

Ecological Sustainability and Innovation Site Strategy

325 Wyatt Road, Kagaru

Prepared for WelCo Group Pty Ltd

13 April 2026

Job 11560

Saunders Havill

PATHWAYS TO SUCCESS

Document Control

Document: Ecological Sustainability and Innovation Site Strategy prepared by Saunders Havill for WelCo Group Pty Ltd dated 13 April 2026

Document Issue

Issue	Date	Prepared By	Checked By
A	15/11/2024	KB	AR
B	13/04/2026	NT	NT

Prepared by
© Saunders Havill Group Pty Ltd 2026.
ABN 24 144 972 949
www.saundershavill.com

SHG has prepared this document for the sole use of the Client and for a specific purpose, as expressly stated in the document. No other party should rely on this document without the prior consent of SHG. SHG undertakes no duty, not accepts any responsibility, to any third party who may rely on upon or use the document. This document has been prepared based on the Client's description of its requirements and SHG's experience, having regard to assumptions that SHG can reasonably be expected to make in accordance with sound professional principles. SHG may have also relied upon information provided by the client and other third parties to prepared this document, some of which may have not been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Table of Contents

1. Introduction 1

2. Climate Change Resilience 2
   - 2.1. Water Resilience 2
     - 2.1.1 Water Sensitive Urban Design 2
     - 2.1.2 Rehabilitation of Waterways 3
     - 2.1.3 Stormwater and Sewerage Management 3
   - 2.2. Water Resilience Implementation 3
   - 2.3. Energy Reduction 4
   - 2.4. Energy Reduction Implementation 5

3. Greenhouse Gas Emissions Reduction 6
   - 3.1. Avoiding Greenhouse Gas Emissions 6
   - 3.2. Reduction of Emissions Outputs 6
   - 3.3. Offsetting emissions 7
   - 3.4. Greenhouse Gas Emissions Implementation 7

4. Minimisation of Pollution 7
   - 4.1. Soil 8
   - 4.2. Air Quality 8
   - 4.3. Water 9
   - 4.4. Noise and Vibration 9
   - 4.5. Minimisation of Pollution Implementation 9

5. Environmentally Effective Use of Materials 10

6. Waste Reduction Construction Activities 11

7. Innovation 12

8. Public Education 14

9. Demonstration House 16

10. Sustainable Incentives 17
    - 10.1.1 Electric Vehicles 17

11. Implementation 18

12. Monitoring Program and Stretch Targets 22

Private Dwellings 22

Public Spaces 23

Transport 23

Other 24

1. Introduction

The *Environmental Management Division* of Saunders Havill (SH) were engaged by WelCo Group Pty Ltd to prepare an Ecological Sustainability and Innovation Site Strategy (ESISS) for land located in the southern part of the Flagstone Priority Development Area (PDA). The subject land is more formally described as Lot 11 on SP341889, Lot 12 on S31468, Lot 22 on SP341889 and Lot 27 on S311174 (subject site). This ESISS is prepared on the assumption that it will be conditions as part of a Context Plan approval.

The purpose of this Ecological Sustainability & Innovation Site Strategy is to address Implementation Guideline 14 (IG14) with particular attention to four key areas of IG14 being:

- Climate change resilience and greenhouse gas emission reduction;
- Minimisation of pollution;
- Effective use of materials; and
- Waste reduction construction activities.

The ESISS will be for the whole of the subject site and will address and identify opportunities for ecological sustainability and innovation to be incorporated into the future development of the subject site. These strategies are to include methodologies and monitoring protocol on initiatives and outcomes.

2. Climate Change Resilience

Climate change is occurring and is prevalent concern for development in Queensland. Maximum, minimum and average temperatures are projected to continue rising. For the near future (2030), the annually averaged warming is projected to be between 0.6 and 1.3°C above the climate of 1986–2005. By the year 2070, the projected range of warming is 1.1 to 3.3°C, depending on future global carbon emissions. Government bodies and the development industry have taken proactive measures in addressing and monitoring climate change impacts, adaptation and resilience objectives. Climate Change Resilience (CCR) is the ability for an entity, individual or group to adapt the respond to changing climatic conditions whilst continuing to function in an unchanged state. Two main elements are critical when assessing the project's CCR. These are:

- Water Resilience ; and
- Energy Reduction.

2.1. Water Resilience

The development proposes to incorporate a number of CCR design elements relating to water resilience. These elements will reduce the reliance on potable water supplies for non-consumable related water uses. These elements will reduce water usage and improve water quality parameters. How and where these features and strategies are implemented on the development will need to be addressed on a staged by stage approach and will ultimately be guided by this ESISS and other relevant Overall Site Strategies (OSS), including the Total Water Cycle Management (TWCM) OSS.

2.1.1 Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) is a well-recognised approach to managing water in urban environments in a way that minimises the negative impacts of urbanisation and maximises economic, social and environmental benefits. It delivers more liveable communities by providing green space, assisting the management of flood risks and impacts, reducing urban temperatures, maintaining home gardens and reducing the flow of pollutants to recreation areas.

The use of WSUD design elements are to be implemented throughout this project. Opportunities to include WSUD features will be assessed on a stage by stage basis. The following design principles and elements should be incorporated into the development where appropriate:

- Bio-retention Basins and Swales;
- Porous paving;
- Gully Baskets;
- Stormwater Quality Improvement Devices (SQID's);
- Re-generation areas and landscape works planted with drought resistant species;

- Sediment Basins/forebays; and
- Constructed Wetlands.

More details on the implementation of such devices and strategies can be presented in the Total Water Cycle Management OSS.

2.1.2 Rehabilitation of Waterways

The rehabilitation of the Woollaman/Teviot Creek corridor and some of its onsite tributaries will provide improved natural water cycle function of the major natural creek corridors that traverse the development site. Rehabilitation of these waterway corridors with be carried out in accordance with the SEQ Ecological Restoration Framework Code, Guide and Manual. The site also includes several other minor waterways and drainage features, which for the most part are intended to be preserved in greenspace (linear open space network) and rehabilitated.

More details on the implementation of such strategies can be found in the Natural Environment Site Strategy prepared by Saunders Havill.

2.1.3 Stormwater and Sewerage Management

Management of stormwater and sewerage is to be achieved by:

- Preparation of a Stormwater Infrastructure Master Plan (IMP) and subsequently the preparation of detailed stormwater management plans per stage or precinct;
- Optimising the sewer network to maximise the gravity network, reduce the amount of construction and optimise the number of pump stations to achieve the most efficient and sustainable CapEx and OpEx costs;
- Investigate recycled water use options in for parks and public open space (subject to agreement from Logan Water Infrastructure Alliance); and
- Promote the use of rainwater tanks and grey water systems for domestic use.

2.2. Water Resilience Implementation

- Preparation of a Stormwater IMP ensuring the IMP guides future and more detailed Stormwater Management Plans;
- Preparation of a Total Water Cycle Management Site Strategy, ensuring the strategies put forward are adopted during the development;
- Preparation of a Natural Environment Site Strategy, ensuring the strategies put forward are adopted during the development;
- Preparation of a Water and Sewer IMP, ensuring the IMP provides for the most optimal sewer network and guides more detailed infrastructure layout plans during the development;
- The use of greywater and rainwater systems to be implemented in all public space areas. (i.e. off amenities and shelter areas), for the uses of irrigation;

- When planning for and delivering the development, ensure the rehabilitation of the waterway corridors and environmental areas in accordance with the Natural Environment Site Strategy and ensure the creation of useable, drought resistant public open spaces; and
- Investigate the opportunity for recycled water use for parks and public open space with Logan Water Infrastructure Alliance.

Strategies to achieve the above measures are further described in Section 11 – Implementation, which is a summary of all the proposed implementation measures and offset statements.

2.3. Energy Reduction

The development will incorporate design elements into the planning that will aid in the reduction of the consumption of energy. This will be achieved by:

- Creating communities with neighbourhoods that promote walkability and active transport solutions;
- Creating residential precincts of varying density, with the highest residential densities occurring within a walkable catchment of the regional recreation park;
- Provision of neighbourhood, district or regional sport/recreation parks within 400m walking distance of residential dwellings;
- Providing active transport opportunities through a connected network of footpaths, shared paths, separated cycle tracks and pedestrian links – all of which provide convenient access to the, educational facilities, sports and recreation parks;
- Maximising landscaped features and bushland rehabilitation to reduce heat island effects through the retention of natural areas (various park areas); providing recreation parks; and retention of vegetation within parkland where possible – refer to the Natural Environment Site Strategy prepared by Saunders Havill;
- Protecting and minimising impacts on native vegetation supporting Significant Biodiversity Values, with rehabilitation including planting of endemic species and weed management to occur within the designated various park areas to restore degraded areas;
- Encouraging the use of solar, gas and heat pumps for heating, cooling and dwelling energy use. A stretch target of 50% of homes with solar or heat pumps is to be included in the stretch targets. Solar is currently a very viable energy option and current grants to home owners are included in Section 8 of this report;
- Maximising the optimal orientation of dwellings to reduce energy use requirements;
- Use of energy effective lighting (LED lighting) in streets and public spaces;
- Promoting the use of energy efficient appliances at a dwelling level with builder and lot owners through the education of the current government rebates on 4-star plus energy efficient appliances;

- Promoting the use of energy efficient design (i.e. layout efficiency, glazed windows, thermal storage etc.); and
- Encouraging the use of Building Energy Rating (BER) or similar rating for dwellings.

2.4. Energy Reduction Implementation

- When planning future development, ensure dwellings are located within a walkable catchment of parkland and development provides for higher densities in close proximity to the Regional Recreation Park and centres in surrounding projects.
- When planning future development, ensure that the development provides active transport opportunities through a connected network of footpaths, shared paths, separated cycle tracks and pedestrian links;
- When planning future development, ensure that optimal solar orientation of where practical;
- When planning future development, ensure the retention of natural areas containing significant biodiversity are retained and rehabilitated;
- Promote and encourage the use of solar, gas and heat pumps through education of future residents about the benefits of such technology and the current grants to home owners available from the Queensland Government (if applicable);
- Use of energy efficient street and public space lighting (subject to agreement from Logan City Council); and
- Promote and encourage the use of energy efficient appliances through education of future residents and current Queensland Government rebates available (if applicable).

Strategies to achieve the above measures are further described in Section 11 – Implementation, which is a summary of all the proposed implementation measures and offset statements.

3. Greenhouse Gas Emissions Reduction

Greenhouse Gas Emission Management will follow a three-step process of avoid, mitigate and offset (where possible). This will be achieved by:

3.1. Avoiding Greenhouse Gas Emissions

- Creation of residential precincts of varying density, with the highest residential densities occurring within a walkable catchment of the Regional Recreation Park and centres in surrounding projects;
- Provision of public transport services (providing connections with the wider public transport network) within walkable catchment of 90% of all residential dwellings – *note, the developer will pay a contribution to provision of public transport services as part of the Local Charge within the Infrastructure Funding Framework (1 July 2019) or the Flagstone and Yarrabilba Infrastructure Agreement, therefore this infrastructure will be provided by others*;
- Provision of neighbourhood, district or regional sport/recreation parks within 400m walking distance of residential dwellings, encouraging active transport and reducing private vehicle trips;
- Co-location of educational facilities and recreation/sports parks to reduce private vehicle trips or reduce the length of vehicle trips. Co-location of educational facilities with parks reduces the requirement for the educational facility to travel to a park (during school hours) at a time when the park facilities would unlikely be used for another purpose. There are many examples of where an educational facility has adopted a shared user agreement with a Council or sporting organisation to use facilities that complement the facilities already provided as part of the educational establishment;
- Provision of a connected network of pedestrian and cycleways to provide convenient and direct access to major trip generating uses (i.e. regional recreation park and schools) to reduce private vehicle trips;
- Provide, secure bicycle parking will be available throughout the development in key strategic areas such as schools, shopping precincts and parkland areas; and
- Influencing behaviour through education and energy efficient designs and systems (high level strategy located in Sections 8 & 9 of this report).

3.2. Reduction of Emissions Outputs

- Provision of electric vehicle (EV) charging stations (refer to Section 10 and Section 11 of this report);

- Create walkable hubs to reduce the need for passive transport;
- Employ energy efficient building solutions (i.e. ventilation, optimal orientation, glazing etc.);
- Create energy efficient smart systems (where possible); and
- Create a connected network of pedestrian and cycleways to provide convenient and direct access to major trip generating uses (refer to Movement IMP).

3.3. Offsetting emissions

- Implement the rehabilitation of the park areas in accordance with the Natural Environment Site Strategy; and
- Create usable, drought resistant public open spaces.

3.4. Greenhouse Gas Emissions Implementation

- When planning for and delivering the development, ensure that the highest residential densities are located within a walkable catchment of the Regional Recreation Park;
- When planning for and delivering the development, ensure that dwellings are located within 400m walkable catchment of a park (Neighbourhood Recreation Park or larger) and where practical co-location of educational facilities with major parkland (sports and recreation) to reduce vehicle trips;
- When planning for and delivering the development, ensure a connected network of pedestrian and cycleways are provided providing convenient and direct access to major trip generating uses;
- Provision of 'education pack' to future residents of (refer to Section 8 of this report);
- In line with the Queensland Government's "The Future is Electric – Queensland's Electric Vehicle Strategy" the development will seek to incorporate EV charging stations within the development to address the predicted future demand for EV charging stations.

4. Minimisation of Pollution

Reduction of pollution will be performed the introduction of an effective Construction Environmental Management Plan (CEMP). The plan will entail management strategies to address potential pollutants and operating procedures for:

- Soil;
- Air Quality;
- Water Quality;
- Noise & Vibration; and

- Vegetation Retention and Rehabilitation.

The CEMP will be developed to provide the management framework needed for the planning and implementation of construction activities in accordance with environmental commitments identified in the Overarching Site Strategies, technical baseline reporting and in legislative requirements. The purpose of the CEMP is to:

- Effectively minimise any potential adverse environmental effects during construction;
- Avoid pollution incidents;
- Minimise waste sent to landfill;
- Minimise disruption to residents (and therefore complaints); and
- Protect and where possible enhance biodiversity.

4.1. Soil

To minimise soil loss and disturbance the following measures are to take place:

- The implementation of an effective Stormwater and Erosion & Sediment Management Plan in accordance with the latest standards and guidelines (per stage or precinct);
- Staging of construction to reduce areas open to weathering and destructive actions;
- Effective communication and training to be provided by principal contractors through toolbox talks; and
- Effective and frequent monitoring is to take place to ensure all actions are correctly implemented and maintained.

4.2. Air Quality

To minimise, control, and monitor dust, smoke, and any other airborne pollutants, the following is to take place:

- Management strategies to minimise the spread of dust and other pollutants of earthworks/excavation and demolition;
- Reduce the use of powered plants and equipment where possible;
- Both full and empty loads are to be covered at all times;
- Site compounds will be established and gravelled to reduce dust dispersal;
- Haul road and open areas will be suitably wet down or other effective means of dust suppression will be employed at all times;
- All grinding, cutting or excavation will be done with dust collection devices or a water truck present; and
- All equipment is to be properly serviced and fitted with appropriate emission control devices.

4.3. Water

The management of stormwater is addressed at a high level within the Stormwater Infrastructure Master Plan; and will be further addressed in more detail as part of subsequent development applications lodged over the land through detailed Stormwater Management Plans and Erosion/Sediment Control Management Plans for each precinct or stage. These will aim to:

- Reduce flows of contaminated water;
- Ensure all contaminated water is captured and treated prior to leaving site;
- Reduce fetch and velocities of runoff; and
- De-watering to be carried out in accordance with International Erosion Control Association standards (or later version).

4.4. Noise and Vibration

Minimisation of noise and vibration pollution will be addressed by the following:

- Compliance with all Department of Transport and Mains Roads, Logan City Council, or other relevant standards in relation to construction of residential dwellings on major [arterial] roads or in proximity to railway services;
- Undertake construction work within the approved operational hours;
- Ensure all construction works are in accordance with noise level (dB) as per the approved permits;
- Effectively communicate the construction works program with the local residents; and
- Ensure all equipment meets the appropriate noise output levels as per the machineries specifications.

4.5. Minimisation of Pollution Implementation

- Prepare a master CEMP prior to commencement of construction, ensuring the CEMP achieves the purpose outlined above; and
- Prepare and implement a Stormwater and Erosion and Sediment Management Plan prior to commencement of construction.

5. Environmentally Effective Use of Materials

The use of environmentally effective material in urban development is key in reducing up-front impacts and end of life wastage. Sourcing environmentally ethical and renewable materials where possible is key in reduction the developments overall environmental impact. Materials should be sourced, where possible using the following criteria:

- Materials from renewable or replaceable sources;
- Recycled materials; and
- Materials that are in plentiful supply.

Use of a lifecycle assessment (LCA) of material can go a long way in assessing the effectiveness and environmental impact of the material of choice and provides a good starting point when selecting environmentally responsible products. LCA's consider the following:

- Extraction and manufacture;
- Sourcing;
- Construction/installation;
- Performance; and
- Waste disposal/recycling/reuse.

Construction systems are many and varied, and each has advantages and disadvantages depending on climate, distance from source of supply, budget, maintenance requirements and desired style or appearance. Important factors that may influence your choice of construction system include its durability, life cycle environmental impact, life cycle cost effectiveness, role in improving thermal performance, reuse or recycling potential, as well as local availability of materials and skills needed to construct the system. To ensure effective management, the use of environmentally effective and ethical products the following should be considered:

- Consider utilising an LCA Matrix for sourcing of materials;
- Sourcing of materials that are renewable (where possible) and ethically sourced should be part of the criteria for material selection;
- Consolidation of materials where possible to serve a dual purpose (i.e. boarding and siding with higher R values);
- Consider longevity of product. Products with longer lifespans reduce the need for replacement and therefore reduce waste over the long term; and
- Consider using Ecospecifier Verified, BREEAM's Green Guide and Global GreenTag in the selection process of building materials.

6. Waste Reduction Construction Activities

The building and construction industry can produce significant amounts of waste, much of which is deposited to landfill. The implementation of effective waste minimisation strategies has the potential to significantly reduce these volume

Waste minimisation has emerged as a priority action area and a key in implementing an Ecologically Sustainable Development (ESD). Critical actions in creating such a community are as follows:

- Avoiding unnecessary resource consumption;
- Recovering resources for reuse;
- Recovering resources for recycling or reprocessing; and
- Disposing of residual waste (as a last resort).

Effective waste planning and management can also benefit the builder/developer. Some of the benefits of good waste planning and management include:

- Reduced costs;
- Improved workplace safety; and
- Enhanced public image.

In planning a construction project, it is important to understand what excess materials are likely to be generated and then focus on how the generation of those excess materials can either be avoided or the material can be diverted from landfill. Therefore, on a stage by stage basis waste management protocols will be implemented as part of the CEMP. The aims of these protocols are to:

- Minimise the amount of waste generated as part of the project;
- Maximise the amount of material which is sent for reuse, recycling, or reprocessing; and
- Minimise the amount of material sent to landfill.

Detailed information on waste management should be included within the CEMP for each particular stage or precinct.

7.Innovation

The development will provide many innovative strategies that will incorporate the use of the site natural features and topography to create a sustainable, efficient and connected network. The following strategies for innovation are to be implemented throughout the project:

- Developing landscape themes and forms that celebrate specific site history elements;
- Connecting with technological opportunities where practical (including water re-use, solar, LED efficient lighting etc.);
- Encouraging environmental education and natural interpretation by facilitating appropriate public access areas into areas of natural value and providing information signage. In some locations detailed site analysis may suggest some areas of natural value which should be protected by more stringent measures that exclude public access. These areas may be protected by limiting access and re- directing park users;
- Incorporating WSUD by providing sediment catchment areas and filtration media to improve storm water quality prior to discharge into existing natural drainage systems. The proposed implementation of WSUD measures will generate a different type of landscape recreation opportunity within the open space network. The core principles of WSUD are to:
    - Protect natural ecosystems;
    - Integrate stormwater treatment into the urban landscape;
    - Protect water quality;
    - Reduce runoff and peak flows; and
    - Add value while minimising development costs.
- Harvesting of stormwater on-site can often provide a cost-effective and operational option to minimise usage of local on-demand reticulated supply network – this is further investigated within the Total Water Cycle Management OSS;
- The implementation of a recycled water generation and utilisation strategy has the potential to introduce many benefits around water consumption and sustainability– this is further investigated within the Total Water Cycle Management OSS;
- The implementation of WELS fixtures in every proposed dwelling provides a substantial benefit across multiple aspects of the development. As end-user consumption is the key variable and driver in the provision of adequate service networks, achieving a reduction in this sensitive area carries benefits throughout multiple aspects of the developments– refer to the Total Water Cycle Management OSS;
- Smart metering of key junctions within the development is identified to be a low-cost option that brings considerable utility to the internal potable water network, allowing for

greater monitoring and water balance capabilities – this is further investigated within the Total Water Cycle Management OSS;

- The implementation of harvesting and re-use of stormwater via the implementation of rainwater tanks allowing for the reduction of household water demand through substitution of water use and reduction of pollutants released into the local stormwater network due to rainwater being re-used by households prior to discharge – this is further investigated within the Total Water Cycle Management OSS;
- The implementation of a comprehensive public transport (bus) network carrying passengers internally and externally throughout the site. Note, the developer will pay a contribution to provision of public transport services as part of the Local Charge within the Infrastructure Funding Framework (1 July 2019) or the Flagstone and Yarrabilba Infrastructure Agreement;
- The implementation of active transport strategies, a connected network of footpaths, shared paths, separated cycle tracks and pedestrian links which encourages reduction of private vehicle trips;
- The implementation of both active and passive rehabilitation strategies in areas of heightened ecological importance to both preserve and improve ecological function of key environmental corridors; and
- Provision of Electric Vehicle (EV) charging stations at key locations within the development to address the likely future demand for charging stations.

8. Public Education

Public education is often the best method in reducing a community's carbon footprint. Whilst it is not possible to enforce the installation of solar, water tanks, grey water system and private smart lighting [and these measures can significantly increase the cost of home ownership], there are several education tools that are able to be provided to ensure that residents are able to make informed decisions on their residential purchases whether it be at the time of building/purchasing or at a later date.

Education packs will be provided to new residents and these packs will include information on:

- State Government's interest free loans on solar systems (up to $4,500) payable over 7 years (if still applicable);
- State Government's interest free loans on battery systems (up to $6,000) payable over 10 years (if still applicable);
- State Government's rebates on Energy Efficient appliances (if still applicable);
- The money that can be saved through the installation of solar, batteries, thermal pumps and energy efficient appliances;
- Any owner/tenant incentives offered by the Queensland Government (if still applicable and if not covered above);
- Any Rebates/subsidies available from Energy Queensland through the installation of Smart Meters;
- The Demonstration House if completed as part of the development as per **Section 9** of this ESISS (only once the home is completed);
- The future provision of EV charging stations at key locations to encourage investment or future investment in private EVs;
- Becoming a sustainable household (a copy of *Energy Efficiency – Everything you need to know to start saving on your energy bills*):
    - By changing behaviour (i.e. turn electrical items off at the power point when they are not in use, use the washing line instead of a clothes dryer, only use the dishwasher when it's full, setting energy saving measures on all computers etc).
    - Creating energy saving habits in both summer and winter;
    - Installation of solar hot water and solar panels to reduce the carbon foot print, save energy and cost;
    - Changing to energy efficient appliances and lighting;
    - Water saving techniques and appliances;
    - Vehicle and transport habits;
    - Waste reduction strategies;
    - Consumer habits; and

    - Paper and plastic free strategies;
    - A copy of
- The benefits of thermal pumps;
- The use and application of energy management systems; and
- The use of smart thermostats.

9. Demonstration House

A demonstration house (or houses) may be constructed as part of the development within a display centre. If this is the case, a demonstration home is to be fitted with the majority of green building fittings and initiatives listed in **Section 8** above. This house or display centre is to incorporate both the waste, energy and material sourcing that has been stipulated in this ESISS along with costing and rebates of all devices fitting. This economic feasibility is also to include energy and waste saving milestones and owner occupier savings.

The provision of a demonstration house within the display centre is intended to act as an education tool, in concert with the information to be distributed to new owners/residents as per **Section 8**.

10. Sustainable Incentives

10.1.1 Electric Vehicles

In line with the Queensland Government's "The Future is Electric – Queensland's Electric Vehicle Strategy" the development will incorporate EV charging stations within the development to address the future demand of EV charging stations.

11. Implementation

This section outlines how the above strategies are to be implemented for the development and which initiatives/strategies may be eligible for an offset against the Implementation Charge (subject to a separate application to EDQ).

Strategy	Implementation	Offset
Water Resilience		
Water Sensitive Urban Design	▪ Preparation of a Total Water Cycle Management Site Strategy and Stormwater IMP which will guide future development. The Site Strategy and IMP should be endorsed prior to the commencement of construction and development should be undertaken in accordance with the Site Strategy and IMP.	N/A
Waterway Rehabilitation	▪ Preparation of a Natural Environment Site Strategy which will guide future development. The Site Strategy should be endorsed prior to the commencement of construction and development should be undertaken in accordance with the Strategy.	N/A
Water Management	▪ Preparation of a Water and Sewer IMP, which will guide future development. The IMP should be endorsed prior to commencement of construction; and ▪ Investigate with Logan Water Infrastructure Alliance the opportunity for recycled water use in public spaces and parkland.	Dependent upon outcomes on the use of recycled water with Logan Water Infrastructure Alliance, any infrastructure associated with recycled water delivery may be offsetable.
Rainwater and Greywater (public spaces)	▪ Use of rainwater and/or greywater systems to be implemented in all public space where appropriate for the uses of irrigation; and	Use of rainwater and greywater systems in public

	▪ Installation of WELS (4+) fixtures in public space facilities.	space areas may be offsetable.
Rainwater and Greywater (private dwellings)	▪ Distribution of 'education pack' to new home owners/residents (refer to Section 8); and ▪ Provision of a Demonstration Home if applicable within the display village (refer to Section 9).	The distribution of an 'education pack' to new owners/residents and works to provide a Demonstration Home within the display village may be offsetable (not general construction costs).
Energy Reduction		
Design Measures	▪ Ensure dwellings are located within a walkable catchment of parkland and development provides for higher densities in close proximity to the Regional Recreation Park and centres in neighboring projects; ▪ Ensure that the development provides active transport opportunities through a connected network of footpaths, shared paths, separated cycle tracks and pedestrian links; ▪ Ensure that optimal solar orientation of where practical; and ▪ Ensure the retention of natural areas containing significant biodiversity are retained and rehabilitated.	N/A
Solar Installation (private dwellings)	▪ Promote and encourage the use of solar through education packs to prospective purchasers and new residents about the benefits of such technology and the current grants to home owners available from the Queensland Government (if applicable). Refer to Section 8.	The distribution of an 'education pack' to new owners/residents may be offsetable.

Thermal Pumps	▪ Promote and encourage the use of thermal pumps through education packs to prospective purchasers and new residents about the benefits of such technology and the current grants to home owners available from the Queensland Government (if applicable). Refer to Section 8.	The distribution of an 'education pack' to new owners/residents may be offsetable.
Usage of energy efficient devices	▪ Promote and encourage the use of energy efficient appliances through education packs to prospective purchasers and new residents about the benefits of such technology and the current Queensland Government rebates (if applicable). Refer to Section 8.	The distribution of an 'education pack' to new owners/residents may be offsetable.
Lighting in public spaces	▪ Provide energy efficient LED lighting in streets and public spaces (subject to agreement from Logan City Council).	N/A
Greenhouse Gas Emissions		
Design Measures	▪ Ensure that the highest residential densities are located within a walkable catchment of the Regional Recreation Park; ▪ Ensure that dwellings are located within 400m walkable catchment of a park (Neighbourhood Recreation Park or larger) and where practical co-location of educational facilities with major parkland (sports and recreation) to reduce vehicle trips; and ▪ Ensure a connected network of pedestrian and cycleways are provided providing convenient and direct access to major trip generating uses.	
Electric Vehicles	▪ EV charging stations within the development to address the predicted future demand for EV charging stations.	The construction of EV charging stations may be offsetable.

	▪ Charging stations to be installed where appropriate	
Education	▪ Promote and encourage the use of energy reducing technology through education packs to prospective purchasers and new residents about the benefits of such technology and the current grants, rebates or subsidies available to home owners available from the Queensland Government (if applicable). Refer to Section 8.	The distribution of an 'education pack' to new owners/residents may be offsetable.
Pollution Minimisation		
Pre-Construction	▪ Prepare a master CEMP prior to commencement of construction, ensuring the CEMP achieves the purpose outlined above; and ▪ Prepare and implement a Stormwater and Erosion and Sediment Management Plan prior to commencement of construction.	N/A
Post Construction	▪ Distribution of 'education packs' that provide information about reducing waste; and	The distribution of an 'education pack' to new owners/residents may be offsetable.
Other		
Demonstration House (or houses) within Display Village	Completion of at least one demonstration house within any future Display Village. The developer is to complete the house or if not constructing the house may offer incentives to a house builder to provide the green building fittings and initiatives outlined in Section 8 of this ESISS.	Works to provide a Demonstration Home within the display village may be offsetable (not applicable to general construction costs).

12. Monitoring Program and Stretch Targets

Several aspects of the sustainability concepts and designs are not enforceable by the developer as majority of the development is to be delivered in the form of private residential dwellings and centres. However, through education, monitoring, stretch targets and implementation of the measures outlined in this ESISS a sustainable development should be achievable.

The following monitoring program is to be implemented (during and post construction):

Private Dwellings

Action	Monitoring	Stretch target
Education Packs	Assessment on pack delivered against lots sold on an annual basis from commencement of construction.	100% of new residents/occupants to receive an online education pack as per Section 8 of this ESISS.
Solar Installation Uptake	Through online survey or physical count (per stage) on a 5-yearly basis from commencement of construction.	50% of private dwellings
Thermal Pump Installation Uptake	Through online survey or physical count (per stage) on a 5-yearly basis from commencement of construction.	10% of private dwellings
Rain and/or Greywater Installation	Through online survey or physical count (per stage) on a 5-yearly basis from commencement of construction.	25% of private dwellings
Energy Efficient Devices	Online survey on a 5-yearly basis from commencement of construction.	60% of all dwellings have some form of energy efficient devices

Public Spaces

Action	Monitoring	Stretch target
Rainwater and/or Greywater Reuse (public space & park facilities)	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	100% Installation
Energy Efficient Lighting	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	100% Installation
Solar Installation (Public Buildings)	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	100% Installation
WSUD Elements	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	Usage in some form across all stages
Rehabilitation of Waterways	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	Fully rehabilitated as per the Natural Environment Site Strategy (on a stage by stage basis).
Installation of WELS (4+) fixtures in public space facilities	Assessment against detailed plans on a 5-yearly basis from commencement of construction.	100% Installation

Transport

Action	Monitoring	Stretch target
Installation of EV Charging Stations	N/A	Installation upon completion if applicable.

Other

Action	Monitoring	Stretch target
Demonstration House (or houses) within Display Village	Assessment on completion of any Display Village and reporting on an annual basis from completion of Display Village.	Completion of at least one Demonstration House within any future Display Village. The developer is to complete the house or if not constructing the house may offer incentives to a house builder to provide the green building fittings and initiatives outlined in Section 8 of this ESISS.