	% Roof Area	Area (m <sup>2</sup> )	Reason
 Green Roof	43%	1665	n/a
 Large Span over Sports Hall & Studio	15%	571	Sports hall and activity studio roofs need to be column free, increased clear spans mean that roof is not suitable to take additional loads of green roof.
 Sunken Well Areas	8%	307	Shaded and used for plant/access walkway
 Roof Plant installations	6%	229	Plant fixed to roof slab – area not free for planting
 Rooflights & Roof hatches	4%	142	Glazed elements and opening hatches - area not free for planting
 Access Walkways	7%	276	Clear unobstructed access required – not free for planting
 PV Panels	8%	315	Low profile PV's fix directly to roof minimising the overall building height / appearance and maintaining simple, safe access for cleaning and maintenance. Proposal is for green roof infill between PV arrays but not beneath.
 Roof parapets & other miscellaneous	9%	335	Miscellaneous areas unsuitable for planting including parapets, lift roof and borders required for fire safety
<b>TOTAL</b>	<b>100%</b>	<b>3840</b>	
 Green Wall	9%	343	Post and tensioned wire system with climbing plants to 'green' external wall in key locations.
<b>TOTAL (GREEN ROOF + GREEN WALL)</b>	<b>52%</b>	<b>2008</b>	

### Updated Scheme - Roof Areas Summary





Updated Scheme - Roof Plan Diagram

## Contact for this submission

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Caroline Mayes: +44 (0)117 974 3271 | [carolinemayes@stridetreglown.com](mailto:carolinemayes@stridetreglown.com)

## Services

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Architecture  
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Residential  
Defence  
Civic, Community and Culture  
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## Offices & Contacts

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Bristol - John Wright  
T +44 (0)117 974 3271  
E [johnwright@stridetreglown.com](mailto:johnwright@stridetreglown.com)

Manchester - Gordon Tero  
T +44 (0)161 832 9460  
E [gordontero@stridetreglown.com](mailto:gordontero@stridetreglown.com)

Bath - Robert Sargent  
T +44 (0)1225 466173  
E [robertsargent@stridetreglown.com](mailto:robertsargent@stridetreglown.com)

Plymouth - Alastair Wilson  
T +44 (0)1752 202088  
E [alastairwilson@stridetreglown.com](mailto:alastairwilson@stridetreglown.com)

Birmingham - Ian Tipton  
Stride Treglown Bournville Architects  
T +44 (0)121 415 6455  
E [iantipton@stridetreglown.com](mailto:iantipton@stridetreglown.com)

Solent - David Steele  
T +44 (0)2380 671991  
E [davidsteele@stridetreglown.com](mailto:davidsteele@stridetreglown.com)

Cardiff - Darren Wilkins  
T +44 (0)29 2043 5660  
E [darrenwilkins@stridetreglown.com](mailto:darrenwilkins@stridetreglown.com)

Truro - Alastair Wilson  
T +44 (0)1872 241300  
E [alastairwilson@stridetreglown.com](mailto:alastairwilson@stridetreglown.com)

London - Ray Williamson  
T +44 (0)20 7401 0700  
E [RayWilliamson@stridetreglown.com](mailto:RayWilliamson@stridetreglown.com)