GLEN IRIS ESTATE

APPENDIX 11
ACTIVE SUSTAINABILITY REPORT

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GLEN IRIS ESTATE

Sustainability Initiatives

Following provides a summary list of all the sustainability initiatives that have been committed to at Glen Iris estate.

All the listed sustainability initiatives were referred to in the Local Structure Plan Report.

Some were stated as clear commitments and design responses, others were proposed as a broad statement of intent.

Those listed under Community and Ecosystems are as written within the local structure plan report.

Initiatives listed under Energy, Water, Waste and Materials have now been defined.

All will be implemented, but some do require further investigation to determine actual deliverables. These initiatives 'to be investigated' are shown in amber.

Project Vision addressing Sustainable Urban Development

(Extracted from Local Structure Plan Report Section 5.3 Sustainability Commitments)

The Glen Iris development is planned designed and developed to address and incorporate key principles and practices that define sustainable urban development.

The development constitutes an urban infill addressing the State Planning Policy 'Perth Peel @ 3.5 Million' to consolidate urban growth, as well as City of Cockburn's planning strategies addressing environmental integrity and social community benefit such as housing choice, liveability, connection to shops and services, transport options, access to public spaces and employment.

Integral to this commitment, the proponent is committed to implement key sustainability initiatives aligned with the UDIA EnviroDevelopment standards.

Community

Consultation

- Detailed consultation with existing community to ensure new areas are strongly integrated with the existing community

Connected / Integrated

- Urban design to support the integration of the new with the existing residential area
- Layout, open space, roads and pathways designed to encourage a safe environment and encourage positive interaction between residents and people using the area.
    - Direct lot interface with open space; and cul-de-sacs connected with public access ways
    - All dwellings will be within 150m of local neighbourhood parks and green spaces

    - Meandering road layout and interconnected linear POS 'green corridors'
- Interconnected pedestrian network – including throughout public open space
    - Pathways for both walking and cycling that are safe, attractive and well-lit connecting residential areas with public spaces and local facilities
- Public spaces designed to allow multiple uses with safety, comfort and security for community members, including children, the elderly and disabled people, providing shade, seating and quality amenities.
    - Public open space located and designed for both active and passive recreation opportunities

Housing

- Development provides 'infill' housing – responding to WAPC Infill targets and urban consolation
- Centrally located to the existing local centres, employment areas, essential services, social activities and public transport networks
- Inclusion of 10 medium density (R30) group housing sites
    - Located to be dispersed throughout the development area, with 5 site close to central Local Centre area
    - Accommodates smaller houses, thus providing opportunities for existing residents to downsize for aging in-place, with lower living/running costs
- Design Guidelines to support environmental design and construction:
    - Address energy efficiency and renewable energy
    - Water conservation and reuse
    - Waste Management Recycled and Materials selection
    - Universal Access / Accessible Housing
- Appropriate noise mitigation measures to reduce impacts from nearby Jandakot Airport - to be implemented

Local Commercial Centre

- Integration of commercial development with the existing Local Centre.
    - Helps create a community hub as a connection point for interaction of future and existing residents
- Expansion of the Local Centre for improved community facilities and convenience
    - Allows for a range of uses such as supermarket, café/retail outlets, community services such as additional medical facilities

Community Facilities

- The development will create a range of new publicly accessible facilities.
- The extensive community consultation process identified a number of desirable public facilities including:
    - Informal larger play areas, personal training areas, playgrounds
    - Street furniture, Shelter structures with picnic settings and BBQ facilities
    - Walking and cycle path
    - Dog walking trails and facilities
    - Public art

Environmental / Ecosystems:

Public Open Space / Green Space / Tree Retention

- The landscape plan will create a continuous tree canopy coverage to limit urban heat island effect and maximise green canopy coverage
    - Addresses the objectives and provisions of the Urban Forest Plan
- Public Open Space
    - 18.75% - and a total green space of 22.9% - well in excess of the minimum 10% requirement - in park and bushland corridors, designed to manage fire risk
- Retaining over 500 existing mature trees, and
- Planting over 1000 additional new trees – mainly endemic native species - in new parks and buffers adjoining existing residences
    - Design has intentionally located POS/Green Space to maximise the retention of existing trees
    - Two areas of existing Banksia bushland are to be retained within the site
- Tree retention assists in managing the interface with the existing residential development, and maintaining the existing character of the area
- Consideration of incorporating food bearing – bush tucker plant species

Fauna Protection

- Protection and/or relocation of native fauna during construction; and creation of possible fauna habitat opportunities within open space and retention of trees suitable for avian fauna
- It is anticipated up to 8 of the 11 Black Cockatoo breeding habitat trees be retained on site in public open space and road reserves.
- Preliminary subdivision layout designed to mitigate impacts during construction
    - Where trees are to be retained, these will be detailed within the Construction and Environment Management Plan

Water Sensitive Design

- Water Sensitive Design to manage surface water quality to support ecological health
- A major reduction in the existing long-term groundwater draw
- Stormwater management initiatives, techniques and inclusions to provide at source recharge, including possible subsurface storage tanks
- Planted detention basins inclusive of nutrient stripping capability in place of sumps
- Maintenance initiatives to reduce fertilizers, pesticides, herbicides and chemical use generally

WATER CONSERVATION and REUSE

- A variety of water wise initiatives applied to the public and private realm inclusive of more efficient irrigation systems.
    - Planting of local native species have low water needs and only require irrigation during establishment
    - Existing bores are expected to be reworked to maximise water extraction efficiency and to meet new efficiency standards.
    - The irrigation system will have a range of inbuilt sustainable measures including, but not limited to, rain gauges, water use monitoring, partial drip systems and hydro-zoning to respond to periods of excessive rain or lengthy dry periods.
- Landscape guidelines provided to residents to assist them in making informed choices around design, aesthetics, plants species selection and productive gardens.
- Key initiatives include:
    - Water efficient fixtures – Shower, Toilet, Basins
    - Provide a water efficient landscaping package to front gardens - Waterwise native indigenous plants and irrigation
    - Installation of a rainwater tank, plumbed for toilet flushing and cold-water connection to washing machine – proposed as 3,000l tank for large <R25 lots and 1,500l tank for smaller >R30 Cottage lots (Dwellings shall be plumbed with appropriate pipework to be rainwater reuse ready, and rainwater tank, pumps and pipework to be installed as per Department of Health requirements; OR
    - Installation of a Grey water diverter system for garden irrigation, plumbed to washing machine and showers. (Dwellings are to be plumbed with appropriate pipework to be grey water reuse ready, and grey water diversion, filtration and pump system, and sub-surface irrigation pipework to be installed as per Department of Health requirements.)

ENERGY

Glen Iris estate is aiming to be a net carbon-zero development for operational energy use. To achieve this the development will be all-electric with a focus on energy efficiency in housing design and fit-out, and include installed renewable energy PV systems. This is in recognition that to achieve net-zero emissions it is necessary to not have any fossil derived energy sources within the development area. Accordingly, no reticulated gas would be brought into the development.

- Street and lots planned to provide best practice solar access opportunities, as well as ensure that buildings and outdoor spaces have solar amenity.
- Building design guidelines informing purchasers about energy efficiency and comfort; addressing:
    - All houses to achieve minimum 7 star NatHERS Energy Efficiency rating
    - Climate responsive – solar -passive - design for homes
        - Note: these design requirements will also address Quite House Design requirements – such as glazing (6.38mm laminated glass), enclosed eaves with 6mm fibre-cement), and doors - solid core external and sliding doors with acoustic seals)

- Efficient fixtures and appliances: Water Heating Systems; Airconditioning, Lighting, Cooking
- Renewable energy systems: for R20 lots: min 3.5kW / dwelling; R30 Grouped sites: average 1.5kW/dwelling; and
- Investigations into a Community micro-grid battery storage system for all lots, and potentially including existing adjoining lots

- LED / dimmable solar lighting for street lighting and public spaces

WASTE MANAGEMENT AND RECYCLING

- All development works to be guided by a Waste Management plan during civil works and building construction, targeting > 80% recycling
- Building design guidelines informing purchasers about the waste hierarchy of reduce, reuse and recycle.
- The key initiatives proposed include:
  - Civil works contract specifications to develop and manage a construction waste management and recycling program
  - Recycle or reuse a minimum of 80% (by volume) of demolition, land clearing and civil works materials/products
  - All building construction to engage a reputable Waste Management Recycling Company who can capture, recycle and/or reuse a minimum of 80% (by volume) of construction waste materials generated during construction of the dwelling, and monitor and verify recycling rates

MATERIALS

- All civil works and landscape design to incorporate materials with recycled content, reused, and replacement materials; such as for construction of roads and pathways, landscape features, reuse of timber as both nature play elements and in mulch and possible selected public art elements.
- Preference for use of low embodied energy materials where possible and suitable.
  - Recycled structural fill for lots
  - Recycled sub-base materials for roads
  - Recycled asphalt
  - Reuse of topsoil (approx. 100mm thick) in public open space or non-structural areas of the site
  - Reuse of timber removed from the site as both nature play elements and in mulch and possible selected public art elements
  - Recycled mulch (from cleared vegetation) may be used for stabilisation of batters
  - Soft and permeable paving and paths in POS areas

APPENDIX 1: Sustainability Initiatives - as included in LSP Report

Section 5.3 Sustainability Commitments:

The Glen Iris development is planned designed and developed to address and incorporate key principles and practices that define sustainable urban development.

The development constitutes an urban infill addressing the State Planning Policy 'Perth Peel @ 3.5 Million' to consolidate urban growth, as well as City of Cockburn's planning strategies addressing environmental integrity and social community benefit such as housing choice, liveability, connection to shops and services, transport options, access to public spaces and employment.

Integral to this commitment, the proponent is committed to implement key sustainability initiatives aligned with the UDIA EnviroDevelopment standards.

A detailed analysis of Glen Iris against the EnviroDevelopment standards has been undertaken to inform project planning and to determine project initiatives.

The results of the analysis found that the project is well placed to address the EnviroDevelopment certification requirements in all six categories: Ecosystems, Community, Waste, Materials, Energy and Water. Further investigation will continue to allow a more accurate determination to be made.

ED Element	Key Project Sustainability Initiatives
ECOSYSTEMS	- Water Sensitive Design to manage surface water quality to support ecological health, including a major reduction in the existing long-term groundwater draw, and significant reduction in the use of fertilizers, herbicides and pesticides - Retention of over 500 of existing mature trees, relocation of some, and planting of local native species in new parks and buffers adjoining existing residences. - Protection and/or relocation of native fauna during construction; and creation of possible fauna habitat opportunities within open space and retention of trees suitable for avian fauna. - Significant public open spaces – 18.75% - and a total green space of 22.9% - in park and bushland corridors - designed to manage fire risk
COMMUNITY	- Detailed consultation with existing community to ensure new areas are strongly integrated with the existing community. - A range of housing types and densities, including R30 Group Housing sites to allow greater diversity of residents, including down-sizing for retirees, singles, couples and families; and creating a community hub as a connection point for interaction of future and existing residents - The development is designed to encourage a safe environment and encourage positive interaction between residents and other local people using the area. - All dwellings will be within 200m of local neighbourhood parks and green spaces - Public spaces designed to allow multiple uses with safety, comfort and security for community members, including children, the elderly and disabled people, providing shade, seating and quality amenities. - Pathways for both walking and cycling that are safe, attractive and well-lit connecting residential areas with public spaces and local facilities.

ED Element	Key Project Sustainability Initiatives
WATER	- Reduction in water use though waterwise landscape and gardens, water efficient fixtures and appliances. - Rainwater harvesting and reuse OR Greywater reuse on larger lots - Landscape guidelines provided to residents to assist them in making informed choices around design, aesthetics, plants species selection and productive gardens.
ENERGY	- Street and lots planned to provide best practice solar access opportunities, as well as ensure that buildings and outdoor spaces have solar amenity. - Building design guidelines informing purchasers about energy efficiency and comfort; addressing - Climate responsive – solar -passive - design for homes - Renewable energy systems and investigations into a community micro-grid battery storage system for all lots, and potentially including existing adjoining lots - Efficient fixtures and appliances - Use of efficient LED /and solar lighting for street lighting and public spaces.
WASTE	- All development works to be guided by a Waste Management plan during civil works and building construction, targeting > 80% recycling - Building design guidelines informing purchasers about the waste hierarchy of reduce, reuse and recycle
MATERIALS	- All civil works and landscape design to incorporate materials with recycled content, reused, and replacement materials; such as for construction of roads and pathways, landscape features, reuse of timber as both nature play elements and in mulch and possible selected public art elements.