
Ecologically Sustainable Development (ESD) Report

Kingscliff Mixed Use Development
(SSD-83069459)

4-8 Bells Boulevard, Kingscliff

Project No.	P02522
Revision	02
Issued	10th Dec 2025
Client	Bells Boulevard Pty Ltd

E-LAB Consulting

Where science and engineering inspire design.



ISSUE AND REVISION RECORD

DESIGN FINALISATION

Revision	Date	Comments	Engineer	Reviewer
01	05.11.2025	Draft ESD	AN	AK
02	10.12.2025	SSDA Issue	AN	AK
03				
04				

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1 EXECUTIVE SUMMARY

This Ecologically Sustainable Development (ESD) Report has been prepared by E-LAB Consulting and accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in support of a State Significant Development Application (SSDA) and concurrent planning proposal (PP) for the construction of the proposed development at 4-8 Bells Boulevard, Kingscliff, reference SSD-83069459.

The proposed development seeks development consent for a new mixed use building at 4-8 Bells Boulevard, Kingscliff.

As part of its commitment to sustainability, the development has committed to the following:

- Achieving the BASIX benchmarks in line with State Environmental Planning Policy - Sustainable Buildings (SEPP) 2022 requirements for mixed-use residential building:
 - **BASIX Energy 60%**
 - **BASIX Water 40%**
- Fossil-fuel free design to allow for carbon neutrality.
- On-site renewable energy generation through spatial provision for rooftop solar photovoltaics (PV)
- Following a range of sustainability initiatives across the site spanning energy efficiency, water efficiency, indoor environment quality, waste management and comfort
- Implementing mitigation strategies in response to climate change and the Urban Heat Island Effect.

The strategies and initiatives presented in this report demonstrate a strong commitment to sustainability in line with industry best-practice, and SEARS requirements and are to be further developed during subsequent stages of the project.



2 INTRODUCTION

This Ecologically Sustainable Development (ESD) Report accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), in support of a State Significant Development Application (SSDA) and concurrent planning proposal (PP) for the construction of the proposed development at 4-8 Bells Boulevard, Kingscliff, reference SSD-83069459.

The proposed development seeks development consent for a new mixed use building on the site. The proposal will include the following works:

- Construction of a five storey mixed use development with ground level retail fronting Bells Boulevard and Gunnamatta Avenue and ground level residential units, with residential units contained on levels 1-4 (inclusive),
- A total of 69 residential units of which 2 will be affordable housing units. These affordable housing units are to be retained as such for 15 years and managed by a registered Community Housing Provider,
- Excavation for two basement levels of carparking with 183 carparking spaces and associated services,
- Removal of 23 trees on site, and
- Landscaping and a communal open space network with a focus on wellness including a rooftop pool, indoor communal space and ground level outdoor communal open space designed around a central lawn

2.1 SITE OVERVIEW

The site is located at 4-8 Bells Boulevard, Kingscliff and is located in the Tweed Shire Local Government Area. The site is legally known as Lot 2 DP131098.

An aerial view of the site (outlined in red) is located below:

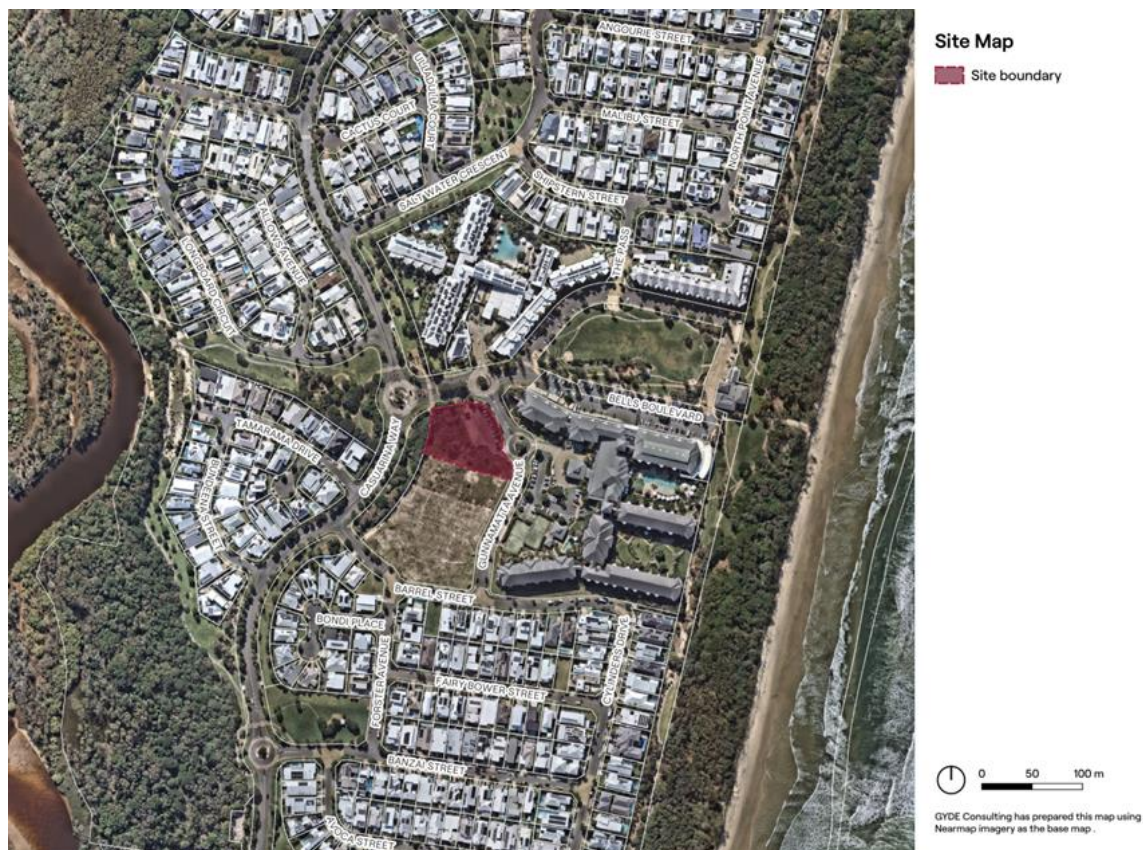


Figure 1 Aerial view of the site, outlined in red (Source: Gyde)

The site has an approximate area of 4,450sqm and is currently vacant of any structures. An informal bitumen sealed carpark containing 27 spaces is located in the north east part of the site, which is enforced by way of a restriction on the existing title of the land.

The centre of the site is clear of vegetation, with any vegetation located along the street frontages or abutting the western boundary. A public reserve runs along the site’s western boundary containing a concrete footpath and extensive vegetation.

The site is relatively level around the street frontages, with levels ranging between RL 9.85m at Gunnamatta Avenue to RL 10.39m at the corner of Bells Boulevard and Casuarina Way. The rear of the site has been excavated to the lowest point of RL 7.15m.

The site is located on the gateway to a part of Kingscliff known as ‘the Salt Precinct’. This part of the Salt Precinct is centred around the Salt Central Park, which is bordered by two major tourism developments, those being the Peppers and Mantra resorts. Salt Central Park is activated by a retail precinct with shops, cafes and restaurants known as Salt Village.



Figure 2 Site context plan (Source SJB)

3 SUSTAINABILITY FRAMEWORKS

The development’s sustainability outcomes are influenced & aligned by the following key frameworks:

- Secretary’s Environmental Assessment Requirements (SEARS) issued for the development
- NSW Environmental Planning and Assessment (EPA) Regulation 2000
- State Environmental Planning Policy (SEPP) 2022 – Sustainable Buildings
- Tweed Shire Council Local Environmental Plan 2014 - Although this does not technically apply to State Significant Development, it has been considered insofar as relevant to this proposal.
- National Construction Code (NCC) 2022 – Section J Energy Efficiency

3.1 RESPONSE TO SEARS

This report outlines how the development will address the SEARs as part of the Environmental Impact Statement. These are:

- Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.
- Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.

Table 1 SEARS Response

SEARS Requirement	Project Response
Identify how ESD principles (as defined in section 193 of the EP&A Regulation) are incorporated in the design and ongoing operation of the development.	Refer to Section 4 for details of development sustainability initiatives applicable to residential and non-residential portion of project.
	Refer to Section 5 for details of Residential Compliance
Where relevant, provide an assessment of the development against the standards for non-residential development set out in Chapter 3 of State Environmental Planning Policy (Sustainable Buildings) 2022.	Refer to Section 6 for details of non-residential Compliance.

3.2 STATE ENVIRONMENTAL PLANNING POLICY (SEPP) SUSTAINABLE BUILDINGS 2022

NSW has whole-of-economy targets to reduce greenhouse gas emissions by 50 per cent by 2030 compared to 2005 levels, and net zero emissions by 2050. Achieving these targets will require all new and existing buildings in NSW to be operating at net zero well before 2050. Energy efficiency, conserving potable water and improving thermal performance are also high priorities.

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. This policy covers each component of the proposed development.



3.2.1 NSW Residential Buildings

The Building Sustainability Index (BASIX) is a legislative requirement for all residential dwelling types within NSW to assess the potential performance of certain residential buildings against a range of sustainability indices including thermal comfort, water, embodied emission and energy.

BASIX sets water and greenhouse gas reduction targets relative to the NSW average benchmark for per person potable water consumption & greenhouse gas emissions within the residential sector. It also sets the minimum performance levels for thermal comfort of the dwelling and the embodied carbon emissions that are attributable to building materials.

The new targets are sets into place from October 2023 that increased the standards according to the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022.

The residential component of this project is committed to meet requirements in line with the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 at the time of delivery:

Table 2 BASIX Targets Under SEPP 2022

Benchmark	REQUIREMENT
Energy Benchmark	Required to achieve 60% reduction in energy consumption of whole development through energy efficient design.
Water Benchmark	Required to achieve 40% reduction in water consumption of whole development through water efficient design.
Thermal Performance	Meet Thermal Comfort benchmarks. Average of 7 NatHERS Star for building over 5 story.
Materials Index	Required to estimate the volume of different materials used in the construction and applying the emissions factors for the materials.

Please refer to the BASIX Report submitted with this application for further details on BASIX compliance.

3.2.2 NSW Non-residential Development

General Sustainability - the assessment of general performance for the non-residential component of the development includes both the hotel and the ground-level retail floorspace, reporting on key sustainability metrics and operational aspects including:

- 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,

Embodied Emissions Reporting – needs to be completed in relation to this project under the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022. This reporting is to disclose, at the SSDA lodgement and



Construction Certificate stages, the quantities of materials and associated emissions that will be attributable to the proposed development. Describe how embodied emissions are minimised (by re-used or recycled content and low emissions construction technologies).

Embodied Emissions Reporting is provided at the time of SSDA for retail area and will be further detailed at Construction Certificate stage in accordance with the State Environmental planning Policy – Sustainable Buildings (SEPP) 2022. This includes disclosure of material quantities and associated embodied carbon emissions. The report is required to outline strategies for minimising embodied emissions through the use of reused and recycled content, as well as low-emissions construction technologies.



3.3 TWEED SHIRE COUNCIL LOCAL ENVIRONMENTAL PLAN 2014

The 4–8 Bells Boulevard, Kingscliff proposal demonstrates strong alignment with the intent and objectives of the Secretary’s Environmental Assessment Requirements (SEARs), the Tweed Local Environmental Plan 2014 (TLEP 2014), and the Tweed Shire Sustainable Design Guidelines for Council Buildings and Infrastructure. The development delivers a high-quality mixed-use outcome that supports economic activity, enhances community services, and contributes positively to the character of the Tweed Shire.

Requirement and Response

Source	Clause (Summary)	Project Response
TLEP 2014	Cl. 1.2 – Aims: Development must follow ESD principles and address climate change.	Passive design, low-energy systems, renewables, water reuse, resilience to coastal hazard.
TLEP 2014	Cl. 1.2(e): Buildings should consider water conservation, energy efficiency, waste reduction, and food security.	rainwater capture, high -efficiency fixtures, low waste construction strategy, efficient HVAC/lighting
DCP 2008	A9 – Energy Smart Homes: Encourages passive solar design, good insulation, ventilation, and energy-efficient building performance.	North orientation, shading, natural ventilation, high performance glazing.
DCP 2008	A15 – Waste Minimisation & Management: Requires waste reduction, recycling and separation during construction + operation.	Waste minimisation plan
SDG v2.0	Sec 1 – Energy: Reduce energy demand via passive design + renewable readiness.	Roof PV readiness, building orientation, shading devices, LED lighting, smart metering.
SDG v2.0	Sec 2 – Water: Improve water efficiency + reuse opportunities.	rainwater tank for irrigation, WELS-rated fixtures, turf minimisation.
SDG v2.0	Sec 3 – Stormwater / WSUD: Manage stormwater on-site through sensitive design.	Integrate rain garden along site, permeable paving in parking/walkways, infiltration zones.
SDG v2.0	Sec 4 – Materials: Use low-impact, low-VOC, recycled + sustainable materials.	Use sustainably-sourced timber, recycled concrete aggregate, low-VOC paints & adhesives.
SDG v2.0	Sec 5 – Waste: Provide recycling capacity and minimise construction waste.	Provide dedicated recycling & organics bins, space for separated waste streams, construction WMP.
SDG v2.0	Sec 6 – Landscaping & Ecology: Encourage native vegetation + reduce heat + hard surfaces.	Use native coastal vegetation, large trees for shade, minimise impervious surfaces, green walls/roofs where feasible.
SDG v2.0	Sec 7 – Active Transport: Support cycling + walking via safe access + parking.	Provide secure bicycle parking, internal/external pathways to street and transport hub, level access, way-finding signage



4 SUSTAINABLE DESIGN RESPONSE

4.1 EPA PRINCIPLES

The development will embed ecologically sustainable design principles throughout the design, construction, and operation of the development. The principles to which the development should generally adhere to are defined within Clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000. These include:

Table 3 EPA Principles

ESD Principles	Project Response
<p>(a) The precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by—</p> <ul style="list-style-type: none"> i. careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and ii. an assessment of the risk-weighted consequences of various options, 	<p>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 or operation of the development.</p> <p>During construction, it is intended the main contractor will implement an independently certified Environmental Management System (EMS) that will demonstrate a formalised systematic and methodical approach to planning, implementing and auditing for environmental management. During operation, adherence to procedures that account for environmental risk and mitigation measures will be met.</p>
<p>(b) Inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,</p>	<p>The design team will address key elements such as energy, potable 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. Refer Section 4.</p>
<p>(c) Conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,</p>	<p>The site can be considered to have low-ecological value and biodiversity significance as it is already developed and within an urban area.</p> <p>In response to this, the project is committed to planting a high proportion of native vegetation to improve site ecology and biological diversity, while also managing stormwater runoff from the site to minimise onset impacts. Refer Section 4.3.</p>



(d) **Improved valuation, pricing and incentive mechanisms**, namely, that environmental factors should be included in the valuation of assets and services, such as—

- i. polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
- ii. the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
- iii. environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems

The project is committed to achieving a high construction waste diversion target of 90% from landfill as well as developed specific project waste management strategies. The project shall ensure the full life cycle impacts of goods and services employed throughout the project have been considered. Further, it will be designed to minimise operational energy and water consumption.

4.2 ENERGY CONSUMPTION

The energy efficiency strategy generally follows the energy efficiency pyramid of the design below. In the first instance demand for Greenhouse Gasses should be reduced. Consideration should be to remove the need for energy to be consumed where possible. Beyond this, energy can be more efficient, through efficient lighting, mechanical systems and appropriate services.

Once the system has reduced all available energy-consuming elements and made the remaining systems as efficient as possible, renewable energy sources will be considered. If space allows on the roof, PV will be installed. Only after all of the above major steps have been completed should offsets be used to close the gap and achieve neutrality.

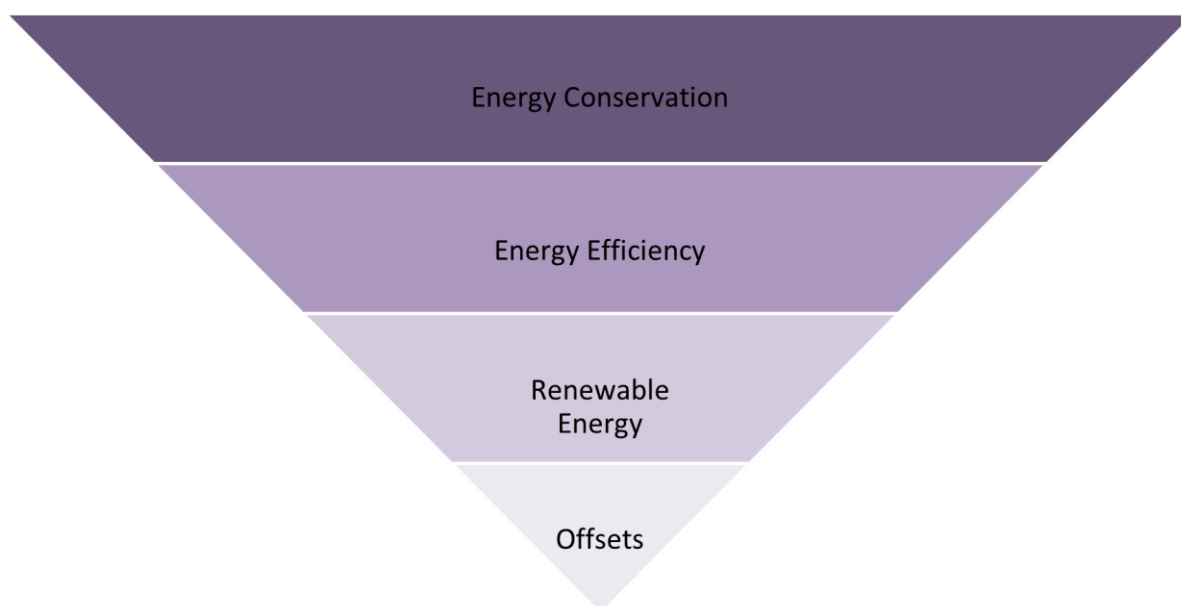
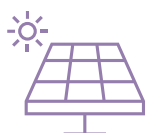


Figure 3 Hierarchy of Design - Energy Efficiency

To achieve the above, the following initiatives are proposed:



Renewable Energy – The roof area provides an excellent opportunity for installation of a solar photovoltaic system. The sizeable system will generate renewable electricity to offset grid use and minimise stress on the grid at peak times. PV will be installed at a rate that maximises the coverage of the non-trafficable roof area. The detailed design specifications and final placement of the photovoltaic panels will be confirmed prior to the commencement of construction. This approach is considered standard and acceptable at this stage of the project lifecycle, particularly for developments of this scale and complexity.

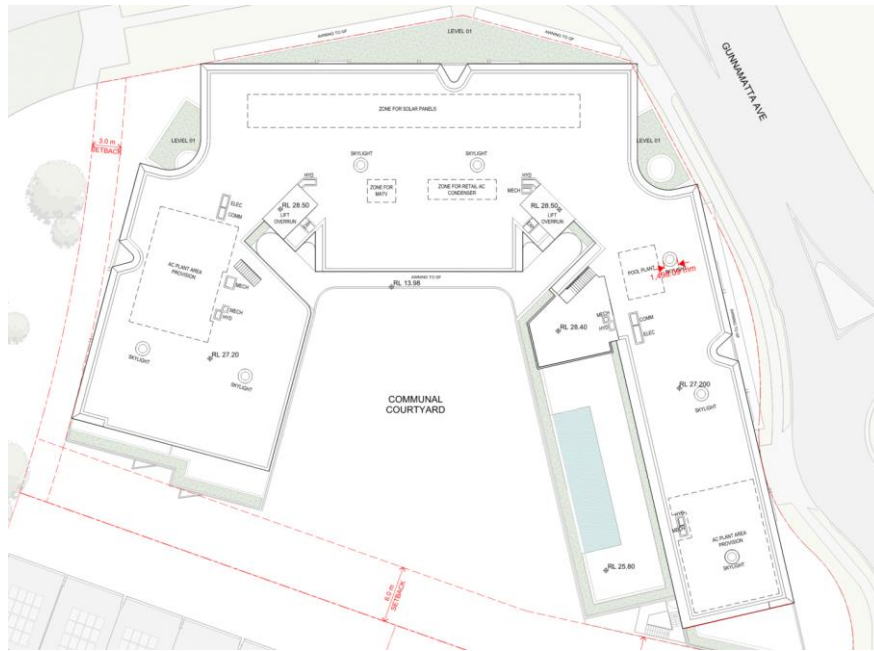


Figure 4 Development roof PV locations (Source :SJB architecture)



Full Electrification – The building has been designed to omit the use of fossil fuel derived energy sources on-site such as gas for DHW and heating to enable operational net zero carbon emissions.



Efficient Lighting Systems – High efficiency LED lighting throughout, including in common areas and with efficiency controls. Controls will include motion sensors, time clocks and zoned switching which will help reduce consumption of energy. Lighting power density to be at least 10% below Section J of the NCC.



Controls, Energy Metering and Monitoring – Energy meters and monitoring systems will be provided to comply with NCC 2022 Section J Part J8 and NABERS sub-metering, validation and coverage requirements.



Facade – Envelope – The balance between daylight access and solar heat gains will be a priority of the design team to ensure occupant comfort and energy performance are maximized. The proposed performance of glazed elements will subject to ongoing design considerations and BASIX modelling. Proper sealing of the envelope through leading construction practices and verification methods will also be considered to ensure undesirable bulk-air flow is minimized.



Hot Water – Hot water should be provided by energy efficient heat pump systems. These systems are highly efficient which will allow occupants to utilise systems often with reduced energy consumption.



Appliances & Equipment – Apartment appliances and equipment will be selected with high energy rating to ensure reduced consumption which will be in line with BASIX energy targets requirements.

Additionally, site will be fully electric with no gas combustion for ovens and cooktops allowing for operational net zero.

4.3 WATER CONSUMPTION

To achieve responsible water consumption and water sensitive urban design, best-practice water-saving initiatives will need to be implemented throughout the project. The development’s design is deliberately working to reduce potable water consumption in the first instance by reducing water use.

The following initiatives will be explored to achieve the potable water targets:

Sanitary Fixtures – By implementing low-flow water fixtures throughout the development, the consumption will be significantly reduced. All sanitary fixtures are to be provided with the minimum WELS ratings identified below:

Taps – 5 Star WELS

Toilets – 4 Star WELS

Showers – 4 Star WELS (> 7.5 but <= 6 L/min)

Refer to the BASIX report for further details on residential water consumption measures.

Rainwater – The development will provide a rainwater storage tank with reuse supplied to landscape irrigation, reducing reliance on mains supply water. Final sizing of the tank and detail regarding collection considering the catchment area, expected demand and pumping infrastructure is to be refined during detailed design stages.

Landscape Irrigation – Efficient irrigation systems will be considered, including underground surface drip systems, moisture sensors, and the use of native plants in the landscaping plan. Native plants have evolved to thrive in the Australian environment and are typically more resilient than their exotic counterparts. They typically require less water and are more likely to survive the predicted increase in extreme drought conditions due to climate change. Native vegetation also stores a significant amount of carbon, helping to mitigate climate change. The project is targeting a 70% native planting palette.

WSUD & Stormwater Management – Stormwater quality (pollutant loading) and volume discharged from site are key considerations in future design stages to ensure the development has minimal environmental impact on local waterways and ecology compared to the pre-development baseline.



4.4 MATERIALS

In line with the principals of sustainability outlined in the EPA, the project will have a significant focus on materiality. The scope of consideration includes the following action items within the project response:

- **Construction Waste** – Set a target for a minimum of 90% construction and demolition waste is to be diverted from landfill. This diverts and ensures reuse or recycling of a high portion of site waste.
- **Low VOC and Low Formaldehyde Materials** – paints, adhesives, sealants, floor coverings, carpets and engineered wood will be selected appropriately to provide a healthier and low-impact environment. Such efforts provide a cleaner and better environment for all. Additionally, the project will aim to utilise ultra-low VOC paints.
- **Best-Practice PVC** – cables, pipes, flooring, and blinds will be selected and specified to be Best Practice PVC. This ensures upstream performance will be met and has significant benefit for the overall environment during the construction process.
- **Best Practice Steel** – Where possible, steel will come from a sustainable steel manufacturer, who has an action plan. Steel supplied will aim to have energy reducing processes in manufacturing and recycled content.
- **Sustainable Products** – Where possible, products selected for the project will be sustainable which are verified through recycled content, re-use, environmental product declarations, certifications and more. This will ensure reduced toxicity and improve environmental quality while reducing waste.

4.5 COMFORT AND QUALITY

To ensure the best quality for occupants and visitors inside the space, the following key initiatives will be committed to by the principal:

- **Visual Comfort** – Maximising high-quality light into the living spaces, with high amenity views.
- **Indoor Air Quality** – Ventilation to be easily cleaned and elimination of pollutants to improve air quality within internal spaces.
- **Acoustic Excellence** – Designing the building layout to be protected from noise from external sources. Delicate material selection, acoustic attenuation, and designing the shape of the building and openings accordingly achieves the performance. High-performance glazing specifications will be implemented to further manage street-level noise emissions.
- **Thermal Comfort** – Appropriate mix of vernacular design, overhangs, adaptive comfort and high levels of insulation in the roof and facades.
- **Lighting Comfort** – Use of high colour rendering index (CRI > 85) LED lighting throughout the entire development. Low-glare lighting with baffles or louvres to limit glare.
- **Biophilic Design** – Natural elements that reflect the context of the site and acts as a connection to nature for occupants.
- **Accessibility** – Ensure that the building is accessible to people of all abilities, in accordance with AS 1428, with features such as ramps.
- **Safety and Security** – Prioritise building safety and security measures to provide a sense of comfort and protection for occupants.
- **Natural Materials** – Where practical, use natural and sustainable building materials that are non-toxic and promote a healthy indoor environment.

The above combine to ensure the development is responsible, efficient, beautiful, and in the best interest of not just the developers, but the residents as well.



4.6 SUSTAINABLE TRANSPORT

The adoption of sustainable transport modes is encouraged through a site layout that supports safe and convenient movement for occupants and visitors. The site is well connected, located within walking distance of local bus services along Marine Parade and Casuarina Way, supporting reduced car dependency and encouraging the use of public transport.

The development supports sustainable access by providing bicycle parking, pedestrian-friendly pathways, and landscaped connections to the surrounding street network, ensuring comfortable and convenient access for residents, visitors, and the broader community.

4.7 HEAT ISLAND MITIGATION

The proposed development should undertake a risk assessment of the potential impacts of climate change (such as flooding, extended periods of high temperature, rising utility infrastructure costs etc.) and include adaptive design responses which specifically address identified risks deemed to be of high or extreme significance. Doing so will improve the development's ability to respond to the impacts of climate change and improve operational resiliency.

To minimise the urban heat island effect and provide a more comfortable environment for occupants, the development can implement the following initiatives:

- Retention and additional planting of trees providing tree canopy.
- Outdoor communal spaces with landscaping, gardens and lawns to provide additional vegetation.
- Light coloured materials selected for roofs and facades where possible.
- Introduction of architectural elements and shading where possible.

4.8 NSW NET ZERO GOAL

The development is actively aiming to adhere to the Government's goal of net zero emissions by 2050 through a range of strategies discussed above. The approach to minimising greenhouse gas emissions should always follow a reduction first – outcomes-based approach to decarbonisation which in turn will provide an approach to net zero emissions. This approach generally involves:

- Avoid: Identify carbon intensive activities and sources that can be avoided or eliminated from the development.
- Reduce: Reduce the carbon intensity of activities and sources through improved technology or process.
- Transition: Transition to renewable electricity.

Following this structure the development will incorporate a range of strategies to minimise greenhouse gas emissions which involves:

- Elimination of gas combustion on site allowing the development to be fully electric. This will allow the development to be net zero ready for when the grid transitions or potential to run fully on renewable energy in the near future.
- HVAC systems to be considered with low impact refrigerant plants and equipment to reduce emissions to the atmosphere.
- Energy consumption reduction through passive design elements. These include architectural shading and projection elements allowing shading and reduced heat transfer through glazing, cross-ventilation introduced for natural cooling and additionally, naturally ventilated corridors and circulation spaces to reduce the need for mechanical ventilation and air-conditioning.



- High performing façade designs involving bespoke glazing and insulation selection allowing for apartments to be average 7 Star NatHERS rated which in turn reduces energy consumed for heating and cooling of spaces.
- Efficient lighting systems and selections will reduce the consumption of energy through time clocks, zone switching, occupant sensor and more. Additional BMS controls for metering and monitoring will allow for active consumption monitoring allowing the development to adapt and implement strategies to reduce energy consumption during operation.

Renewable energy systems will be provided where feasible and will be coordinated with services design.



5 RESIDENTIAL COMPLIANCE

The Building Sustainability Index (BASIX) is a legislative requirement for all residential dwelling types within NSW to assess the potential performance of certain residential buildings against a range of sustainability indices including thermal comfort, water, embodied emission and energy.

BASIX sets water and greenhouse gas reduction targets relative to the NSW average benchmark for per person potable water consumption & greenhouse gas emissions within the residential sector. It also sets the minimum performance levels for thermal comfort of the dwelling and embodied emission of materials.






The new targets are sets into place from October 2023 that increased the standards according to State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022.

The project is committed to meet requirements in line with the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 at the time of delivery:





- **Thermal Performance Standards:** The development is exempt from the SEPP average 7-star requirement as it is under five storeys in height.
- **Energy Standards:** Required to achieve minimum 60% reduction in energy consumption of whole development through energy efficient design.
- **Materials Index:** Required to estimate the volume of different materials used in the construction and applying the emissions factors for the materials.
- **Water Standards:** Required to achieve 40% reduction in water consumption of whole development through water efficient design.

5.1 BASX ENERGY TARGET

The project aims to achieve the minimum **BASIX Energy target of 60%**, which fulfills the minimum legislative requirement. To ensure prudent energy consumption, the project will incorporate top-tier energy-saving practices. The following strategies will be considered to attain energy targets:




	<p>BASIX Energy Target of 60% - In line with council targets and new the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 the development is targeting an Energy target of 61% reduction compared to an equivalent development.</p>
	<p>Thermally-Efficient Construction – Insulation through the roof, walls and floor, with proper sealing to reduce bulk airflow. Light-coloured materials will be used to reflect solar heat gains. Delicate consideration will be given to the height of the windows, shading and overall window-to-wall ratio.</p> <p>Provide air movement through ceiling fans in bedrooms.</p>
	<p>Electrification – no gas will be used on site, enabling the development to be ‘net zero ready’ and allow the benefits of decarbonisation of the grid to be realised.</p>
	<p>Energy Efficient Appliances – energy efficient appliances such as electric cooktops and dryers will be provided to reduce operational energy consumption.</p>
	<p>Efficient Lighting Systems – high efficiency LED and fluorescent lighting in common areas with efficiency controls to meet the stringent requirements of NCC 2022 Section J. Controls will include motion sensors, time clocks and zoned switching.</p>



	<p>Renewable Energy – The roof area provides a good opportunity for installation of a solar photovoltaic system. This will generate renewable electricity to offset grid use and minimise stress on the grid at peak times. Design team will maximise the PV system size, however the exact size of the system will be further developed, taking into consideration roof design, spatial allowance and building demand.</p>
	<p>Lift – Lifts to be provided with regenerative braking.</p>
	<p>Controls, energy metering and monitoring – energy meters and monitoring systems will be provided to comply with NCC 2022 Section J Part J9 requirements. Exhaust fans will be connected to light switches to ensure they do not run when not required.</p>
	<p>Hot water is to be provided by energy efficient heat pump systems. These systems provide an output three times their input energy and can be run off the solar PV system to reduce the operational carbon of the development.</p>

5.2 BASIX WATER TARGET

The project will target minimum **BASIX Water target of 40%**, meeting the minimum legislative requirement. To achieve responsible water consumption, the best practice water-saving initiatives will need to be implemented throughout the project. The following initiatives will be explored to achieve the potable water targets:

	<p>Sanitary Fixtures - By implementing low-flow water fixtures, the consumption associated with apartments will be significantly reduced. All sanitary fixtures are to be provided to the WELS ratings identified below:</p> <ul style="list-style-type: none"> ▪ Taps – 5 Star WELS ▪ Toilets – 4 Star WELS ▪ Showers – 4 Star WELS (<=6 L/min)
	<p>Landscape Irrigation - Efficient irrigation systems will be considered, including underground surface drip systems, moisture sensors, and the use of native plants in the landscaping plan. Natives have evolved to thrive in the Australian environment and are typically more resilient than their exotic counterparts. Native vegetation also stores a significant amount of carbon, mitigating the impacts of climate change.</p>
	<p>Water Efficient Appliances – water efficient appliances with low-flow and High WELS ratings will be provided to reduce potable water consumption.</p>

5.3 MATERIALS INDEX

Material Index commitment involves sourcing and utilizing construction materials that have a lower environmental impact, thereby reducing the carbon footprint associated with the project's construction and operation. This approach aligns seamlessly with the principles of the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 SEPP 2022, demonstrating the development's dedication to sustainable construction practices. In line with the principals of the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 for BASIX, the project will have a significant focus on materiality to reduce the embodied emission.



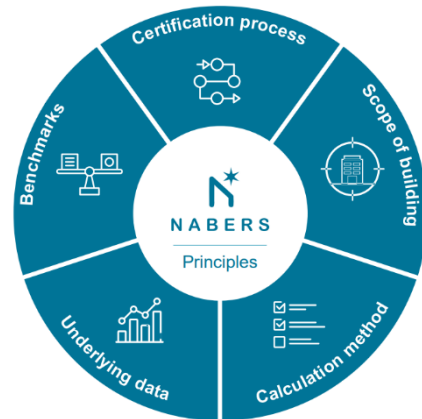
6 NON-RESIDENTIAL COMPLIANCE

6.1 NABERS Embodied Emissions Reporting

For compliance with the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022, reporting of the embodied emissions of non-residential components (retail) in this project is required. Disclosure of embodied emissions will be via the NABERS Embodied Emissions Material Form.

In alignment with best practice, we've identified the key initiatives to help reduce the embodied emissions of the development:

- Use salvaged and/or recycled materials
- Optimise systems for material efficiency
- Specify low carbon concrete
- Specify materials that naturally sequester carbon
- Specify materials manufactured with renewable energy
- Design for durability
- Get to know the supply chain for your specified project.



6.2 SECTION J

The proposed retail area of the development will be subject to compliance with Section J under the NCC 2022 code. This code places strict environmental performance requirements on the building envelope and services within the building.

The project will demonstrate compliance via verification method J1V3 – verification using a reference building (energy modelling) or Deemed- to – Satisfy in construction stage. The design of the building fabric will need to demonstrate compliance with this clause through dynamic modelling of the building against a reference case.



RECOMMENDATIONS AND MITIGATION MEASURES

This section outlines the recommended sustainability initiatives and mitigation measures required to manage the environmental impacts identified throughout the assessment. The purpose of this section is to clearly document how the development responds to potential risks related to energy performance, water consumption, thermal comfort, operational efficiency, and broader environmental outcomes. Each mitigation measure is presented with defined responsibilities and implementation timeframes to ensure clarity for future consent conditions and to support effective coordination during design, construction, and occupation phases. These measures collectively demonstrate the project's commitment to achieving best-practice environmental performance and meeting all relevant BASIX, SEPP, and local planning requirements.

Potential Impact	Mitigation Measure	Timing of Measure
Energy Consumption	Implement full electrification (no gas), install heat pump hot water systems, provide high-efficiency LED lighting and appliances, and install a rooftop PV system sized to meet BASIX energy requirements.	Prior to CC
Cooling Requirements / Thermal Issues	Install ceiling fans in nominated living rooms and bedrooms; provide high-performance façade including upgraded glazing, insulation and shading; install operable skylight for units with elevated heat loads (e.g., Unit 04.01).	Prior to CC
Water Consumption	Install rainwater tank connected to toilet flushing, irrigation, and external taps; provide water-efficient WELS-rated fixtures throughout the development.	Prior to OC
Material Impacts / Lifecycle Performance	Use durable, low-maintenance, and environmentally responsible materials; prioritise materials with low embodied energy where feasible; ensure façade systems meet required thermal performance values.	During design development; confirmed prior to Construction Certificate.
Thermal Performance From Building Envelope	Provide high-performance glazing, adequate wall/roof insulation, external shading, and airtightness measures as modelled in NatHERS.	Prior to CC
Renewable Energy Contribution	Install solar PV panels positioned to maximise solar access and offset common-area or dwelling electricity loads.	Prior to OC



7 SUMMARY

This report summarises the sustainability targets and commitments for the new proposed a mixed-use residential development located at 4–8 Bells Boulevard, Kingscliff NSW 2487. The requirements for sustainability have been coordinated with the design team to allow the development to achieve a high level of sustainable practice across the entire development.

As part of its commitment to sustainability, the development has committed to the following:

- Achieving the BASIX benchmarks in line with the State Environmental Planning Policy – Sustainable Buildings (SEPP) 2022 requirements for mixed-use residential building:
 - **BASIX Energy 60%**
 - **BASIX Water 40%**
- Fossil-fuel free design to allow for carbon neutrality.
- On-site renewable energy generation through spatial provision for rooftop solar photovoltaics (PV)
- Following a range of sustainability initiatives across the site spanning **energy efficiency, water efficiency, indoor environment quality, waste management and comfort.**
- Provision of Heat Island Mitigation measures

The strategies and initiatives presented in this report demonstrate the project’s commitment to sustainability in line with industry best-practice and are to be further developed during subsequent stages of the project and confirmed before a Construction Certificate is issued.

E-LAB Consulting confirm this Ecologically Sustainable Development (ESD) Report addresses the requirements of SEAR No. SSD-83069459 and relevant State and local legislation, policies, and guidelines including (Sustainable Building Guidelines & BASIX). I further confirm that none of the information contained in the Ecologically Sustainable Development (ESD) Report is false or misleading.

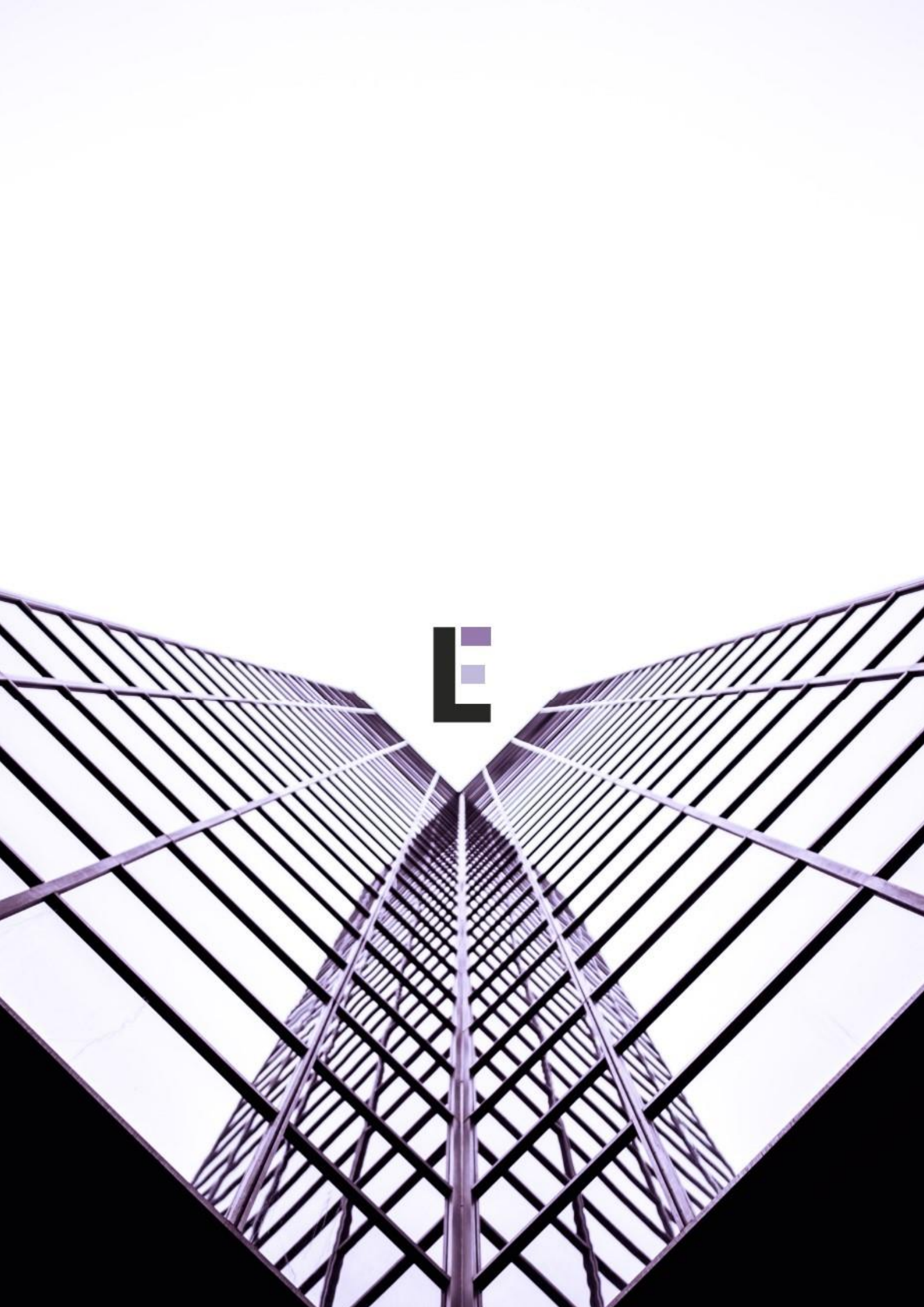


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