

Introduction

Context

Design process

Design response

Landscape

6.0 Technical strategies

Access

6.1 Flood risk management

The site is located in both flood zones 2 and 3, and is therefore considered both medium and high risk of flooding from fluvial sources respectively. Please refer to the specialist flood risk assessment and flood plan produced by specialists RCP as part of the application. The points below summarise the details of the report:

- The minimum FFL for habitable floors within the new development should be set at 300mm above the 1 in 100 year plus 35% fluvial flood level which is 16.053mAOD. No residential uses are proposed at ground floor with the lowest residential accommodation at 19.50 AOD
- Ground floor areas will have flood mitigation measures, such as discrete flood barriers at the doorways and raised electrical points, non-return valves in the foul drainage system, self-closing air bricks etc
- In order to ensure that residents are kept safe during the lifetime of the scheme, an emergency evacuation plan will be produced to support the development
- Mitigation measures to be put in place to prevent cars in the under-croft parking floating away during flooding
- The proposed scheme will not decrease the flood volume compensation previously provided on site
- A surface water drainage strategy has been developed and hydraulically modelled incorporating sustainable urban drainage systems (SuDS) in line with the NPPF and EA standing advice
- The strategy is based on a reduction in the surface water runoff rates, thus ensuring that the development does not increase the risk of flooding from the site during peak storm events
- The pedestrian dry route of access and egress is denoted in the diagram opposite and follows Spelthorne Borough Councils (SBC) requirements for ensuring the route is clear of Flood Zone 3 at a level of 15.421mAOD
- A second and higher level of 16.5mAOD is provided as a higher dry refuge platform in the event of a more extreme fluvial event in compliance with the Environment Agency’s recommendations

Evacuation strategy

In the event of immediate danger, residents will be advised to leave via local radio and if possible, by-flat to-flat calls. A safe means of emergency access and egress is proposed for pedestrian traffic and will include the following: northwards along Goodman Place onto the high street, eastwards along the high street then onto the A308 High Street, and then finally onto the A30 London Road. For vehicular traffic including emergency vehicle, access and egress this will as above but from the site using Elmsleigh Road westwards onto Thames Street, then northwards onto the high street.

Key

- ● ● Raised footway for flood escape at 15.80m AOD
- Raised landing for emergency flood rescue at 16.50m AOD
- Ground Floor Areas within Flood Zone
- Ground Floor Areas which can be raised subject to needs
- ● ● Route for emergency vehicle access
- /// Flood defense measures to ground floor openings

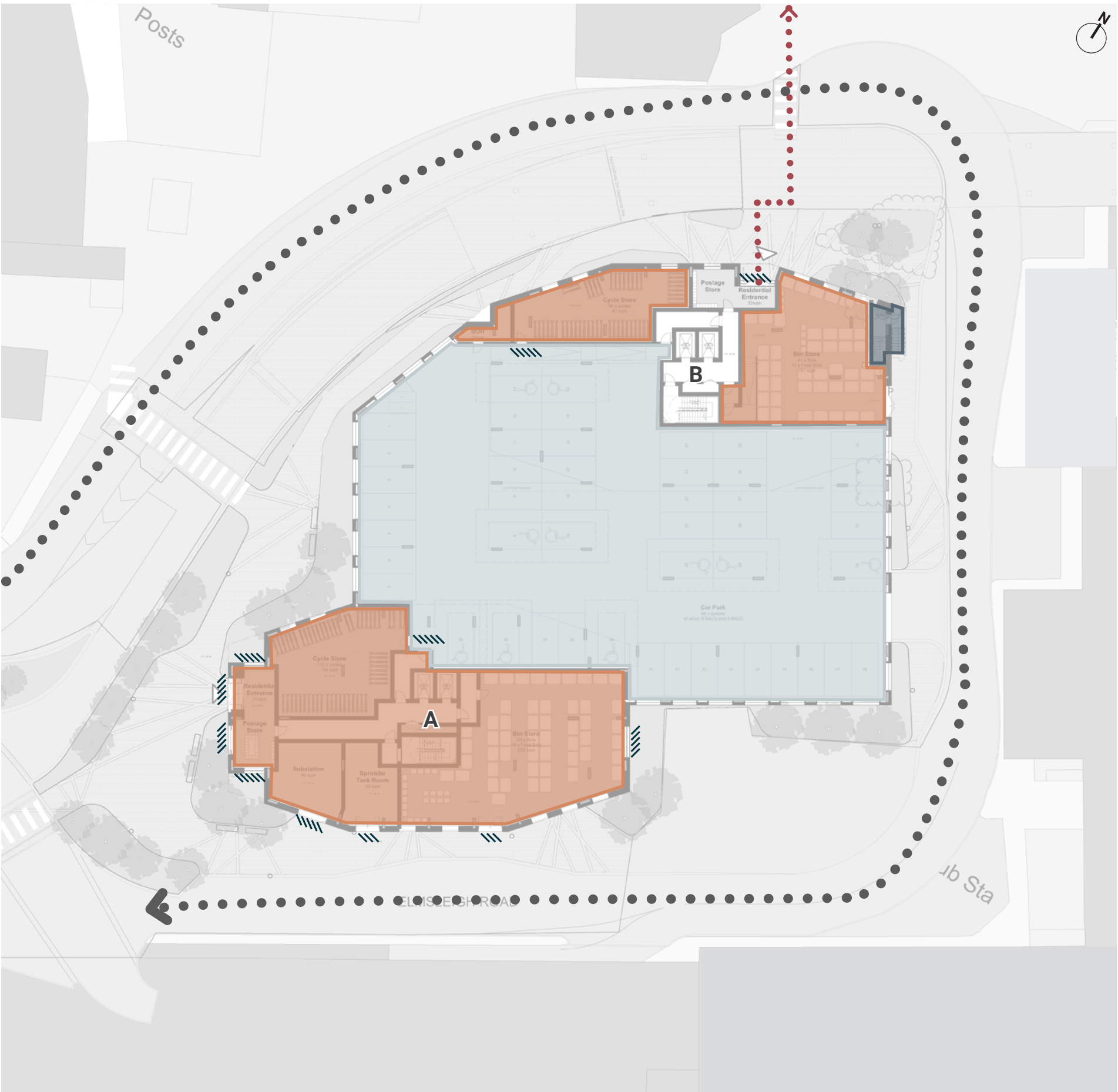


Diagram indicating flood risk management strategy

6.2 NATS

Pager Power conducted an aviation impact assessment for the proposed building development known as ‘Elmsleigh Road’ located at Staines-upon-Thames, to determine its impact upon aviation activity in the surrounding area.

The analysis has shown that the proposed development is beneath the inner horizontal surface in accordance with London Heathrow Airport’s OLS model. The maximum altitude to which the proposed development can be built under this surface is 67.86m AOD.

The datum for the highest proposed level of roof plant is currently at 66.45m AOD



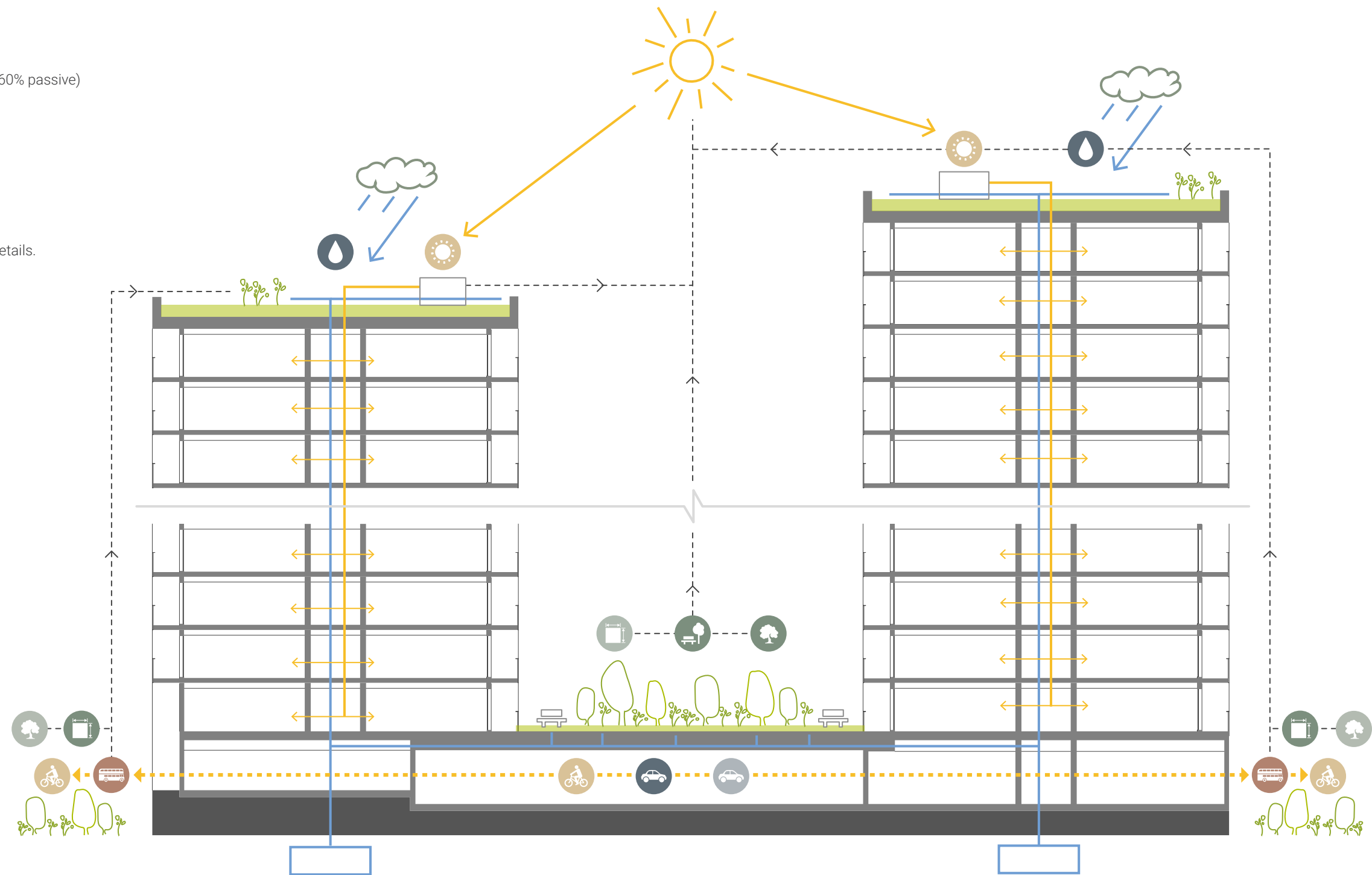
NATS Section diagram

6.3 Sustainability

The proposal encompasses strategies to reduce the energy and water consumption of the building and enhance the biodiversity within and around the site. These include:

- A 18% saving on on-site CO2 emissions using fabric and low carbon technology
- Delivery of 39% of energy demand through renewable energy
- 48% of external landscaped area, planting and habitat
- Planting 51 trees between ground and podium
- 220 cycle parking spaces
- 2 car club spaces
- 100% electric vehicle charging spaces (40% active and 60% passive)
- Improved connections to public transport
- Green screens and garden spaces at ground
- Podium gardens at first floor
- Rain water attenuation
- Green roofs with air source heat pumps

Refer to the accompanying sustainability report for further details.



Illustrative proposed section indicating sustainability strategies

Sustainability checkpoint assessment

Stage 0		
Guidance		
<p>Obtain information about the site and / or structures for constraints and opportunities</p> <p>‘Awareness’ stage and setting the sustainability context for the project.</p> <p>Review client requirements to distil their sustainability aspirations and the expected building lifespan against which capital costs should be balanced against costs in use.</p> <p>Identify potential for cost effective enhancement of client aspirations.</p> <p>Review options for formal assessment of aspects of sustainability and/or energy performance (e.g. BREEAM, LEED, Passivhaus). If the project is a component of a larger scheme, ensure that targets support and are consistent with any overarching sustainability assessment methodologies. Establish timetable for associated assessor appointment and early stage actions.</p> <p>Client to consider appointing or identifying a client sustainability advocate (in senior management position) and/or appointing a sustainability champion in the design team.</p> <p>Assess environmental opportunities and constraints of potential sites and building assets including sufficient iterative modelling to support conclusions of feasibility studies.</p> <p>Initial consultation with stakeholders, identification of local planning sustainability requirements and appraisal of existing building, social, transportation, water, energy, ecological and renewable resources, including the need for pre-construction or seasonal monitoring or surveys.</p> <p>Commission surveys of existing buildings to be retained (including condition, historic/ townscape significance, materials and components for recycling), services, noise, vibration, renewable energy resources, ecology, geology, etc. as required) to inform the brief.</p> <p>Identify potential funding sources and their eligibility criteria.</p> <p>Review relevant current and emerging EU, national and local sustainability policy and legislation and analyse implications on build, environmental and performance targets.</p> <p>Identify and understand final occupants’ needs to help to establish user patterns, energy profile and performance standards required.</p> <p>Client to consider the formal adoption of a Soft Landings approach to the project (www.bsria.co.uk/services/design/soft-landings/).</p> <p>Client to consider appointing a Soft Landings champion.</p> <p>Client to consider merits and protocols of using a building information model (BIM) to help deliver sustainability aims.</p>		
Sustainability checkpoint	Check	Comments
Has the site information letter been sent, any response entered onto the site information record and disseminated to other consultants?	✓	
Ensure that a strategic sustainability review of client needs and potential sites has been carried out, including reuse of existing facilities, building components or materials.	✓	

- ✓





Completed
- Partially complete (see comments)
- ✗

Not complete (see comments)

Sustainability checkpoints are from RIBA Plan of Work 2013 and guidance notes originate from the 2011 Green Overlay to the RIBA Outline Plan of Work, supplemented with Assael Architecture’s procedural guidance.

Guidance notes and checkpoint assessments are for the attention and implementation of the entire project team, including the client, and should be part of all stage reports.

Stage 1		
Guidance		
<p>Obtain screening letter from planning authority to verify sustainability requirements.</p> <p>Include a simple description in the brief of the internal environmental conditions the client requires.</p> <p>Involve the client’s facilities management team and review past experience (good and bad) in a spirit of openness in order to set environmental and performance targets that are useful, measurable, challenging but achievable and unambiguous. Targets should include both regulated and unregulated energy.</p> <p>Develop water efficiency strategies to establish similarly robust performance targets.</p> <p>Agree how to measure performance in use, what incentives there will be to achieve performance objectives and what action is appropriate if anything falls short.</p> <p>Develop potential energy strategies for the site including iterative estimated energy demand calculations, options for renewables and implications on building/ site design (e.g.sufficient plant space).</p> <p>Set out SUDS and surface water retention requirements.</p> <p>Develop a brief for specialist environmental sub-consultants (e.g. wind monitoring consultant, ecologist).</p> <p>Consider Climate Change Adaptation criteria and future performance standards.</p> <p>Set out any future uses or reconfiguration to be accommodated.</p> <p>Ensure that competence of potential design team members matches the client’s sustainability aspirations. The team should be balanced, with members of similar competence and commitment and with complementary contracts of engagement.</p> <p>Client to start the Site Waste Management Plan (SWMP) to enable designers to record decisions made to reduce waste as the project progresses.</p>		
Sustainability checkpoint	Check	Comments
Has the site information letter been sent, any response entered onto the site information record and disseminated to other consultants?	✓	
Confirm that formal sustainability targets are stated in the Initial Project Brief.	✓	
Confirm that environmental requirements, building lifespan and future climate parameters are stated in the Initial Project Brief.	✓	
Have early stage consultations, surveys or monitoring been undertaken as necessary to meet sustainability criteria or assessment procedures?	✓	
Check that the principles of the Handover Strategy and post-completion services are included in each party’s Schedule of Services.	✗	To be captured in future work stage
Confirm that the Site Waste Management Strategy has been considered.	✗	To be captured in Construction Management Plan

Stage 2		
Guidance		
<p>Set out site scale environmental design criteria (e.g. solar orientation, overshadowing, SUDS, waste).</p> <p>Consider the design of the space between buildings as well as the buildings themselves.</p> <p>Consider the need for and scale of private, semi-private and public external space.</p> <p>Establish maximum plan depths to achieve desired levels of natural ventilation, daylight and view.</p> <p>Design for buildability, usability and manageability.</p> <p>Consider the impact of complexity of form on thermal performance, airtightness, and inefficient/wasteful use of materials.</p> <p>Establish an appropriate glazing proportion and shading strategy for each orientation to provide good levels of daylight while avoiding excessive glare, solar gain or heat loss.</p> <p>Establish appropriate element thicknesses to achieve U-values required by energy strategy.</p> <p>Check that materials and construction approach will provide a level of thermal mass that is appropriate to the environmental design strategy.</p> <p>Refine and review design decisions to minimise quantity of materials used and to minimise construction waste (for guidance, see www.wrap.org.uk/designingoutwaste).</p> <p>Review the embodied impacts of materials and construction approach in the context of the building's lifespan.</p> <p>Avoid design solutions that inhibit adaptation and alternative use of the building or its components and materials.</p> <p>Take particular care to avoid short- and long-term damage to retained traditional building fabric from ill-considered upgrade interventions.</p> <p>Ensure that design implications of any components essential to the success of a sustainability strategy are understood across the design team (e.g. space for fuel deliveries and waste handling, roof collector area and orientation, location and size of rainwater harvesting tanks, SUDS attenuation, etc.).</p> <p>Refine energy and servicing strategy, incorporating energy efficient services design and design techniques.</p> <p>Carry out sufficient compliance or advanced modelling to prove the design concept before freezing the design (e.g. SBEM/SAP/PHPP (Passivhaus Planning Package) or dynamic modelling).</p> <p>Audit the emerging design against project's sustainability agenda and targets.</p> <p>Set up a programme of intermediate evaluations and reality checks involving stakeholders and key users as well as the design team.</p>		
Sustainability checkpoint	Check	Comments
Confirm that formal sustainability pre-assessment and identification of key areas of design focus have been undertaken and that any deviation from the Sustainability Aspirations has been reported and agreed.		
Has the initial Building Regulations Part L assessment been carried out?		Part L assessment to be captured in next work stage. Building envelope has been designed in accordance to current energy and sustainability strategy
Have 'plain English' descriptions of internal environmental conditions and seasonal control strategies and systems been prepared?		To be carried out in future workstage
Has the environmental impact of key materials and the Construction Strategy been considered?		
Has resilience to future changes in climate been considered?	