Mamre Road Data Centre Campus

706 – 752 Mamre Road, Kemps Creek

Ecologically Sustainable Design (ESD) Report

Project No.	P02638
Revision	06
Issued	04 December 2025
Client	Plan Project Management Pty Ltd

E-LAB Consulting
Where Engineering and Science Inspire Design.

Issue And Revision Record

Revision	Date	Comments	Engineer	Reviewer
01a	08.10.2025	Preliminary Issue	MV / ZM	AK
02	20.10.2025	Draft Issue	ZM	AK
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06	04.12.2025	Revised Final Issue	ZM	AK

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We recognise the Traditional Custodians of the land on which the proposed development will be constructed. We respect their enduring cultural and spiritual connections to the land and waters, and celebrate their knowledge, kinship, and values. We acknowledge that these connections to the land and waters have existed for millennia and will continue into the future. We respect the Elders who have gone before, together with those of today for their guidance on our shared journey. We recognise that we are, and always will be, on Aboriginal land.

Executive Summary

E-LAB Consulting have been engaged by Plan Project Management Pty Ltd in care of their Client to prepare an Ecologically Sustainable Development (ESD) Report in accordance with the relevant governance and planning policies to support the State Significant Development Application (SSDA) for the proposed Mamre Road Data Centre Campus project located at 706–752 Mamre Road, Kemps Creek, NSW 2178. The project forms part of a broader data centre campus strategy across Sydney, designed to deliver state-of-the-art, high-capacity digital infrastructure.

This report presents a summary of the ESD strategies proposed and commitments made for the development. The principal intends to deliver a sustainable outcome for the project by demonstrating a strong commitment to sustainability through design, construction, and operation, including the following range of initiatives:

- Introduction of a variety of energy reducing strategies for alignment with best-in-class PUE including efficient services with effective operational controls, efficient cooling towers and chillers, regular review of operating strategies and appropriate equipment selection where relevant to tenant needs. Additionally, liquid cooling strategies will be piloted where possible.
- Aim for full electrification of site and projected goal to purchase 100% of electricity from renewable energy along with customer procurement (green tariffs and RECs) by 2030. To be achieved through power purchase agreements (PPAs) and virtual PPAs.
- Designed to be capable of achieving a minimum 5-Star NABERS Energy performance and PUE of 1.3 at 100% utilisation, coupled with tenant collaboration.
- Aim for Net Zero emissions for Scope 1 and Scope 2 by 2030, through decarbonisation strategies which include piloting renewable diesel, procuring renewable energy on behalf of customers and partnering with renewable contracts/offsets.
- Address embodied carbon by incorporating circular economy principles wherever possible at each stage of the lifecycle, aiming to reduce raw material usage, promote reuse, and improve diversion rates.
- Minimise water consumption through effective design, fixtures and water reuse including rainwater harvesting to ensure effective WUE, sourcing non-potable water where possible.
- Implementing best practice comfort strategies inclusive of low emitting materials, acoustic comfort, thermal comfort and lighting comfort.

SEARs Compliance

Section	Request Item	Summary Response	Section Reference
Ecologically Sustainable Development	Identification of how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design, construction and ongoing operation of the development	The project incorporates the ESD principles through a variety of initiatives and strategies. Through reduction of energy, water and material consumption and reducing production of waste, the project is able to reduce damage, preserve the environment and ensure resources for future generations.	This report summarises the general sustainability commitments for the development. To be read with other supporting documentation. Refer to Section 2.1 for specific project responses. Refer to Section 3.1, 3.2. 3.4 and 3.6 for strategies and initiatives in line with Section 2.1.
	Demonstration of how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards, including a maximum Power Usage Effectiveness (PUE) of 1.3 and a minimum NABERS rating of five stars	Introduction of a variety of energy reducing strategies for alignment with best-in-class PUE including efficient services with effective operational controls, efficient cooling towers and chillers, regular review of operating strategies and appropriate equipment selection. Additionally, liquid cooling strategies will be piloted.	This report summarises the general sustainability commitments for the development. To be read with other supporting documentation. Refer to Section 3.1, 3.2 and 3.6

SEARs Compliance

Section	Request Item	Summary Response	Section Reference
		Aim for full electrification of site and projected goal to purchase 100% of electricity from renewable energy along with customer procurement (green tariffs and RECs) by 2030. To be achieved through power purchase agreements (PPAs) and virtual PPAs.	
	Identification of the projected Water Usage Effectiveness (WUE) for the development, compared against recognised 'best practice' benchmarks	Client portfolio WUE has been identified and will be used as the target for the project. WUE has been preliminary estimated to be 0.1 L/kWh. This will be aimed to be achieved through minimising water consumption through effective design, fixtures and water reuse including rainwater harvesting for mechanical systems.	Refer to Section 3.2
	Demonstration of how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources	Initiatives in place for energy reduction, aim for 5 Star NABERS energy and PUE of 1.3 at 100% utilisation coupled with tenant collaboration which reduce GHG emissions. Aim for Net Zero emissions for Scope 1 and Scope 2 by 2030, through decarbonisation strategies which include piloting renewable diesel, procuring renewable energy on behalf of customers and partnering with renewable contracts/offsets.	Refer to Section 3.1, 3.2 and 3.4
	if Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022 applies, include: - demonstration as to how the development has been designed to address the provisions set out in in Chapter 3.2(1) - a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35BA of the EP&A Regulation	Targets for NABERS energy and water rating are superseded by the SEARs specific requirements. NABERS embodied emissions material form is to be completed by quantity surveyor, however, strategies are in place to incorporate circular economy principles wherever possible at each stage of the lifecycle, aiming to reduce raw material usage, promote reuse, and improve diversion rates.	Refer to NABERS Embodied Emissions Form provided by Linesight. This is provided separately from the ESD report.

1. Introduction

1.1 Project Description

The Mamre Road Data Centre Campus development is a data centre project part of a larger series of data centre projects around Sydney, NSW. The development is located at 706 – 752 Mamre Road, Kemps Creek NSW 2178 within the industrial precinct of Kemps Creek.

The site is proposed for development under a State Significant Development Application (SSDA) as a data centre campus comprising:

- Approximately 26 shells across four-storeys data centre buildings (4x four shells and 2x five shells), including six technical office buildings, plus a campus office.
- Incoming and internal electrical substations and associated infrastructure
- Site preparation, including earthworks, stormwater, sewer, roads, and associated infrastructure.

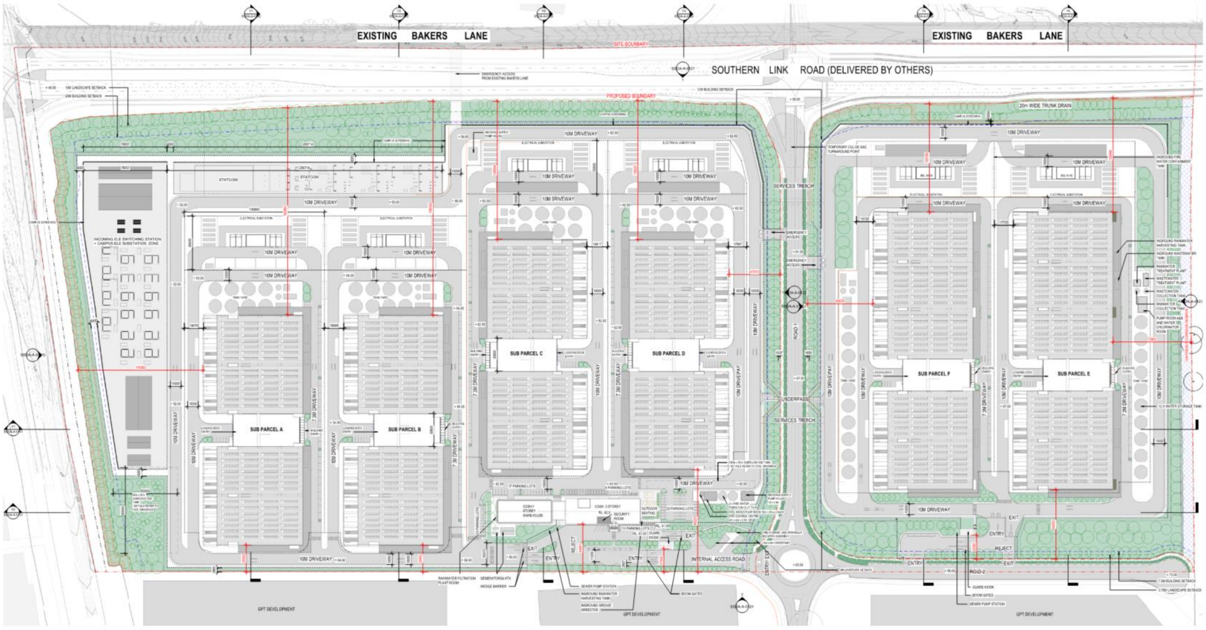


Figure 1: Project Overview (source: Greenbox Architecture)

1.2 Project Location

The project area for the proposed development, 706-752 Mamre Road, Kemps Creek (Lot 10 DP 1280592), constitutes the main development site with areas across the shared boundaries to the east and south (described below) utilised to facilitate roadworks and bulk earthworks:

- Gibb Group site to the East known as 1-22 Bakers Lane, Kemps Creek (Lot 40 in DP 709347).
- GPT Group site to the South known as 754 Mamre Road, Kemps Creek (Lot 180 in DP 1290397).

Additionally, power supply lead-in from Sydney-West Substation is proposed as part of the development, which traverses through multiple landholdings

Surrounding land use is a mix of rural, agricultural, and emerging industrial activity, supported by infrastructure upgrades such as the Mamre Road widening. The site is located approximately 39 kilometres west of the Sydney CBD.

Figure 2: Site Location (source: Nearmaps)

2. Sustainability Frameworks

The development's guiding sustainability principles and overall performance have been designed in alignment with the following planning frameworks, legislative policy, guidelines and the like:

- NSW Environmental Planning and Assessment (EPA) Regulation 2021
- State Environmental Planning Policy (SEPP), Sustainable Buildings, 2022
- Secretary's Environmental Assessment Requirements (SEARs)
- Mamre Road Precinct Development Control Plan (DCP), 2021
- ABCB National Construction Code (NCC) 2022 Volume 1, Section J
- NABERS Energy Protocols

2.1 NSW EPA Regulation 2021

The principles of Ecologically Sustainable Development to which the development will adhere to are defined within Part 8, Division 5, clause 193 of the NSW EPA Regulation 2021 as.

(2) The Precautionary Principle

Philosophy: Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

Project Response: The project will employ relevant environmental protection measures and risk assessments to ensure no irreversible environmental harm is acted as a result of the construction operation of the development. Energy reduction, water consumption reduction and waste reduction are all project commitments to actively achieve sustainability targets.

(4) Inter-generational equity

Philosophy: The present generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations.

Project Response: The project will ensure no irreversible environmental harm is acted as a result of the construction or operation of the development. The design team will address key elements such as energy, water and material use to do all which is within the project's control to ensure future generations have equal opportunity and access to the environment

(5) Conservation of Biological Diversity and Ecological Integrity

Philosophy: Conservation of biological diversity and ecological integrity should be a fundamental consideration

Project Response: The project will conduct a biodiversity assessment to understand the local ecosystem and ecological health of the site and integrate nature conservation or restoration projects to positively contribute to local biodiversity, ecosystem health and community well-being within 20km of the project area.

(6) Improved Valuation, Pricing and Incentive Mechanisms

Philosophy: Environmental factors should be included in the valuation of assets and services. The users of goods and services should pay prices based on the full life cycle costs of providing goods and service.

Project Response: The project is committed to minimising waste throughout development and operation by improving circularity and diversion rates. This will be achieved through data collection, identifying reuse opportunities, and exploring take-back programs with equipment suppliers to enable second-life use of equipment. These actions will help conserve resources, support decarbonisation, and reduce environmental impact.

2.2 NSW Guide to Large Emitters

In line with the NSW EPA and NSW legislation, policies and initiatives in aiming for Net Zero, the EPA and other agencies have developed the NSW Guide for Large Emitters. The guide's main objective is reducing emissions through informing GHG aspects of the development and consideration/assessment of the development proposal. This additionally includes the development of the GHG assessment which forms part of the EIS for 'large emitters'.

This is to ensure projects with significant GHG emissions are properly assessed as part of the development application. The guide responds to the NSW Climate Change (Net Zero Future) Act 2023 which legislates emission reduction targets. The outcome of this guide is to show how developments are avoiding, reducing, substituting and managing emissions through project design, operations and offsets where possible.

The NSW Guide for Large Emitters is required, only if all three criteria are met as outlined in the guide. This criterion includes:

1) Planning Requirement: The project requires development approval, or a modification of approval
2) EPA License: The project involves scheduled activity under the Protection of the Environment Operations Act 1997 and/or will be carried out at an existing EPA licensed premises
3) Emissions Threshold: The project is likely to emit 25,000 tonnes CO_2-e or more as part of Scope 1 and 2 for any financial year during operations

As Mamre Road Data Centre Campus is expected to be a 'larger emitter' due to the project typology, the GHG assessment will form a mandatory part of the EIS which is to be submitted for the SSDA. E-LAB Consulting has separately developed the GHG assessment which provides additional detail regarding energy consumption and emission expectations for operational activities with additional mitigation measures in detail. The following tables provide an overview of the estimated emissions. It should be noted that if Scope 1 and 2 emissions exceed 100,000 t CO_2-e/year at any year the GHG assessment must be reviewed by an independent party. This has independent review has occurred and for additional details regarding review, calculation assumptions, methodology, off-axis and comparative projections refer to the E-LAB_706-752 Mamre Rd_GHG Assessment_006 dated 4 December 2025.

Table 1: Peak Scope 1, 2 and 3 Emissions

Stage	Year	Scope 1 (t CO_2-e/year)	Scope 2 (t CO_2-e/year)	Total Scope 1+2 (t CO_2-e/year)	Operational Scope 3 (t CO_2-e/year)	Illustrative Construction Scope 3 (t CO_2-e/year)	Total Scope 1, 2 and 3 (t CO_2-e/year)
Operations – Maximum capacity	2032	998.8	1,699,710	**1,700,709**	307,998	23,288	**2,031,994**
Operation – Planned throughput	2032	998.8	1,296,029	**1,297,028**	235,133	23,288	**1,555,449**

Table 2: Total Scope 1, 2 and 3 Emissions (2025-2080)

Stage	Scope 1 (t CO_2-e)	Scope 2 (t CO_2-e)	Total Scope 1+2 (t CO_2-e)	Operational Scope 3 (t CO_2-e)	Illustrative Construction Scope 3 (t CO_2-e)	Total Scope 1, 2 and 3 (t CO_2-e)
Operations – Maximum capacity	79,091	27,785,264	**27,864,355**	4,932,159	244,519	**33,041,033**
Operation – Planned throughput	79,091	23,495,081	**23,574,172**	4,231,121	244,519	**28,049,812**

2.3 SEPP Sustainable Buildings 2022

The NSW Government has introduced the State Environmental Planning Policy (Sustainable Buildings) 2022 to ensure new and renovated buildings are sustainable and resilient for future climate and bring NSW towards net zero emissions. As part of the SEPP the following is required to be addressed in developments as minimum:

- General Sustainability – reporting on general performance, including water conservation, waste minimization and use of renewable energy; and
- Embodied Emissions Reporting – disclose at development application and construction certificate the quantities of materials and associated emissions. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies).

Being a new non-residential building, Clause 3.2 of the SEPP is required to be addressed as minimum requirements:

- The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials,
- A reduction in peak demand for electricity, including through the use of energy efficient technology,
- A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design,
- The generation and storage of renewable energy,
- The metering and monitoring of energy consumption,
- The minimisation of consumption of potable water,
- Attributable embodied emissions of the development quantified,

Being a large commercial development, Clause 3.3 of the SEPP is requirement to be addressed:

1. Minimises the use of on-site fossil fuels, as part of the goal of achieving net zero emissions in New South Wales by 2050.
2. Capable of achieving the standards for energy and water use specified in *Schedule 3.*
3. Capable of achieving a standard specified in Schedule 3 if there is a NABERS commitment agreement in place to achieve the standard.

Schedule 3;

1. Energy use
    - Energy Use and NABERS targets are not dictated for this class of Building
2. Water use
    - Water Use and NABERS targets are not dictated for this class of Building

Table 3: SEPP Response

Requirement	Response
General Sustainability – reporting on general performance, including water conservation, waste minimization and use of renewable energy.	This report summarises the general sustainability commitments for the development. To be read with other supporting documentation. Refer to Section 3.1, 3.2 and 3.4 in particular for responses.
Embodied Emissions Reporting – disclose at development application and construction certificate the quantities of materials and associated emissions. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies).	Refer to NABERS Embodied Emissions Form provided by Linesight. This is provided separately from the ESD report.
The minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials.	Refer to Section 3.4 and 3.6 in particular for waste reduction and materiality.
A reduction in peak demand for electricity, including through the use of energy efficient technology.	Refer to Section 3.1 for details regarding energy efficiency strategies and initiatives.
A reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design.	Refer to Section 3.1 in particular for services strategies.
The generation and storage of renewable energy.	Due to building typology, renewable energy will be sourced as a purchasable agreement, refer to Section 3.1 in particular.
The metering and monitoring of energy consumption.	Refer to Section 3.1 for details regarding energy efficiency strategies and initiatives.
The minimisation of consumption of potable water.	Refer to Section 3.2 for details regarding water consumption strategies and initiatives.
Attributable embodied emissions of the development quantified.	Refer to Section 3.1, 3.4 and 3.6 in particular for embodied emission strategies.
Minimises the use of on-site fossil fuels, as part of the goal of achieving net zero emissions in New South Wales by 2050.	Refer to Section 3.1 and 3.6 in particular for emission strategies.

2.4 SEARs

The anticipated requirements of the SEARs are below. The SEARs form part of the Environmental Impact Statement and are required for all State Significant Developments.

Table 4: SEARs Response

Section	Request Item	Summary Response	Section Reference
Ecologically Sustainable Development	Identification of how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design, construction and ongoing operation of the development	The project incorporates the ESD principles through a variety of initiatives and strategies. Through reduction of energy, water and material consumption and reducing production of waste, the project is able to reduce damage, preserve the environment and ensure resources for future generations.	This report summarises the general sustainability commitments for the development. To be read with other supporting documentation. Refer to Section 2.1 for specific project responses. Refer to Section 3.1, 3.2. 3.4 and 3.6 for strategies and initiatives in line with Section 2.1.
	Demonstration of how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards, including a maximum Power Usage Effectiveness (PUE) of 1.3 and a minimum NABERS rating of five stars	Introduction of a variety of energy reducing strategies for alignment with best-in-class PUE including efficient services with effective operational controls, efficient cooling towers and chillers, regular review of operating strategies and appropriate equipment selection. Additionally, liquid cooling strategies will be piloted. Aim for full electrification of site and projected goal to purchase 100% of electricity from renewable energy along with customer procurement (green tariffs and RECs) by 2030. To be achieved through power purchase agreements (PPAs) and virtual PPAs.	This report summarises the general sustainability commitments for the development. To be read with other supporting documentation. Refer to Section 3.1, 3.2 and 3.6
	Identification of the projected Water Usage Effectiveness (WUE) for the development, compared against recognised 'best practice' benchmarks	Client portfolio WUE has been identified and will be used as the target for the project. WUE has been preliminary estimated to be 0.1 L/kWh. This will be aimed to be achieved through minimising water consumption through effective design, fixtures and water reuse including rainwater harvesting for mechanical systems.	Refer to Section 3.2
	Demonstration of how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources	Initiatives in place for energy reduction, aim for 5 Star NABERS energy and PUE of 1.3 at 100% utilisation coupled with tenant collaboration which reduce GHG emissions. Aim for Net Zero emissions for Scope 1 and Scope 2 by 2030, through decarbonisation strategies which include piloting renewable diesel, procuring renewable energy on behalf of	Refer to Section 3.1, 3.2 and 3.4

Section	Request Item	Summary Response	Section Reference
		customers and partnering with renewable contracts/offsets.	
	if Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022 applies, include: - demonstration as to how the development has been designed to address the provisions set out in in Chapter 3.2(1) - a NABERS Embodied Emissions Material Form to disclose the amount of embodied emissions attributable to the development in accordance with section 35BA of the EP&A Regulation	Targets for NABERS energy and water rating are superseded by the SEARs specific requirements. NABERS embodied emissions material form is to be completed by quantity surveyor, however, strategies are in place to incorporate circular economy principles wherever possible at each stage of the lifecycle, aiming to reduce raw material usage, promote reuse, and improve diversion rates.	Refer to the Embodied Emissions Reporting provided by quantity surveyor. This is provided separately from the ESD report.

2.5 Mamre Road Precinct DCP 2021

As the site is located within Kemps Creek NSW, the local government area is considered Penrith City Council. However, the Mamre Road Precinct DCP takes precedence over other DCPs as the site location is within the industrial subsection of the area. This is to ensure detailed planning controls are in place for the Western Sydney industrial precinct development which includes ESD controls in detail. The following general DCP controls are to be noted:

- Energy & Building Performance
  - Developments over $1m must target minimum 4 Star Green Star or 4.5 Star NABERS rating equivalents
  - Building orientation should maximise passive solar access, natural ventilation, and reduce reliance on mechanical cooling
  - Circular economy principles encouraged — maximise recycling and reuse of materials
- Integrated Water Cycle Management
  - Must meet strict stormwater quality targets (90% reduction in TSS and gross pollutants; 80% phosphorus; 65% nitrogen)
  - Flow targets apply during both construction and operation to protect South Creek catchment
  - Require a Water Management Strategy (MUSIC modelling, lifecycle costing, maintenance plans)
  - Rainwater/recycled water infrastructure expected — at least 80% non-potable demand via rainwater tanks if no recycled water scheme
- Biodiversity & Landscape
  - Protect and enhance the blue-green network, riparian corridors, and existing trees
  - Development must include Vegetation Management Plans and offset clearing with replanting
  - Street trees and landscaping required to contribute to canopy targets and urban heat mitigation
- Air Quality & Emissions
  - Must comply with NSW EPA emission standards and Protection of the Environment Operations Act
  - Diesel backup generators (common in data centres) must undergo best practice emission reduction review
- Waste & Circular Economy
  - Waste minimisation and resource recovery planning required across design, construction, and operations
- Flood & Climate Resilience
  - Flood Impact Risk Assessment required if site is on flood-prone land.
  - Finished floor levels at least 0.5m above 1% AEP flood; safe evacuation and storage of pollutants above flood levels

In addition to the above controls, refer to the ESD specific controls below:

1. ESD measures incorporated into design:
   a. Building and window orientation, window size and glass type, insulation
   b. Material, colour and surface treatments, light coloured materials for roof to reduce urban heat island effect
   c. Landscaping and trees to provide shade and moderate building microclimate
   d. Natural ventilation and light with generous, all weather openings, air flow, ventilation and building morphology to support cooling
   e. Utilise roof areas for energy and water collection
   f. Circular economy in the design, construction and operation of buildings, public domain, infrastructure, and energy, water and waste systems

2. Building services should promote:
    a. Separate metering of water and electricity for multiple uses or tenants
    b. Shut off valves at stormwater outlets to trap toxic spills
    c. Waterless urinals
    d. Energy efficient lighting
    e. Gas boosted solar hot water for staff amenities
    f. Air cooled systems, ground source heat rejection or pond heat rejection
    g. Energy storage systems combined with the use of photovoltaic cells for roof areas
3. Measure to improve indoor quality:
    a. Low VOC paints and low formaldehyde floor covering, adhesives and furniture
    b. Glazed facades to be shaded and/or use performance glass to control radiant heat
    c. Occupant control of comfort parameters (e.g. operable windows, control of air flow)
    d. Protection from noise (e.g. open windows or between production and office areas)
    e. Provision of quality landscaped outdoor amenity areas for staff
    f. Hydronic heating and ceiling fans
    g. Materials with low reflectance values

The following sections in this ESD report will cover the various strategies and initiatives implemented by the development to ensure that the various sustainability development controls are met and will be met.

2.6 Section J (NCC 2022)

A preliminary Section J, Part J4 assessment will be undertaken for the development to determine the Deemed-to-Satisfy (DtS) performance requirements of the thermal envelope including glazing units, external and internal walls and spandrel panels which make up the defined thermal envelope.

To demonstrate compliance with Section J, a J1V3 performance verification approach will be undertaken prior to construction to demonstrate that the proposed building exceeds the energy and therefore greenhouse gas performance of a DtS reference building. Ongoing coordination with the Architect and relevant engineering disciplines will be undertaken to ensure the façade system contributes to reducing energy demand without compromising visual amenity and daylight access.

2.7 NABERS Energy Protocols

NABERS is a national rating system that measures the environmental performance of Australian buildings, tenancies and homes. Performance under NABERS can be measured in terms of the energy efficiency, water usage, waste management and indoor environment quality for a building or tenancy and its impact on the environment.

Ratings are based on actual or modelled operational performance and are expressed on a six-star scale, with higher ratings reflecting superior efficiency and lower environmental impact. NABERS provides building owners, designers, and tenants with a clear, independent measure of sustainability performance, helping to guide design and operational decisions that reduce resource consumption, operational costs, and carbon emissions.

The requirement of the DCP states the building is only to be designed to meet a 4.5-star NABERS energy rating. However, in particular the SEARs requirements call for a PUE of 1.3 and a minimum 5-star NABERS energy. This will be achieved through working with the tenants when available to ensure the highest efficiency. Currently, the principals site manages an average PUE of 1.32, which aligns with a NABERS rating of 5 Star NABERS Energy. This will be aimed to be achieved above and beyond to meet the PUE requirement of 1.3 and the minimum 5-star requirement.

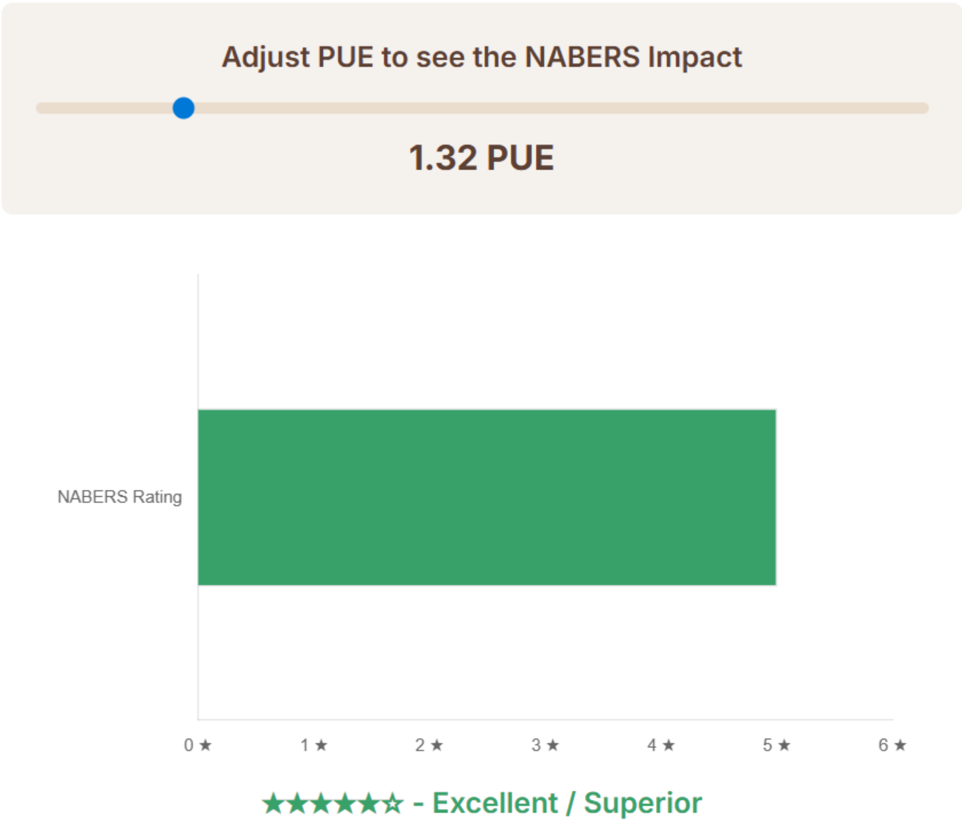


Figure 3: PUE and NABERS Relationship

3. Sustainable Design Initiatives

The development will be designed to achieve the sustainability performance requirements as identified in the sustainability frameworks. Following industry best practice guidelines will be implemented to best inform the design and ensure the outcome is in line with planning and legislative requirements to drive sustainable development.

3.1 Energy

The energy efficiency strategy generally follows the hierarchy shown in Figure 4 below. The design in the first instance must seek to remove the demand for energy consumption where possible through reducing load. Beyond this, energy consumption can be made more conservative, through efficient lighting, mechanical systems, and other associated active services.

Once the energy system has reduced all possible energy consuming elements and made the remaining systems as efficient as possible, renewable energy sources will be prioritized through both on-site and off-site generation. Only after all the above steps have been implemented should carbon offsets be used to achieve operational neutrality.

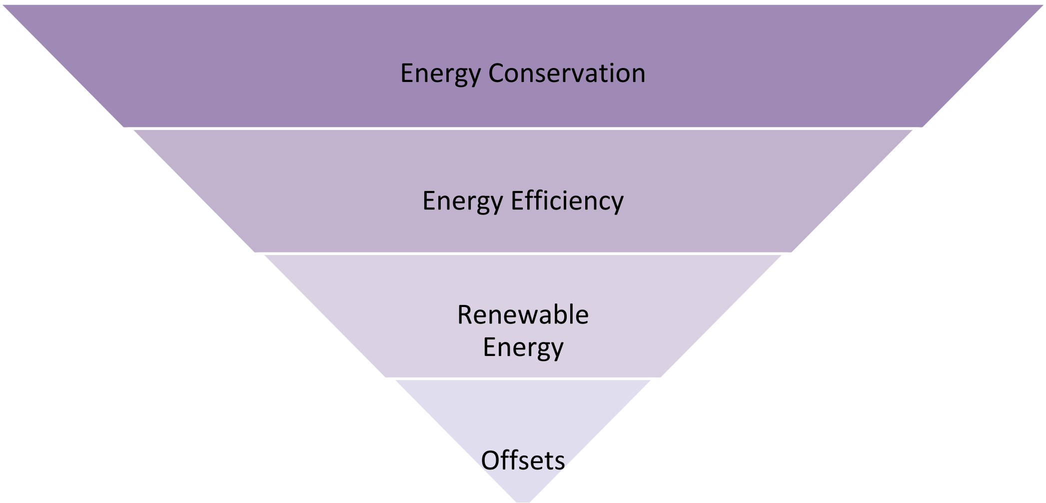
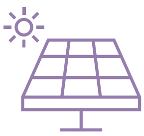


Figure 4: Energy Hierarchy

To achieve a high degree of energy efficiency and to align with governing ESD policies and performance requirements such as the EPA and the DCP, the following initiatives are to be implemented across the development:

Detailed Modelling. – Energy modelling of the proposed development will be undertaken early during subsequent design stages to understand the opportunities and identify risks to overall energy performance and compliance with identified performance requirements. This will be used to inform and coordinate the wider project team to best align systems to reduce energy consumption as applicable.



Renewable Energy – The project will implement Principal's established Renewable Electricity Procurement Strategy as part of the proposed development. This strategy forms a key component of the Principal's broader commitment to achieve Net Zero (Scope 1 and 2) greenhouse gas emissions by 2030 and will be applied throughout the design, delivery, and operation of the project.

Under this strategy, the project will progressively match all operational electricity consumption with renewable energy through a combination of long-term Power Purchase Agreements (PPAs), renewable energy certificates (RECs), and collaborative renewable energy procurement with tenants. The Principal's current operational portfolio already achieves a 74% renewable electricity matching rate, providing a strong foundation for extending these measures to new developments.

A Tenant Renewable Electricity Uptake Program will also be implemented to facilitate customer participation in renewable energy sourcing. This program will include mechanisms to verify renewable energy procurement, provide contractual flexibility to enable tenant-led renewable energy purchasing, and support joint renewable energy projects where feasible.

Renewable Diesel – Renewable diesel has been tested as a sustainable alternative to diesel in back-up generators. Renewable diesel is manufactured using waste, recycled and renewable materials, offering a reduction in well-to-wheel emissions over 75% compared to fossil diesel up to typically 91%.

Full Electrification – Electricity will be the primary fuel source that is consumed on site with the exception of diesel fuel from back-up generators.

Operating Power Usage Effectiveness (PUE) - Lead the industry with best-in-class operational Power Usage Effectiveness (PUE) and 100% renewable energy matching at all sites by 2030, supporting the transition towards 24/7 clean energy.

Continue to drive down PUE towards a long-term goal through innovation projects and deployment of novel technologies such as liquid cooling. Continual usage of optimisation programs will aid in reduction of energy draw. Use of effective lighting controls and strategies in conjunction with low consuming lighting will contribute to the PUE.

Mechanical HVAC – The heating, cooling and ventilation strategy for the campus will be designed to maximise energy efficiency. Operating schedules and control of the various spaces served will be designed to optimize efficiency by matching occupational profiles to ensure HVAC is not running unnecessarily and increasing energy demand.

The data centre campus cooling system is supported by a high-reliability cooling system, comprising multiple closed-circuit cooling towers per building or air-cooled chillers, and dynamic pressure units with process water make-up and expansion tanks, integrated with condenser and evaporator loops. This configuration provides redundancy and operational flexibility, ensuring precise temperature control and uninterrupted performance of critical infrastructure.

The system demonstrates energy-efficient operation through staged deployment of cooling towers, aligning equipment operation with real-time cooling demand. Closed-circuit cooling towers minimise water loss and mitigate fouling, maintaining optimal heat transfer efficiency. Dynamic pressure regulation optimises pumping energy, while air-cooled chillers provide supplemental cooling under controlled energy conditions.

Furthermore, adoption of water-efficient technologies, with integration of rainwater harvesting to supply the mechanical cooling system reduces reliance on potable water and enhancing overall environmental performance.

Commissioning and Tuning – To ensure optimal operation of building services, commissioning to a recognized industry standard shall be undertaken during construction and before practical completion.

Equipment – Evaluated all strategic equipment suppliers through the Supplier Relationship Management (SRM) program using ESG criteria. Partner with contractors and suppliers to cut embodied carbon by replacing high-carbon materials and optimising supply chains, manufacturing, and transport. Promote circularity by designing data centres to minimise waste, use recycled and low-carbon materials, enable take-back programs, and ensure equipment longevity and recyclability, building more resilient and sustainable infrastructure.

Low Emission Transportation – Monitoring business travel, employee commuting, and supplier transportation will guide the project to reduce any additional emissions. These activities form a key part of the embodied carbon reduction strategy, helping identify opportunities to cut emissions and drive reductions across every stage of the value chain.

3.2 Water

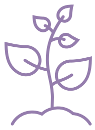
To achieve water resilience, the project is committed to minimise water withdrawal and pursue alternative sources in water stressed regions where possible, optimise water productivity through deployment of measures to increase efficiency and enhance WUE, reducing energy use and carbon emissions. WUE for the project will be identified and calculated which will be compared against benchmark for best practice. The client's portfolio has achieved a WUE of 0.89 L/kWh with 100% of campuses meeting design-defined limits. The Mamre Road Data Centre Campus is expected and aiming to achieve a WUE performance of 0.1 L/kWh by deploying a series of measures.

Water Stress – Using water for cooling increasingly dense computing deployments has the potential to save energy and reduce carbon emissions. To make sure water resilience is achieved, water in water stressed areas is monitored, measured by WSL.

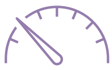
Recycled Water – The project is committed to water recycling initiatives to supply the project or replenish local basins. As well as working with authorities and utilities to develop new sources and pushing to be an off-taker of existing recycled water schemes, reducing reliance on freshwater. Rainwater and recycled water infrastructure will be integral with potential to supply at least 80% of non-potable demand, initially with rainwater tanks until recycled water schemes are operational.

Optimise water usage – Deployed cooling solutions that maximize the use of free air cooling while maintaining optimal PUE performance. The project will consistently track and report the WUE as a key metric to ensure responsible water usage, a commitment reflected in the SLL targets.

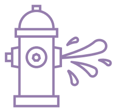
Integrated Water Cycle Management – An integrated water cycle management strategy will ensure sustainable water use and protection of the South Creek catchment. The strict stormwater quality targets will be met, including a 90% reduction in total suspended solids and gross pollutants, 80% reduction in phosphorus, and 65% reduction in nitrogen, with flow targets enforced during both construction and operation. The strategy will incorporating MUSIC modelling, lifecycle costing, and maintenance plans.



Water Metering and Monitoring –The ratio of wastewater to water that comes into site is estimated or metered by the local water authority. An OSD tank will be considered in the design of the campus with initial studies considering wastewater discharge from cooling plant will be minimal, reducing concerns on both volume and pollutants.



Fire Protection – Reticulation of fire system test water will be investigated to minimise additional water loss.



3.3 Water Consumption Estimates

To optimize water consumption reduction, the following preliminary water consumption estimates have been conducted for the Mamre Road Data Centre Campus project by the Client. The methodology for these estimates rely on the Client's estimated consumption, preliminary services and historical data. These projections depict the base-case of water usage – the minimum required water for the campus. It should be noted that this is separate from the design WUE of 0.1 L/kWh, and does not show typical water consumption with the design WUE.

The Mamre Road Data Centre Campus project is to be delivered in multiple phases under a consolidated SSDA submission. The key estimated stages are as follows:

- Construction Stage – covering site preparation, earthworks, and building construction over approximately 10 years. The construction program has been staged in multiple 'phases' with the first phase to begin in 2026 with continual work as new phases come online.
- Operational Stage – each shell is to come into operation after construction is complete. Shells will come online after construction even if other shells in the phase are incomplete. Operations are expected to begin in 2028 with full campus operation in 2036 with projections up to 2080.
- Decommissioning and Closure Stage – retirement of data centre infrastructure and equipment after has not been estimated.

Each stage has been considered within the water estimates assessment to ensure a whole campus estimate is captured. It is noted that the total program for construction is estimated to be 10 years. Therefore, based on these estimates and assumptions, the entire data campus will be in full operation in 2036 and projected until 2080.

Underlying assumptions include:

- A 'base-case' scenario is assumed for these projections – this identifies the minimum amount of water that would be required for the campus, not it's typical operational water consumption.
- These projections assume water is only used in the months of December, January and February and above certain ambient temperatures for the water-efficient misting system.
- It should be noted that the development is aiming for a design WUE of 0.1 L/kWh, however, this is not the basis of the water consumption projections and is based on the minimum required water for operation.
- These water consumption projections have been estimated and provided by the Client directly. No estimations have been completed by E-LAB Consulting.

Table 5: Water Consumption Estimates

Stage	Peak	Total (2025-2080)
Base Case Operations (Minimum required water consumption for campus)	22,400 kL/year	1,091,569 kL

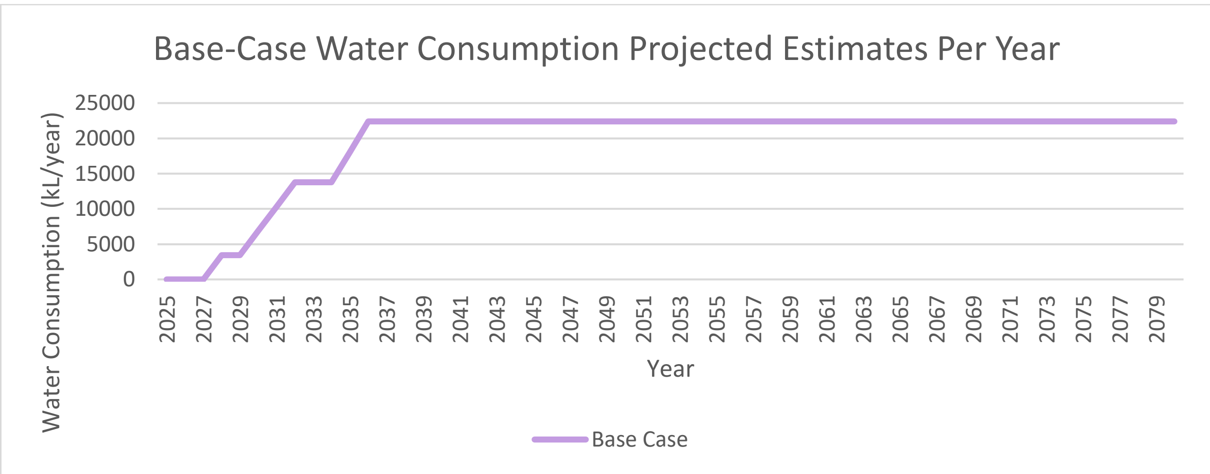


Figure 5: Water Consumption Projected Estimates Per Year

3.4 Urban Heat Island Effect

The Urban Heat Island Effect (UHIE) refers to the phenomenon where urbanised areas experience higher ambient temperatures than surrounding rural or vegetated regions. This temperature difference arises primarily from the prevalence of heat-absorbing materials such as concrete, asphalt, and metal, coupled with reduced vegetation and limited evapotranspiration. The retention and slow release of heat by these surfaces lead to elevated nighttime temperatures, which can exacerbate cooling energy demand, impact local microclimates, and affect occupant comfort and environmental quality. For large-scale developments, particularly those incorporating extensive hardstand and building coverage such as data centres, the potential contribution to the UHIE warrants detailed assessment to inform mitigation strategies through design.

A site-specific analysis has been undertaken for the potential UHI impact for Mamre Road Data Centre using the modelling tool Rhinoceros 3D and the Dragonfly plugin for Grasshopper. Dragonfly enables microclimate simulation by integrating site geometry, building typology, material properties, and meteorological data to estimate localised temperature variations. The assessment involves developing a digital model of the site incorporating building forms, surface materials, and landscape elements, subsequently modifying a baseline weather file to reflect the anticipated surface heat fluxes and radiative balance associated with the proposed development. The Badgerys Creek Airport TMW 2009-2023 weather file was used for the assessment due to its close proximity to the site.

The project site lies within the Western Sydney Basin, which has a warm temperate climate with hot, dry summers and mild winters. Its inland location results in higher temperature fluctuations compared to coastal Sydney. The flat terrain leads to uniform wind flow but limits natural ventilation. Prevailing winds come from the east in summer and the west–northwest in winter, affecting heat exposure and cooling. The surrounding landscape is mostly industrial and semi-rural, with extensive hard surfaces and minimal vegetation. This contributes to heat retention, limited shading, and reduced cooling from evapotranspiration. With few water bodies or green spaces, the site’s baseline microclimate is heat-prone and lacks natural mitigation features.

Table 6: Dragonfly Model Details

Aspect	Value
Datacentre Program	Large Data Centre w/ high IT load density
Footprint Density	24%
Façade to Site Ratio	61%
Vegetation Cover	36%

Analysis using the Dragonfly-modified weather file shows that post-development maximum daily temperatures remain largely unchanged, while minimum daily temperatures are consistently higher, which is characteristic of the urban heat island effect (UHIE). The increased thermal mass from buildings and hard surfaces absorbs heat during the day and releases it at night, reducing cooling rates and raising nighttime temperatures, though slightly lowering daytime peaks. The UHIE-adjusted data also shows fewer days above 25°C and 30°C compared to baseline, but the number of days exceeding 35°C remains the same. Despite this, temperatures above 30°C persist for longer periods after development.

Table 7: Number of Days Exceeding Criteria

Criteria	Baseline	UHIE Adjusted
Days above 25°C	127	120
Days above 30°C	38	35
Days above 35°C	9	9

The development in its current design is therefore likely to contribute to localised nighttime warming whilst not exacerbating daytime peak temperatures, though localised hotspots may still occur on specific surfaces, particularly those with low reflectivity or limited shading. These results provide a quantitative basis for considering mitigation strategies such as increased vegetation, highly reflectivity roofs, and shaded areas, which can help reduce heat retention and improve local thermal comfort during night-time periods.

To understand the impact of the development on human thermal comfort and identify where mitigation strategies would be most effective, a Universal Thermal Climate Index (UTCI) assessment was conducted using the Honeybee plugin for Grasshopper. UTCI integrates air temperature, humidity, wind, and radiant exposure to predict how the human body will perceive temperature under varying environmental conditions.

The same digital model was used, distinguishing between differing surface types; asphalt road, concrete, hardstand, vegetation, and building materials to represent differences in heat absorption and radiation exchange. A grid of analysis points was created across the site, with spatially resolved UTCI values calculated at 1.75 m above ground level. The assessment was conducted at 12pm on a typical summer day, including the sites predicted UHIE, to highlight areas where perceived thermal stress is highest.

Views of the output UTCI temperature gradient are illustrated in the figure below, indicating that areas around the data centres and beneath trees show a reduced perceived temperature due to overshadowing. Areas of hardstand that have little shading, as in the northwestern corner of the site result in an increased perceived temperature. Introducing permeable or lighter coloured paving materials and shading structures for areas with high pedestrian activity will both improve both human comfort and local microclimate conditions in these areas.

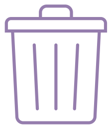
Figure 6: Typical Summer Midday UTCI Output

For detail regarding the Dragonfly UHIE and Honeybee UTCI simulation process and mathematical basis, please refer to the Environmental Health Risk (EHRA) and Health Impact Assessment (HIA) by E-LAB Consulting.

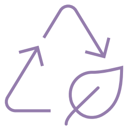
3.5 Materials

In line with the principles of sustainability outlined in the EPA and the DCP, the project will have a significant focus on the life-cycle impacts of material use and responsible procurement. At a high level and subject to further design coordination, the use of materials for the development should consider at minimum:

Waste Management – Waste minimisation and resource recovery will be integrated across design, construction, and operations in accordance with the DCP. By improving the collection and understanding of data centre waste, the project will implement targeted initiatives to optimise resources and improve diversion rates.

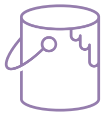


Embodied Carbon & Circularity – Continue to identify 'circularity opportunities' in the procurement, design and construction activities to ensure continued minimisation of waste. Explore take-back programs with equipment suppliers to ensure second-life opportunities for project equipment and materials.



Sustainable Products & Materials – Materials and products considered for the project should hold third-party verified environmental declarations (or equivalent certification) to allow for life cycle reporting and quantification of embodied impacts. Products with high recycled content, opportunities for re-use and low embodied emissions will support the sustainable delivery of the development.

Low VOC and Low Formaldehyde Materials – Ensuring paints, adhesives, sealants, floor coverings, carpets and engineered wood used in occupied areas are selected appropriately to provide a healthier indoor environment.



3.6 Comfort & Quality

To ensure the best quality for users and visitors inside the space, the following key initiatives will be sought to be provided;

- **Acoustic Excellence** – Deliberate material selection, acoustic attenuation and designing the shape of the building and openings accordingly to achieve acoustic comfort. Sufficient acoustic separation of spaces ensures acoustic privacy between spaces.
- **Thermal Comfort** – Appropriate mix of vernacular design, overhangs, high-performance windows within occupied areas, and mechanical systems to deliver the users optimised thermal comfort.
- **Lighting Comfort** – Use of high colour rendering index (CRI > 85) LED lighting. Low-glare lighting with baffles or louvres to reduce internal glare in occupied areas.
- **Landscaping –** Greenery through predominately native planting provides a connection to nature for building occupants. It also has a cooling effect through transpiration, reducing the urban heat island burden on the project.

3.7 Management & Emissions

To provide a socially responsible outcome that provides the maximum benefit to both the users and the local area, the following response has been completed:

- **Net Zero Carbon –** Achieve Net Zero emissions by 2030 for Scope 1 and Scope 2 and drive progressive embodied carbon reduction, by replacing high-carbon materials, to optimise the supply chains, manufacturing processes, and transportation, ensuring that emissions are reduced at every stage from production to delivery and installation.
- **Stormwater Runoff –** The design will be such to ensure the peak stormwater runoff is equivalent to or below the pre-development peak. This water will be treated to ensure minimal levels of Nitrogen, Phosphorus, Gross Pollutants and Total Dissolved Solids enter the wastewater system
- **Low ODP/GWP Refrigerants** – Ensure the emission of ozone depleting chemicals through refrigerant leakage and other systems used across the development are minimised.
- **Low Levels of Light Pollution** – All external lights are pointed downwards, or designed to strike a hard surface (i.e., awning or wall). This limits light spill into the night sky, assisting with bird migratory patterns and wasted energy

3.8 NABERS Energy Response

The project will be designed to a minimum 5 NABERS Energy performance for each data centre which is inline with the SEARs requirement which supersedes the DCP. The development will implement a range of strategies and initiatives to meet this design requirement which will be through embedding energy efficiency and renewable energy strategies from the outset.

Central to the design is the Client’s established approach of targeting best-in-class operational efficiency, with projected Power Usage Effectiveness (PUE) in the range required to demonstrate high-performance data centre operation. Currently, the principals site manages an average PUE of 1.32, which aligns with a NABERS rating of 5 Star NABERS Energy. This will be achieved above and beyond for the 1.3 requirement through working with the tenants when available to ensure the highest efficiency. Technologies such as liquid cooling, free-air cooling and AI-driven optimisation of plant performance are integrated into the design to ensure energy demand is minimised while maintaining reliability for critical IT loads.

Efficiency is further supported by the careful specification of building services and equipment. The project applies an embodied carbon and life-cycle assessment framework to guide the selection of efficient, low-impact electrical and mechanical systems. This ensures that the operational profile remains consistent with high-performance energy outcomes throughout the building’s lifecycle. Water efficiency strategies, such as maximising recycled water use and reducing Water Usage Effectiveness (WUE), also contribute to lower cooling energy demand and support the project’s NABERS Energy design intent.

Together, these design strategies demonstrate that the project has been deliberately engineered to be capable of meeting a 5 Star NABERS Energy rating and targeted 1.3 PUE.

In addition to NABERS energy, the project design prioritises the use of renewable energy. The client has committed to 100% renewable energy matching by 2030, with 74% already achieved across its portfolio in FY24. This project will incorporate renewable procurement pathways, such as power purchase agreements (PPAs) and renewable energy certificates (RECs), to ensure the energy supplied aligns with a low-carbon operational profile.

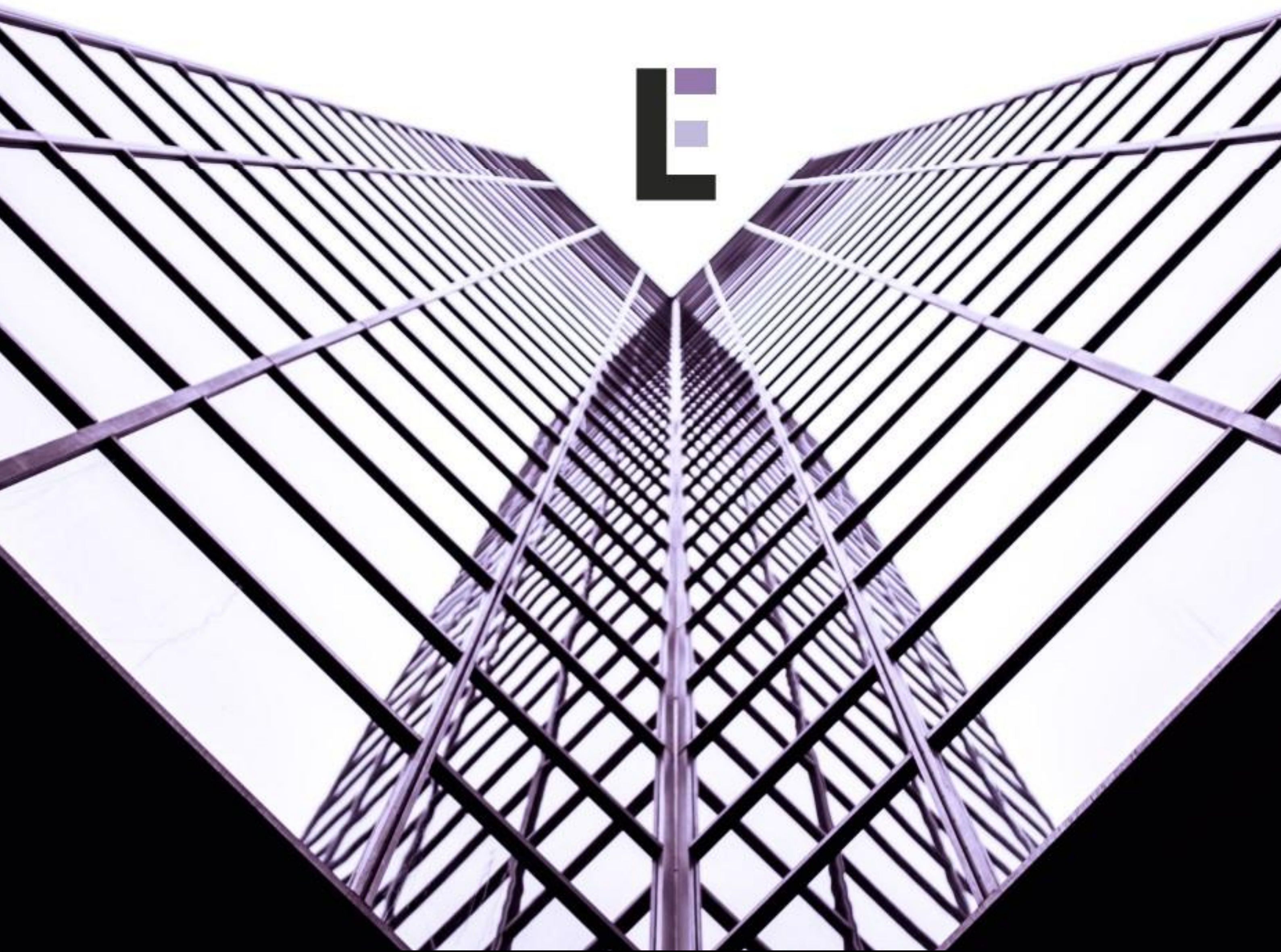
Conclusion

This report summarises the sustainability targets and commitments for the proposed development at 706 – 752 Mamre Road, Kemps Creek. The requirements for sustainability shall be coordinated with the design team to allow the development to achieve a high level of sustainable practice across the development.

The development sustainability principles and commitments have been implemented in alignment with the identified planning frameworks, legislative policy and guidelines. As part of this, the development has committed to the following;

- Introduction of a variety of energy reducing strategies for alignment with best-in-class PUE including efficient services with effective operational controls, efficient cooling towers and chillers, regular review of operating strategies and appropriate equipment selection where relevant to tenant needs. Additionally, liquid cooling strategies will be piloted.
- Aim for full electrification of site and projected goal to purchase 100% of electricity from renewable energy along with customer procurement (green tariffs and RECs) by 2030. To be achieved through power purchase agreements (PPAs) and virtual PPAs.
- Designed to be capable of achieving a minimum 5-Star NABERS Energy performance and PUE of 1.3 at 100% utilisation, coupled with tenant collaboration.
- Aim for Net Zero emissions for Scope 1 and Scope 2 by 2030, through decarbonisation strategies which include piloting renewable diesel, procuring renewable energy on behalf of customers and partnering with renewable contracts/offsets.
- Address embodied carbon by incorporating circular economy principles wherever possible at each stage of the lifecycle, aiming to reduce raw material usage, promote reuse, and improve diversion rates.
- Minimise water consumption through effective design, fixtures and water reuse including rainwater harvesting to ensure effective WUE, sourcing non-potable water where possible.
- Implementing best practice comfort strategies inclusive of low emitting materials, acoustic comfort, thermal comfort and lighting comfort.

We trust this report provides a detailed overview of the project's commitment to sustainability for the proposed development.



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