Oaklands College & Land south of Sandpit Lane, St Albans

Climate Change Statement
- Oaklands College

October 2025

Where buildings come alive

Oaklands College

Climate Change

240541

Climate Change Statement

Sustainability at our core.

Document Revision History			Ref	230001 Project Title	
Rev	**Author**	**Verification By**	**Date**	**Suitability**	**Comments / Status**
A	J.Holloway	S.Cullington	05/09/2025	S1	Draft Issue
B	S.Cullington		15/09/2025	S3	Suitable for Review and Comment
C	S.Cullington		03/10/2025	S4	Suitable for Stage Approval

Contents

Climate Change Statement

1.0 Executive Summary

2.0 Introduction

To reduce the energy demand associated with the building beyond regulations and to utilise renewable or low-carbon energy, several measures have been, or will be, taken for the Oaklands College Masterplan Development

2.1 Background

This document, prepared by CPW LLP on behalf of Oaklands College, supports a Full Planning Application for the redevelopment and expansion of the Oaklands College campus, in partnership with housing developer Taylor Wimpey.

Located east of St Albans off Hatfield Road, the proposal includes demolishing several existing buildings and constructing new facilities, including an Animal Management & Zoo, High Needs Centre, Creative Gateway, Film Studio, and Sports/Combat Arena, alongside refurbishments to the Refectory and Mansion House.

The redevelopment integrates Oaklands College's core values of safety, sustainability, smart design, and social responsibility, ensuring a modern, functional, and inspiring learning environment.

2.2 Description of the Re-development

The Oaklands College Masterplan shall provide the college with the following new buildings for student learning:

- Animal Management

A new single-storey, multi-block facility designed to support practical animal care education.

- High Needs Centre

A dedicated SEND facility that offers a high-quality, inclusive environment for learners requiring significant support.

- Creative Gateway

A flexible central forum space for exhibitions and performances, a digital learning centre, and modern facilities to consolidate creative disciplines including visual arts, media, and performing arts.

- Film Studio

A professionally equipped studio space that supports both student learning and potential commercial projects.

- Sports Hall

A new sports facility designed to competition standards, providing courts for various sports, retractable seating, and inclusive changing and support spaces.

- Refectory

An extension to the existing learning resource building will be reconfigured into a contemporary dining and social space with the main campus Kitchen as well as catering learning facilities.

- Mansion House

A refurbishment of the existing mansion house on campus. This historic building will be sensitively restored and repurposed for ongoing educational use.

3.0 Planning Submission

"A Hybrid planning application for a severable phased development comprising:

- Full detailed planning application for the construction of new homes (use class C3); new local centre and community facility (use classes E(a to f) and F); a children's home (use class C2); demolition and renovation of existing college buildings; construction of new college buildings (use class F1.); the creation of Active Travel Routes including footpaths for walking, cycling and equestrian activities; removal and planting of trees; along with the laying out of green infrastructure (including publicly accessible open space) and habitat creation; drainage infrastructure, earthworks, new means of access and alterations to existing access points.

- Outline planning application (access only, all other matters reserved) for the construction new homes (use class C3); new extra care home dwellings (use class C2); land for the construction of a new primary school (use class F.1); demolition and renovation of existing college buildings; construction of new college buildings (use class F1.); the construction of new sports facilities and pitches; the creation of Active Travel Routes including footpaths for walking, cycling and equestrian activities; removal and planting of trees; new energy centre; new recycling facilities; new car parking facilities; along with the laying out of green infrastructure and habitat creation; drainage infrastructure, earthworks, pedestrian and cycle routes, alterations to existing access points.

- The phasing of the development is indicative allowing different phases to commence at different times and independently (severable) from each other. The outline phases will are the subject of parameter plans and design codes".

3.1 St Albans City and District Council Planning Policy

St Albans City and District Council's planning policies are designed to manage development in a way that supports sustainable growth, protects the environment, and enhances the quality of life for residents.

Their proposed Local Plan aims to guide development in the area through 2036. The plan focuses on sustainable growth, addressing housing needs, enhancing infrastructure, and protecting the environment. Key elements include:

1. **Housing Development**: The plan outlines areas for new housing, including affordable homes, to meet the growing population's needs.
2. **Economic Growth**: It supports commercial and industrial development to boost local employment and economic activity.
3. **Sustainability**: Emphasis is placed on sustainable building practices, renewable energy, and reducing carbon emissions.
4. **Infrastructure Improvements**: The plan includes proposals for improving transport links, public services, and community facilities.
5. **Environmental Protection**: Policies are designed to protect green spaces, biodiversity, and heritage sites.

The proposed Local Plan has been open to public consultation and review (ending November 2024) to ensure it meets the community's needs and aspirations.

The Oaklands College development shall be required to comply with the following key energy and sustainability policies from the proposed Local Plan.

Climate Change Statement

Strategic Policy SP1 – A Spatial Strategy for St Albans District

The Spatial Strategy for St Albans District aims to ensure the area remains a great place to live, work, and visit by 2041. The Council emphasizes high-quality design that respects local heritage and supports growth with necessary infrastructure, transport improvements, green spaces, and tree planting. The strategy prioritizes sustainable land use, focusing first on developing brownfield sites and addressing the climate emergency through energy and water efficiency and sustainable transport options.

Strategic Policy SP2 – Responding to the Climate Emergency

The Council is committed to addressing Climate Change through both mitigation and adaptation strategies. They support proposals that:

- Reduce whole life-cycle carbon emissions.
- Prioritize the development of previously developed land.
- Improve resilience to climate impacts like higher temperatures, droughts, storms, and heavy rainfall.
- Utilize sustainable locations to minimize travel needs and promote walking, cycling, and public transport.
- Provide on-site renewable energy, high energy efficiency standards, and low carbon energy.
- Encourage sustainable and active travel modes.
- Achieve biodiversity net gain.
- Mitigate flood risks and include Sustainable Drainage Schemes (SuDS).
- Demonstrate tree planting.
- Combine environmental payments through various credits.

These policies are integrated across the plan, addressing sustainable transport, biodiversity, and tree planting.

CE1 – Promoting Sustainable Design, Construction and Building Efficiency

New buildings in St Albans District must be designed for efficient use of energy, water, and materials to reduce greenhouse gas emissions. Applicants need to demonstrate sustainable design and construction through:

- Minimizing carbon, pollution, and energy impacts in new builds, conversions, refurbishments, and extensions.
- Implementing water conservation measures, including greywater recycling and rainwater harvesting, to reduce household water consumption.
- Retrofitting existing buildings to improve energy and water efficiency.
- Using sustainable construction methods and materials with low embodied carbon and recycling demolished materials.
- Minimizing waste through the Circular Economy approach.
- Incorporating Sustainable Drainage Systems (SuDS) in new developments and retrofitting existing buildings.

These measures aim to enhance resource efficiency and resilience to climate change.

CE2 – Renewable and Low Carbon Energy

St Albans City and District Council aim to increase the use of renewable and low carbon energy in the District. Development proposals must demonstrate the maximization of renewable or low carbon energy use. Major developments need to submit an Energy Statement at the planning application stage, detailing how they will incorporate renewable or low carbon energy, with agreed measures secured through conditions.

In line with the St Albans Local Plan Policy CE2 – Renewable and Low Carbon Energy part c):

The Council will support a range of low carbon and renewable energy solutions including, but not limited to, the following:

Climate Change Statement

i. Solar power, including photovoltaic panels, solar thermal heaters, and maximising passive solar heating through south facing designs;

ii. Wind turbines at different scales;

iii. Decentralised District Heating and Energy Networks; and

iv. Heat Pumps.

4.0 Measures to Reduce Energy Demand Beyond Building Regulations

The project adopts a fabric-first approach as the foundation of its energy efficiency strategy, prioritising passive design and high thermal performance to minimise the building's inherent energy demand before relying on active systems or renewable technologies. This approach aligns with wider sustainability objectives and aligns with strategy required from the National Planning Policy Framework (NPPF), particularly paragraph 164, to reduce green house gas emissions through, location, orientation and design.

Figure 1 - Proposed RoadMap.

4.1.1 High-Performance Building Envelope

The proposed buildings will be constructed with a high-performance building envelope that significantly exceeds the limiting standards set out in Building Regulations Part L 2021. This will reduce heat losses in winter, limit solar gains in summer, and enhance thermal comfort, leading to lower operational energy use and carbon emissions.

4.1.2 Enhanced U-values

A U-value measures how well a material conducts heat. It represents the rate of heat transfer through the material, with lower U-values indicating better insulation and higher energy efficiency.

There will be enhanced U-values for roofs, walls, floors, and glazing to improve heat retention and contribute to reduced space heating demands. For example, the proposed new flat roof U-value of 0.12 W/m2K is better than the BR Limiting Fabric Standard of 0.18 W/m2K and the Notional/Target Fabric Standard of 0.15 W/m2K. Similarly, proposed new external wall U-values (0.15 W/m2K), ground floor U-values (0.10 W/m2K), and various window/curtain walling U-values (1.20 W/m2K) also exceed their respective limiting and notional standards.

Table 1 - Proposed Construction Performance Parameters

Elements	BR Limiting Fabric Standards (W/m²K)	Notional/Target Fabric Standards Side-lit (W/m²K)	Proposed U-values for New Buildings (W/m²K)
Roof U-value (flat roof)	**0.18**	**0.15**	**0.12**
Roof U-value (pitched roof)	**0.16**		
External Wall U-value	**0.26**	**0.18**	**0.15**
Ground Floor U-value	**0.18**	**0.15**	**0.10**
All other window, roof window, curtain walling U-value	**1.60**	**1.40**	**1.20**
Rooflight U-value	**2.20**	**2.10**	**1.20**
Pedestrian door U-value	**1.60**	**1.90**	**-**
Air permeability at 50Pa	**8.00**	**3.00 - 5.00**	**1.00 - 3.00**

4.1.3 Very Low Air Permeability

Air permeability is the measure of how easily air can pass through a material or structure. Low air permeability is beneficial because it improves energy efficiency, reduces drafts, and enhances comfort by preventing unwanted air leaks

The design targets very low air permeability, between 1.0–3.0 $m^3/h \cdot m^2$ at 50 Pa. This is significantly better than the Building Regulations Part L requirement that air permeability must be less than $8m^3/h/m^2$ @50Pa and improves upon the notional building infiltration value of $3\text{-}5m^3/h/m^2$@50Pa typically needed for compliance. This measure limits uncontrolled infiltration and supports more efficient mechanical ventilation, leading to less energy required for heating.

4.1.4 Optimised Glazing and Solar control

Solar control refers to techniques and systems used to regulate the amount of solar heat and light entering a building, improving thermal comfort and reducing cooling loads.

- G-Value (Solar Factor): It measures the total solar energy transmitted through a window, including direct transmission and secondary heat re-radiation. It ranges from 0 to 1 — lower values mean better solar control and less heat gain.

- Solar Shading Devices: These are architectural elements, this can be seen in figure 3 & 4, they are designed to reduce unwanted solar heat gain and glare while maintaining natural daylight.

Together, they optimize energy efficiency and indoor comfort. The glazing will be optimised with improved U-values and selective solar control to balance daylight access with solar gain management, which helps to reduce lighting loads and avoid overheating.

Figure 2 - Solar shading devices proposed for the High Needs building

Figure 3 - Solar shading devices (example)

4.1.5 Minimised Thermal Bridging

Thermal bridging happens when heat passes through materials with higher conductivity than surrounding areas, reducing insulation efficiency. Examples include cavity closers, steel beams, balconies, and uninsulated window reveals

This project will consider careful detailing to minimise thermal bridging across junctions and penetrations, improving both performance and durability of the building fabric. Specific thermal bridging details shall be architecturally developed during later design stages.

4.1.6 Comprehensive Sustainability Strategy

The project integrates a comprehensive sustainability strategy that exceeds minimum regulatory requirements to deliver high environmental performance. Please refer to document 240541-CPW-XX-XX-RP-N-000001- Sustainable Design and Construction Strategy.

4.2 Measures to reduce carbon consumed through implementation and construction process.

The following measures have been proposed by the architectural team as measures to reduce carbon consumed during the implementation and construction process.

- The project shall incorporate recycled bricks, for select building elevations. Recycled bricks (such as the Kenoteq K-Briq) is constructed from 96% recycled materials, such as:
  - Certified inert recycled aggregates from construction and demolition waste (such as old bricks, rubble, and mortar)
  - Recycled gypsum sourced from waste plasterboard.
  - Recycled pigments used to colour the bricks

  Unlike traditional clay bricks that require high-temperature kilning, recycled bricks are cured at room temperature. This process eliminates the need for fossil-fuel-intensive firing, cutting carbon emissions by up to 90%. Additionally, the use of local waste materials reduces transportation emissions and diverts waste from landfills, contributing to a more circular and sustainable construction economy.

- Retaining significant parts of existing structures where possible, such as the Refectory, to reduce demolition and material demand. Demolition generates large volumes of waste and releases embodied carbon stored in the original materials, while manufacturing and transporting new materials (especially concrete and steel) are highly energy-intensive processes. By preserving structural elements such as foundations, walls, or frames, projects can avoid these emissions and reduce demand for virgin resources. This approach not only supports a circular economy but also shortens construction timelines and lowers costs, making it both an environmentally and economically sustainable strategy.

- Designing a lighter superstructure can significantly reduce the embodied carbon of a building by minimizing the amount of concrete required in its foundations. Heavier structures demand more robust and deeper foundations to support their weight, which typically involves large volumes of high-carbon materials like reinforced concrete. By contrast, a lighter superstructure—achieved through the use of low-weight materials such as engineered timber, lightweight steel, or modular components—places less load on the foundation. This allows for shallower, smaller, and less material-intensive foundations, directly cutting down on the embodied carbon associated with excavation, concrete production, and reinforcement. This design strategy not only reduces environmental impact but can also lower construction costs and speed up build times.

- Exploring timber as a primary structural material. Using timber as a primary structural material supports sustainability and significantly lowers embodied carbon in construction. Timber is a renewable resource that, when sourced responsibly from well-managed forests, contributes to carbon sequestration capturing and storing atmospheric CO_2 within the wood for the life of the building. Unlike high-carbon materials such as steel and concrete, timber requires less energy to process and manufacture, resulting in a much smaller carbon footprint. Additionally, modern engineered wood products like cross-laminated timber (CLT) offer high strength and versatility, enabling timber to replace more carbon-intensive materials in a wide range of structural applications. This makes timber a key component in low-carbon, climate-resilient building design.

Refer to DLA Architect’s Design Access and Statement for further detail.

5.0 Measures to Utilise Renewable or Low-Carbon Energy

Renewable or low-carbon technologies are energy systems that produce little to no greenhouse gas emissions and rely on naturally replenished resources, when sustainably sourced. Low-carbon technologies primary goal is to reduce dependence on fossil fuels, minimize environmental impact, and support a transition to a sustainable energy future.

The project will incorporate on-site renewable energy generation, including solar photovoltaics (PV) and air-source heat pumps (serving a centralised energy network to the site), to reduce reliance on fossil fuels.

5.1.1 On-site Renewable Energy Generation

Solar photovoltaic panels (PVs) convert solar radiation into electrical energy through semiconductor cells. PVs are available in a number of forms including mono-crystalline, polycrystalline, amorphous silicon (thin film). For maximum yield they should be un-shaded, facing south and installed at an incline of 30º to the horizontal. Mono-crystalline PVs have the highest efficiency, typically around 20%. PV technology is considered feasible on this project and can be incorporated onto the roof level of the building. The PV installation can help generate onsite electricity to support building loads or even be exported to the grid and provide a form of carbon offset.

The following tables outlines the proposed area of photovoltaics for the new buildings on the Oaklands College Campus.

	Animal Management	High Needs Centre	Film Studio	Creative Gateway	Sports Hall	Refectory
PV Area (sqm)	*140*	*180*	*190*	*500*	*Area available for PV*	*300*

5.1.2 Low-Zero Carbon Systems - Centralised District Heating and Energy Networks

The proposed new buildings are designed to utilise 'low-grade' heat energy (up to 50 °C), generated from low-carbon heat sources such as air heat pumps, due to their improved insulation and consequently low heat demands.

The Oaklands project proposes heat generation through a newly constructed low-temperature energy centre, capable of housing multiple ASHPs, thermal stores, and control systems. The central plant distributes low-temperature hot water (LTHW) using a buried district heating network to the new and refurbished buildings across the campus.

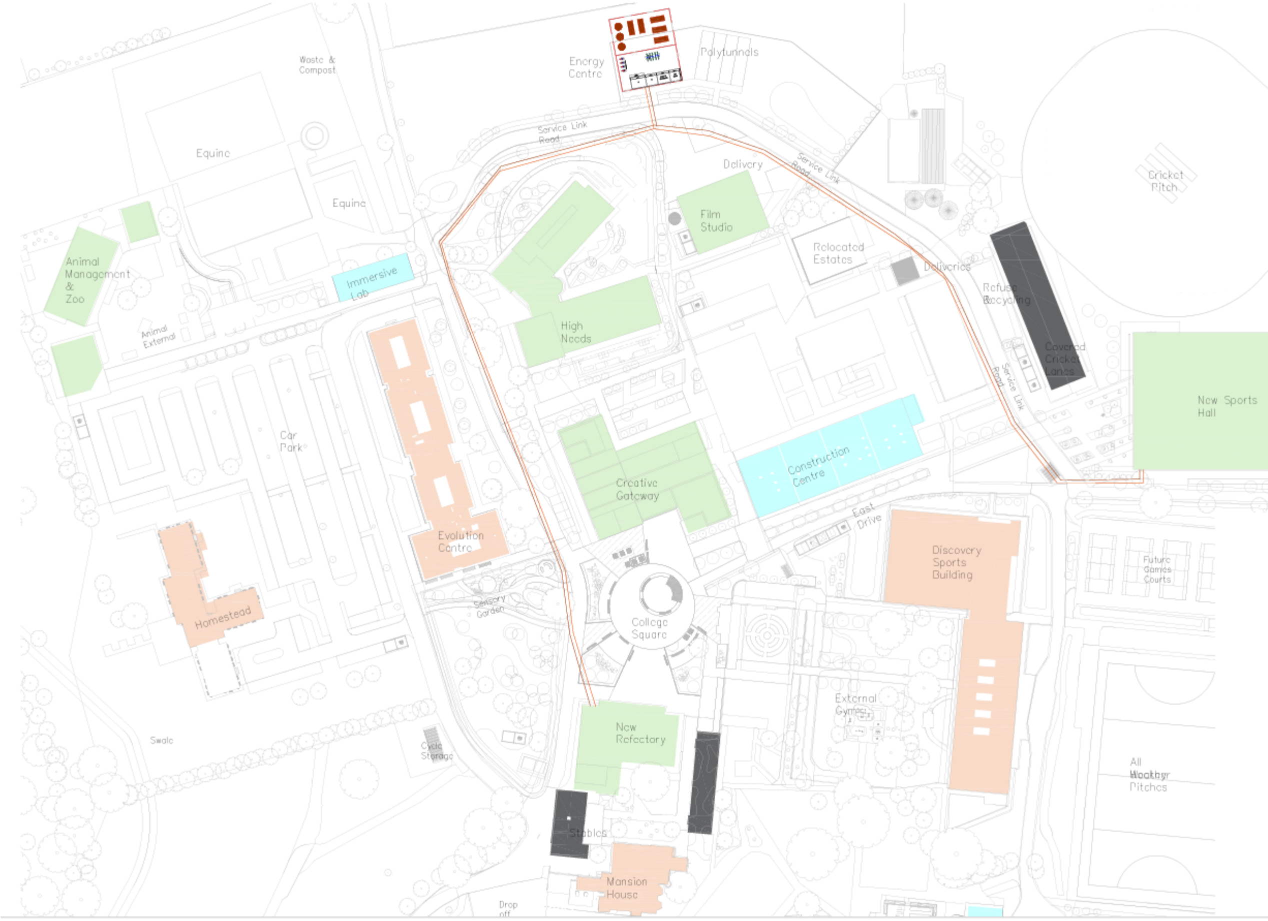


Figure 4 - Indicative Heat Network plantroom location and pipework to serve the campus

- While existing buildings typically require 'high-grade' heat energy (around 80°C) from gas-fired appliances, the project considers a 'heat network' operating a low-grade heat energy for the site, which is a site-wide system distributing heat from a central source to the new campus buildings.

- To accommodate both new and existing buildings, a 'low-grade' energy heat network would initially be required until thermal and heating/domestic hot water system upgrades are undertaken for the retained campus buildings.

- This 'low-grade' network could accommodate future expansion to the retained existing buildings by using a cascaded heat pump arrangement to increase the heating water temperature up to 80°C. or a 'hybrid' system utilising heat pumps for temperatures up to 50°C, topped up to 80°C using gas-fired boilers.

Figure 5 - Concept design for Oaklands College Energy Centre

6.0 Measures to reduce potential impact of flooding

The approach to measures

Design of the Oaklands College below ground drainage aim to be in accordance with the National standards for sustainable drainage systems (SuDS) and Hertfordshire County Council policy as far as feasible. It is the intention to incorporate SuDS into the external landscaping with priority given to the top-most criteria of the drainage hierarchy.

Measures to reduce the potential impact of flooding align closely with paragraph 162 of the National Planning Policy Framework (NPPF), which emphasizes a proactive approach to climate change mitigation and adaptation. Specifically, paragraph 162 calls for planning policies that consider the long-term implications of flood risk and support appropriate strategies to ensure the resilience of communities and infrastructure.

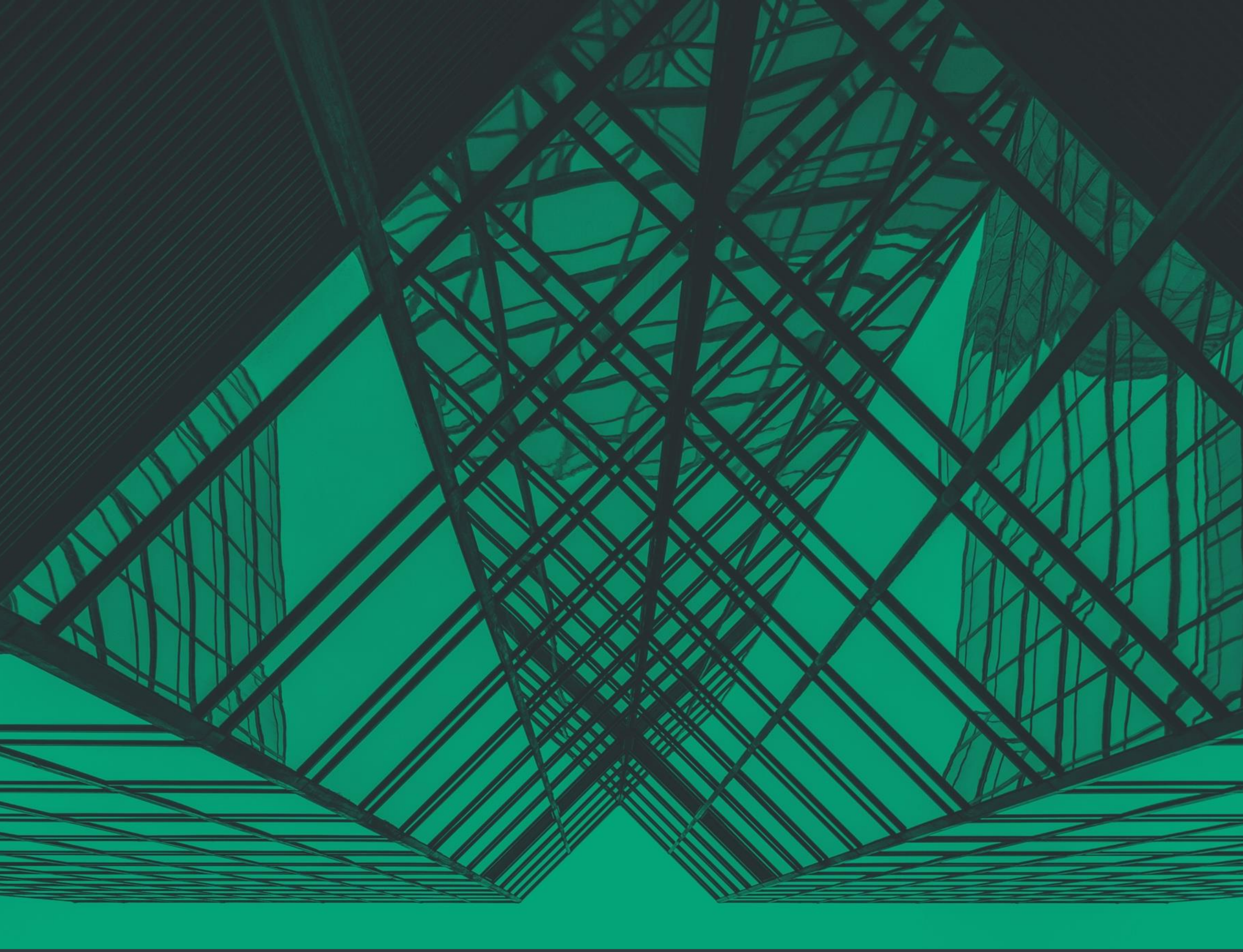
Proposals comprise a series of detention basins subdividing proposed architectural and landscaping works, supported by at-source conveyance SuDS; permeable paving, swales and rain gardens aimed to provide further enhanced amenity, biodiversity and water quality to the strategy. The addition of water butts to be included as where beneficial for water re-use on site. This strategy has been developed in close collaboration with the design team at an early stage in order to incorporate SuDS above-ground within landscape proposals as much as possible and reduce rates targeting Greenfield QBar.

Refer to Elliott Wood Sustainable Drainage Strategy 2240224-EWP-ZZ-XX-RP-C-00001 for further detail.

7.0 Measures to promote biodiversity

Biodiversity will be secured on site in the long term through the installation of bat and bird boxes as defined in the Ecological Impact Assessment report prepared by ECOSA. In addition, a Biodiversity Net Gain Assessment has been prepared by ECOSA and demonstrates that there will be a 10% net gain in biodiversity units on site following the completion of the development. The habitats will be managed for a 30 year period to ensure the remain in an appropriate condition.

Refer to ECOSA Ltd Ecological Impact Assessment Report – Dated 5th September 2025



Where buildings come alive

+44 (0) 1480 457488

huntingdon@cpwp.com

www.cpwp.com

Unit 6B Vantage Park
Washingley Road
Huntingdon
PE29 6SR