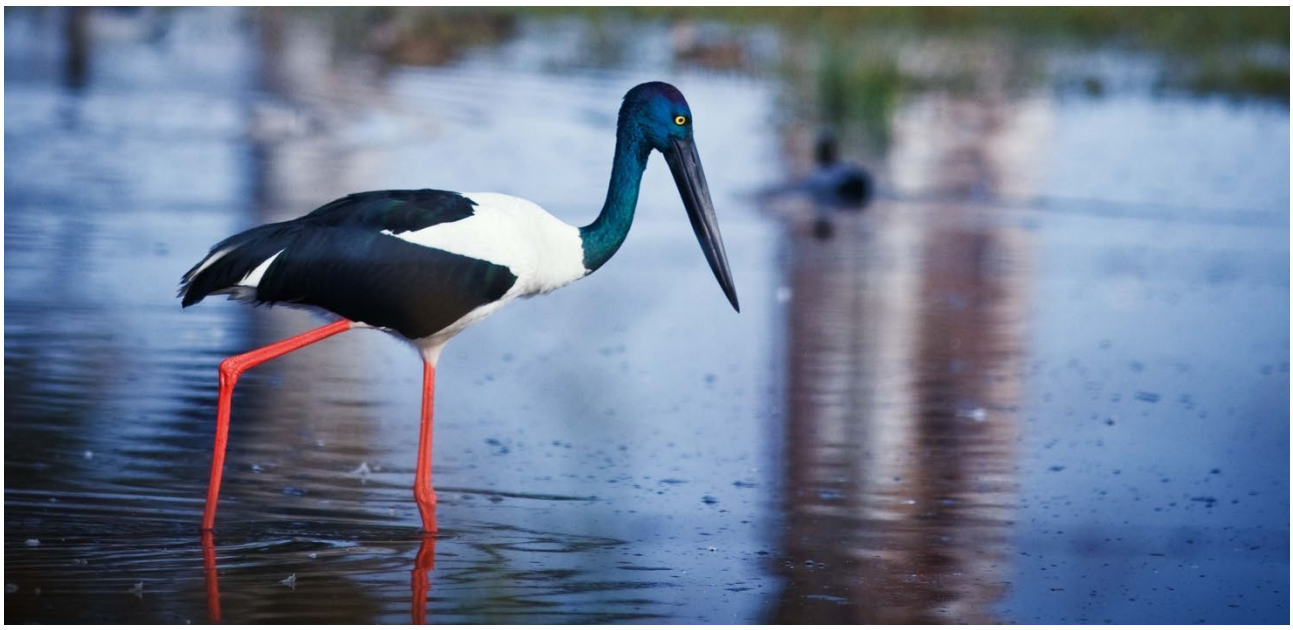
Sch 6.2.5 Planning Scheme Policy 5 – Ecological Assessments



Part 1 Introduction

1.1 Title

This planning scheme policy may be cited as Planning Scheme Policy 5 - Ecological Assessments.

1.2 Purpose of this planning scheme policy

The purpose of this planning scheme policy is to provide guidance for the preparation of an ecological assessment which will assist in determining if the outcomes of the Environmental Significance Overlay Code are met.

Where the information required by this policy is not supplied when the development application is made, they will be the subject of an information request under the Integrated Development Assessment System (IDAS).

1.3 Structure of this planning scheme policy

(1) **Part 1 Title**

(2) **Part 2 Preliminary**

(3) **Part 3 Ecological Assessments**

- (a) 3.1 Overview
- (b) 3.2 Level of Ecological Assessment Required
- (c) 3.3 Components of an Ecological Assessment
  - (i) 3.3.1 Basic Ecological Assessment
  - (ii) 3.3.2 Detailed Ecological Assessment
- (d) 3.4 Vegetation clearing to support a Bushfire Management Plan
- (e) 3.5 Competency Standards

(4) **Part 4 Environmental Design**

- (a) 4.1 Overview
- (b) 4.2 Planning and Design for Habitat Tree Retention

(c) 4.3 Design for Connectivity

(d) 4.4 Planning and Design for Wildlife

(e) 4.5 Wetland and Waterway Buffers

(5) **Part 5 Environmental Offsets**

(a) 5.1 Overview

(b) 5.2 Triggers for Environmental Offsets

(c) 5.2 Offset Receiving Areas

(d) 5.3 Planning and Design Principles

(6) **Part 6 References**

(7) **Appendices**

(a) Appendix A - Basic Ecological Assessment Template

(b) Appendix B - Detailed Ecological Assessment Template

(c) Appendix C - Vegetation Management Plan Template

(d) Appendix D - Environmental Offsets Plan

(e) Appendix E - Koala Food and Habitat Trees

(f) Appendix F - Priority Species

1.4 Commencement

This planning scheme policy commences on the date of the Scenic Rim Planning Scheme.

1.5 Relationship to the Sustainable Planning Act 2009

This planning scheme policy is made pursuant to the Planning Act 2016.

1.6 Applicability of this planning scheme policy

This planning scheme policy applies where:

(1) the Environmental Significance Overlay Code requires the preparation of an Ecological Assessment; and

(2) development occurs within areas identified on:

(a) **Environmental Significance Overlay Map OM-04-A - Biodiversity** (MSES);

(i) Regulated Vegetation

(ii) Protected Areas

(b) **Environmental Significance Overlay Map OM-04-B - Local Biodiversity** (MLES);

(i) Core Corridor

(ii) Node Corridor

(iii) Stepping Stone

(iv) Critical Linkage

(c) **Environmental Significance Overlay Map OM-04-C - Priority Species;**

(i) State Significant Species (MSES)

(ii) Koala Habitat (MLES)

(d) **Environmental Significance Overlay Map OM-04-D – Wetlands and Waterways** (MSES);

(i) High Ecological Value Waters (Watercourse)

(ii) High Ecological Value Waters (Wetland)

(iii) High Ecological Significance Wetlands

(iv) Waterways and Wetlands Buffer Area

(e) **Environmental Significance Overlay Map OM-04-E – Local Watercourses** (MLES);

(i) Watercourse Buffer Area A

(ii) Watercourse Buffer Area B

(iii) Watercourse Buffer Area C

1.7 Relationship to Other Legislation and Standards

This Policy must be read in conjunction with Council's Planning Scheme, statutory requirements including Council Local Laws, the Planning Act and other references/standards as detailed herein.

It is the responsibility of the proponent to consider their obligations under the:

(1) Vegetation Management Act;

(2) Nature Conservation Act;

(3) Environmental Offsets and

(4) Environment Protection & Biodiversity Conservation Act (Comm)

1.8 Referenced documents

Any non-local government publication referenced must be sourced directly.

1.9 Reference to Policy

The term:

- *Policy*, when used herein, refers to Planning Scheme Policy 5 - Ecological Assessments; and
- *Code*, when used herein, refers to the Environmental Significance Overlay Code.

1.10 Terminology

Terms used in the Policy are defined in Schedule 1 - Definitions.

Part 2 Preliminary

2.1 Pre-lodgement Meetings

It is strongly recommended that discussions are held with Scenic Rim Regional Council prior to and during assessment for clarification of specific requirements and outcomes related to a particular project.

A pre-design on-site inspection is expected to be undertaken prior to any ecological assessment commencing to discuss specific issues and requirements for the site and surrounds.

Where development is expected to cause impacts to the environment or natural values, Environmental Offsets may be required. It is therefore recommended to discuss any requirements under this Policy before an application is lodged.

Any variation to Policy requirements should be discussed as early as possible. Where proposing to engage a suitably qualified person with qualifications other than those listed, prior approval by Council is required.

2.2 Forms

Relevant development application forms are available from the Department of Infrastructure, Local Government and Planning web site:

http://www.dilgp.qld.gov.au/

If you have specific queries about a particular question or matter, it is recommended that you discuss the query initially with Councils Customer Service Section.

Templates regarding matters included throughout the Policy are for reference material only and are intended as a guide.

2.3 Fees

Fees associated with applications are listed in Council's Fees and Charges schedule located on Council's website:

http://www.scenicrim.qld.gov.au/

Part 3 Ecological Assessments

3.1 Overview

Ecological Assessment is an integral part of the development design and assessment process. The results and conclusions of an ecological assessment report assist Council in considering if the proposed development will achieve the outcomes required by the Environmental Significance Overlay Code.

An ecological assessment should address the relevant Performance and Acceptable Outcomes of the Environmental Significance Overlay Code in relation to the proposed development and consider the environmental design elements of this policy throughout the development. Development that demonstrates it complies with the Code and the Policy is consistent with these parts.

Where a proposed development has the potential to adversely impact upon mapped environmental values, an ecological assessment report shall inform the development assessment process and compliance with the Environmental Significance Overlay Code.

3.2 Level of Ecological Assessment Required

The level of detail required is initially determined by **Table 3.2 Level of Ecological Assessment Required**.

However, where the particulars of an individual site determine that a different level of Ecological Assessment is appropriate, Council may:

(1) Consent to a lesser or greater level of Ecological Assessment; or

(2) Require a lesser or greater level of Ecological Assessment.

In considering the appropriate level of Ecological Assessment, consideration should be given to:
(1) The extent of vegetation clearing to occur,
(2) The ecological value of the area to be affected,
(3) The period of time before offset plantings would replicate the existing habitat,
(4) The extent of impact on the ecology.

Table 3.2 Level of Ecological Assessment Required

	Level of Ecological Assessment Required		
Environmental Significance Overlay Map OM-04	**Ecological Assessment not required***	**Basic Ecological Assessment***	**Detailed Ecological Assessment**
A – **Biodiversity**	Where *Accepted* development.	All other circumstances	Where development: (1) involves the clearing of vegetation within; (a) High Ecological Value Waters, High Ecological Significant Wetlands; or a buffer area shown on OM-04-D; or (b) a stream or buffer area shown on OM-04-E; or (2) Involves the clearing of a Koala Food or Habitat Tree; or (3) affects; (a) a *Priority Species* or *State Significant Species*; or (b) aquatic flora or fauna
B - **Local Biodiversity**			
C - **Priority Species**			
D – **Wetlands and Waterways**			
E – **Local Watercourses**			

***Note** - A suitably qualified person may be required to demonstrate that this level of assessment is appropriate.*

3.3 Components of an Ecological Assessment

3.3.1 Basic Ecological Assessment

Assessment generally relates to a small affected area, which has simple solutions to the impacts of the development on environmental values. The report must consider the Environmental Significance Overlay Code and detail how the relevant outcomes are to be met by the development.

A Basic Ecological Assessment need only address outcomes relevant to the specific matters for which a mapped overlay applies (e.g. where no vegetation clearing is proposed, a Vegetation Management Plan or Ecological Offsets Plan may not be required).

Assessment is undertaken over the period of a day or less. Trapping is generally not undertaken, although diurnal searches for fauna are desirable. Vegetation structure is likely to be readily assessed using quaternary sites, although transect information may be useful in some situations. All prevailing environments are assessed and documented.

Where development has a minor effect on an environmental value which is not negligible, a **Basic Ecological Assessment** is supported by a:

(1) **Vegetation Management Plan**

Vegetation Management Plans (**VMP**) which describe the actions applied throughout development to manage vegetation before, during and after development is undertaken, should be included with an Ecological Assessment. A VMP provides certainty surrounding how the development ensures environmental best-practice. A VMP should also describe how the development incorporates a proactive approach to minimise the effects of development on flora.

(2) **Fauna Management Plan**

Fauna Management Plans (**FMP**) which describe the actions applied throughout development to manage fauna before, during and after development is undertaken, should be included with an Ecological Assessment. An FMP provides certainty surrounding how the development ensures environmental best-practice. An FMP should also describe how the development incorporates a proactive approach to minimise the effects of development on fauna.

Where a VMP or FMP have not been supplied, Council may request such plans during the *Information Request* stage to enable effective assessment of the development. Where a VMP or FMP is not provided, such plans may be required at the *Decision* stage of the IDAS system.

Note - *Refer to Appendix A Basic Ecological Assessment Template for details.*
Refer to Appendix C Vegetation Management Plan Template for details.
Editor's Note - *Contact Council for a guideline and examples to assist in completing the template.*

3.3.2 Detailed Ecological Assessment

Assessment generally relates to development which affects a large area and/or has potential to cause significant ecological and residual impacts on environmental values. Solutions to impacts on environmental values may be complex and multi-faceted, requiring in-depth analyses of ecological issues across the development site and adjacent areas of influence. A Detailed Ecological Assessment must consider and detail how all outcomes of the Environmental Significance Overlay Code are met by the development. The report will detail how the development incorporates *Environmental Design* principles and considers locally specific and regional environmental values and influences. Where significant residual impacts are likely, the report identifies, analyses and reports solutions to those impacts through an Environmental Offsets Plan (EOP).

Analysis and reporting of the fauna found at the site will detail the habits, movements and breeding potential of the fauna surveyed. The report should document the likely local and regional movement patterns and ranges of fauna surveyed. Past and present breeding sites should also be considered and documented. A Fauna Field Survey may inform the Detailed Ecological Assessment.

All prevailing environments are assessed and reported. The report must describe the vegetation across the site, including its structure, composition and regenerative capacity. A flora field survey may inform the Detailed Ecological Assessment.

Aquatic assessments are required where development transects, or results in the reconstruction or alteration of a watercourse. Flora and fauna surveys are undertaken, and aquatic assessments will consider existing and projected water quality parameters during and post-development on those organisms. The report will

detail expected hydrological flow rates, run-off quantities and qualities during the development phase and until the disturbed and impacted areas are rehabilitated and/or stabilised.

Where the water quality of an aquatic *Priority Species* or *State Significant Species* is likely to be affected by the development, the Detailed Ecological Assessment must demonstrate how the development seeks to manage the aquatic environment to acceptable levels for that species. The report must also detail how the development seeks to achieve water quality guidelines for the relevant catchment area and be consistent with the document '*Monitoring and Sampling Manual*' published by the State Department of Environment and Science (DES).

The report will detail all aspects of development likely to affect the waterway and describe mitigation measures required to minimise environmental harm during high rainfall and flow events.

A Detailed Ecological Assessment is supported by:

(1) **Vegetation Management Plan**

A VMP which describes the actions to be applied to manage vegetation before, during and after development works. A VMP may be required to be submitted to Council either:

(a) prior to development approval as part of the development assessment process; or
(b) as a condition of a development approval in which case it will be required to be lodged before the commencement of site works or any interference with vegetation. This plan provides certainty surrounding how actions are to occur to ensure environmental best-practice is undertaken. An VMP should also describe how the development incorporates a proactive approach to minimise the effects of development on vegetation and considers environmental design (refer Part 4.0 Environmental Design).

A Flora Survey may inform the VMP.

(2) **Fauna Management Plan**

A FMP which describes the actions applied throughout development to manage fauna before, during and after development is undertaken, should be included with an Ecological Assessment. An FMP provides certainty surrounding how the development ensures environmental best-practice by detailing adopted procedures when interaction with fauna cannot be avoided. An FMP should also describe how the development incorporates a proactive approach to minimise the effects of development on fauna and considers environmental design (refer Part 4.0 Environmental Design).

A Fauna Field Survey may inform the FMP.

(3) **Fauna and Flora Field Surveys**

Fauna and Flora Field Surveys are required where development results in impacts to native species, their habitats and movement throughout the landscape. Survey methodologies must be robust, repeatable and comply with accepted industry best-practice and government regulation/standards.

If handling, capturing, trapping or taking animals is required, the person/s must hold relevant competency standards (refer section 3.5 Competency Standards) and comply with all permits required to undertake that work. Where persons are undertaking work under direction of a relevantly competent person, the relevant competent person must be on site while survey work is undertaken.

Fauna and Flora Field Surveys will examine all *Priority Species* with further emphasis on nationally, state or locally important species, including those endangered, threatened, vulnerable or least concern species, and migratory birds protected under international agreements.

Searches of local and regional databases should assist to identify species likely to occur in the area. Targeted systematic searches are required over the entire study area to determine the presence and location of species utilising ‘whole-of-site’ traverses or equivalent methodologies. This is of particular importance where existing records or local knowledge suggest that significant flora species may be present, or where prior site disturbance may have resulted in an unpredictable distribution of species.

Aquatic Fauna and Flora Surveys should be undertaken for aquatic environments where interruption or alteration to a waterway or wetland is likely. Surveys and sampling methods must be undertaken in accordance with industry best practice techniques, conform to scientific methodologies, and Government standards where applicable to the environment assessed.

Fauna Surveys are to be guided by '*Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland*' and incorporate the *Targeted Species Guidelines* where available for relevant species and published by the State Department of Environment and Science.

Fauna Surveys must:

(1) Describe the fauna habitat significance of the site or its sub-components within a local, bioregional, state and national context.
(2) Identify any evidence of edge effects, invasive pest species and other disturbance (locations, causes and extent) which have potential to influence native fauna population viability.
(3) Identify:
    (a) Habitat trees
    (b) Trees with scratch marks
    (c) Location and identification of scats, tracks and other traces of fauna
    (d) Fauna trails
    (e) Fallen logs
    (f) Termite mounds
    (g) Ground diggings
    (h) Rock outcrops
    (i) Nests (including in banks)
    (j) Roost/nest/den trees.
(4) Be undertaken with a minimum of four days and nights survey to minimise sampling duration influences within a given sampling period. In some instances, seasonal survey information may be required. Where alternative sampling effort in applied, appropriate justification must be provided.

Flora surveys are to be guided by industry best practice and be consistent with the principles and standards of '*Flora Survey Guideline-Protected Plants*' as published by DES. Surveys must be consistent with regulatory requirements as described by the Nature Conservation Act 1992. All significant flora species that occur within the Region, including State Significant Species, locally significant species and *Priority Species* are to be included in the survey.

(4) **Environmental Offsets Plan**

Where significant residual impacts occur, resulting from damage to areas identified as Matters of Local Environmental Significance (and where not identified as Matters of State Environmental Significance) cannot be avoided or mitigated, the impacts are offset so that the environmental value proposed to be removed from the site is maintained.

Environmental Offsets under this Policy are to achieve a conservation outcome for the impacted matter(s). They are proposed as a last resort action to offset unavoidable impacts where reasonable action has been taken to avoid impacts. Refer to *Part 5.0 Environmental Offsets* of this Policy.

Note - *Refer to Appendix B Detailed Ecological Assessment Template for details.*
Refer to Appendix C Vegetation Management Plan Template for details.
Refer Appendix D Environmental Offsets Plan for details.
Editor's Note - *Contact Council for a guideline and examples to assist in completing the template.*

3.4 Vegetation clearing to support a Bushfire Management Plan

Where matters of environmental significance are proposed to be affected by vegetation clearing under a bushfire management plan, an ecological assessment may be required in addition to the Bushfire Management Plan as described by Planning Scheme Policy 4 - Bushfire Management Plans. Any need for an Ecological Assessment must comply with this Policy.

The Property Fire Management Planning Kit published by SEQ Fire Biodiversity Consortium, should be consulted to assist smaller developments manage bushfire consistent with ecological best practice, and may be the subject of an information request under the Integrated Development Assessment System (IDAS).

3.5 Competency Standards

For the purposes of the Policy, a *suitably qualified person* requires that persons undertaking or engaged in the preparation of the Ecological Assessment must have each of the following.

(1) Where undertaking a:

a. Basic Ecological Assessment;

Tertiary qualifications in environmental science, botany, ecology, zoology or another related discipline, or other relevant qualifications and experience as approved by Council.

b. Detailed Ecological Assessment;

Tertiary qualifications in environmental science, botany, ecology, zoology or another related discipline.

(2) Demonstrated experience relative to the assessments conducted.

(3) Where necessary, have demonstrated experience in undertaking the required field surveys.

Individuals undertaking field surveys must have appropriate licences, approvals and permits as issued by the administering authority. Individuals handling fauna must be compliant with all relevant animal handling requirements and hold the necessary permits for the proposed purpose. The individual must hold ethical clearance from an Animal Ethics Committee.

The qualifications, experience, licences', approvals and permits of the person undertaking the ecological assessment must be stated within the ecological assessment report.

Part 4.0 Environmental Design

4.1 Overview

Development and urban design plays an important role in the conservation of viable habitat and endemic species to the Scenic Rim Region. When development potential is realised, design elements should be included which consider the natural environment and the role it plays in sensitive land forms and the sustainability of our communities.

Key design elements can assist development in achieving holistic land forms that develop and protect communities, the economy and environmental systems. Ecological assessments should consider environmental design in mitigating negative interactions with natural values.

4.2 Planning and Design for Habitat Tree Retention

Large trees are an important part of an ecosystem providing habitat for a variety of wildlife. Retaining habitat trees ensures viability of hollow-dependent native fauna and maintains biodiversity to support ecological integrity and can be incorporated into urban areas.

Habitat and large trees should be integrated into development at design stage. Removal of habitat trees should be a last resort and would necessitate the installation of artificial nest boxes, to ensure lost habitat values are counterbalanced. Nest boxes must only be considered as a temporary solution with long-term goals aimed at replanting trees to replenish lost natural hollows within the development footprint, and in accordance with any environmental offset provision. A nest box management plan will usually be required to ensure monitoring of wildlife use and determine effectiveness of the adopted strategy.

Where habitat trees and native vegetation must be cleared, habitat features such as hollow logs should be harvested to preserve their values and used to enhance remaining and newly established habitat and landscaped areas. Incorporation of harvested habitat features into development design may help demonstrate that habitat integrity is maintained and protected.

4.3 Design for Connectivity

Protecting and/or rehabilitating corridor links between habitat areas helps maintain biodiversity, integrity and resilience of ecosystems. Fragmentation and isolation of natural areas reduces the diversity and viability of flora and fauna populations. The effects of geographical isolation may not be immediately visible, with extinctions of species over time occurring if fragmentation is permitted.

Corridors of suitable structure, composition and extent enable wildlife movement between habitat areas. Movement between habitat areas allows genetic interchange between populations while offering opportunities for escape and recolonisation following environmental disturbance.

Corridors provide a range of unique functions to fauna adapted to local and nomadic migrations in search of seasonal food sources or reproductive opportunities. Ecological corridors aid in the dispersal, pollination and recolonisation of plant species.

(1) Ecological Corridors should be as wide as possible

Wider corridors are used by a larger range of fauna types and remain more effective over time. The most appropriate width for an ecological corridor will depend on vegetation type and extent, locations of waterways, wetlands, adjacent land uses, and the types of wildlife the corridor is serving.

Corridor widths should be:

a) A minimum of a 100 metre width is recommended to facilitate movement of mammals and other terrestrial wildlife through bushland areas.

b) Waterway corridors should retain a minimum of 30 metres of vegetation on either side of the channel.

c) In grazing lands, a densely vegetated corridor 50 metres wide should be adequate to enable most birds to move between remnant habitat areas up to 1.2 kilometres apart.

d) Widths of up to 500-700 metres may be necessary to provide protection to forest-dwelling birds from aggressive edge-dwelling birds.

(2) An Ecological Corridor should provide adequate habitat

An ecological corridor should provide sufficient area and diversity of habitat suitable for the full range of fauna species that inhabit or move through the local area. The diversity and structural complexity of the vegetation communities present must also be considered and reflect the species which depend on the corridor.

For example, densely vegetated riparian corridors may not support the dispersal or movement of koalas between critical habitats in the long term. Conversely, sparsely vegetated open woodlands may inhibit the successful movement of smaller species subject to predation.

(3) Minimise interruptions and disturbance to the Ecological Corridor

Interruption, intrusion, and disturbance to ecological corridors encourage environmental weeds, domestic animals and illicit activities reducing the effectiveness of the corridor. Infrastructure and services, such as roads, sewerage and water reticulation, and maintained easements present barriers to wildlife movement and dispersal and should be located outside of ecological corridors wherever possible.

Activities which may affect an ecological corridor include:

a) Slashing of grasses and understorey

b) Infrastructure

c) Easements and associated maintenance

d) Pathways/trails and recreation

e) Fire brakes and access tracks

Where the provision of service infrastructure and other intrusions is necessary, a common disturbance corridor or easement should be used where possible. Construction techniques and maintenance regimes which minimise disturbance to the corridor should be adopted wherever possible to minimise interaction with those areas.

4.4 Planning and Design for Wildlife

Improper planning and design can disrupt the feeding, migration, breeding and social patterns of fauna. When undertaking development, consideration must be given to a variety of aspects, such as land form, land uses, duration of development, separations distances, and mitigation strategies during and post-development.

(a) Infrastructure Design

The design of infrastructure should consider the effects on fauna and avoid negative interaction with it. Development must consider and implement in its design the:

- Installation of wildlife infrastructure including fencing, refuge poles, culverts, ropes and fauna bridges/underpasses.
- Retrofitting existing infrastructure (e.g. installation of runs in culverts).

Development should consider best practice methodologies for the incorporation of fauna sensitive design. Where road infrastructure cannot avoid negative fauna interaction, consideration must be given to mitigation methods described by Fauna Sensitive Road Design Volume 1 & 2 as published by the Department of Transport and Main Roads.

(b) Urban Design

Development should be positioned to retain and incorporate natural features and attributes into development design at the earliest phase possible. Enhancing urban form while achieving and protecting natural values is an important aspect to urban wildlife protection and enhancement.

Development layout must consider:

- Separation of built land uses from environmental areas and natural values
- Incorporation of buffer areas (road alignments, vegetated swales, recreational areas)

- Alignment of local access roads along corridors/environmental areas to minimise edge effects and excessive maintenance/disturbance to natural values.
- Infill areas adjoining environmental areas and infrastructure alignments with restoration activities.
- Incorporate water sensitive urban design principles by the inclusion of permeable surfaces throughout the development with living stormwater systems buffering discharges to natural areas.
- Protect, repair, replace and implement a range of riparian vegetation communities where ever possible to enhance water quality and waterway integrity.
- Preference permeable vegetated or 'natural' stormwater management systems over impervious systems to reduce velocities and peak flow rates.
- Incorporate compatible open space recreational areas in a complimentary way to maximise benefits while minimising disturbance to environmental areas.
- Preference locally endemic vegetation communities throughout design elements and recreational spaces.
- Incorporate wildlife friendly fencing where required to mitigate negative interaction.
- Incorporate CPTED principles throughout the entire design of the development including environmental areas.
- Avoid allotment configurations which result in boundaries adjoining environmental areas or corridors.
- Connection to and restoration of corridors adjoining or connecting environmental areas.

4.5 Wetland and Waterway Buffers

Buffers between developments and sensitive environments can be a cost effective and suitable way to minimise and mitigate against impacts. Wetlands and waterways play a crucial role throughout the region supplying many communities with water supply and supporting recreational and commercial industries.

Where wetlands and waterways are likely to be impacted by development or have elements which incorporate them into development design, it is important to adopt recognised definitions and delineation standards. Developments must present designs and reports consistent with the Queensland Wetland Definition and Delineation Guideline produced by the DES.

Development located within or adjacent to a wetland or within an area that supports a wetland (support area), must consider the impacts to those values from the earliest stages of design. Where a separation buffer is a suitable method to minimise the impacts to a waterway or wetland, the buffer area is to be assessed and provided in accordance with the Queensland Wetland Buffer Planning Guideline, published by the DES. Development may include a variety of methods to achieve separation, however, wetland protection and enhancement is to be prioritised throughout design.

Construction activities must adopt industry best practice through the installation and maintenance of suitable Erosion and sediment control methodologies and devices, described and adopted by the International Erosion Control Association Australasia.

Part 5.0 Environmental Offsets

5.1 Overview

Environmental Offsets are designed to counterbalance unavoidable residual impacts on matters of environmental significance. An offset may be proposed where a development proposal causes significant residual impacts on environmental values. Offsets should be guided by and have a conservation outcome as defined by the Environmental Offsets Act 2014.

Where a development is likely to have an Environmental Offset, it is strongly recommended that a prelodgement meeting is undertaken.

5.2 Triggers for Environmental offsets

Development should take all reasonable avoidance and mitigation methods prior to seeking an Environmental Offset. However, a development may provide an Environmental Offset when there is a likely and unavoidable impact to any of the following:

- MNES
- MSES
- MLES
- Any other prescribed environmental matter.

This policy applies to matters that the Local Government has prescribed as MSES, identified in supporting policies and strategies, and MSES as identified and permitted by legislation.

5.3 Offset Receiving Areas

Receiving areas for Environmental Offsets should preference the site to which the offset is required. Where suitable offset receiving locations are not available at the site to which the offset is required, alternative locations may be appropriate providing that the offset represents a conservation outcome.

Areas identified within the Environmental Significance Overlay and Council's Biodiversity Strategy 2015-2025 and identified as a "Corridor Network" areas may be suitable offset receiving areas if on-site receiving areas are not available.

Discussions with Council regarding offsets should commence as early as possible to ensure appropriate actions are undertaken and any offset is appropriately delivered and realised.

5.4 Planning and design principles

Planning and design of an offset should be guided by the Environmental Offsets Act 2014. When planning and implementing an Environmental Offset, an Environmental Offsets Plan (EOP) should be considered. The information contained within an EOP is likely to vary depending on the nature and scale of the offset needed, however should be consistent with the principles of Appendix D - Environmental Offsets Plan.

Part 6.0 Reference Material

- Department of Environment and Resource Management (2011) *Queensland Wetland Definition and Delineation Guideline*, Queensland Government, Brisbane
- Module 8. Native Vegetation Clearing - State Development Assessment Provisions for guidance on buffers *http://dilgp.qld.gov.au/resources/policy/sdap/sdap-module-8-v-1-7.pdf*
- Department of State Development Manufacturing, Infrastructure and Planning (2018), *State Code 16: Native Vegetation Clearing* in *State Development Assessment Provisions*, Queensland Government, Brisbane.
- Neldner, VJ., Thompson, EJ., Bean, AR. and Dillewaard, HA. with contributions from Wilson, BA., Sparshott, KM., Grimshaw, P., Dowling, R., Stephens, KM., Price, R. and. Stanely, TD., 2005. *Methodology for Survey and Mapping of Vegetation Communities and Regional Ecosystems in Queensland*.(Ed.sNeldner, V.J., E.J. Thompson, A.R. Bean and H.A. Dillewaard). Queensland Herbarium, Queensland Environmental Protection Agency, Australia.
- Queensland Department of Environment and Heritage Protection (2016). Flora Survey Guidelines - Protected Plants. Queensland Department of Environment and Heritage Protection, Conservation and Biodiversity Policy Unit. Brisbane.
- Queensland Department of Main Roads (2000). Fauna Sensitive Road Design Manual. Volume 1 - Past and Existing Practices. Queensland Department of Main Roads, Planning, Design and Environment Division. Brisbane.
- Queensland Department of Main Roads (2010). Fauna Sensitive Road Design Manual. Volume 2 – Preferred Practices. Queensland Department of Main Roads, Planning, Design and Environment Division. Brisbane.
- Queensland Wetlands Buffer Planning Guideline http://wetlandinfo.ehp.qld.gov.au/resources/static/pdf/resources/reports/buffer-guide/wetland-buffer-guideline-14-04-13.pdf
- Scenic Rim Regional Council Biodiversity Strategy 2015 – 2025
- SEQ Fire and Biodiversity Consortium (2018). *Property Fire Management Planning Kit*, online <http://www.fireandbiodiversity.org.au/publications.html>, Brisbane.

Appendix A Basic Ecological Assessment Template

Editor's Note *- Contact Council for a guideline to assist in completing the template.*

A Basic Ecological Assessment is undertaken over the period of a day or less. Trapping is not undertaken, although diurnal searches for fauna are desirable. Vegetation structure is likely to be readily assessed using Quaternary sites, although transect information may be useful in some situations. All prevailing environments are assessed. An assessment of impacts on wetlands and watercourses is conducted where required, and appropriate mitigation measures outlined.

Where clearing of native vegetation is involved, a Basic Ecological Assessment is supported by a Vegetation Management Plan.

Where ecological assessments are not submitted at the time of application, plans may be required prior to development approval as part of the development assessment process or as a condition of approval.

Report Section	Outcomes	Considerations/requirements
Chapter 1 Site Description	Describe the physical characteristics of the site	• Description of the physical characteristics of the site • Topography, slope and landform • Water bodies • Photographs
Chapter 2 Description of Development	Provide an overview of the existing land uses and the proposed development or use	• Existing or previous land uses • Existing infrastructure • Describe proposed development/use • Associated infrastructure required for the development • Associated site works including proposed earth works and/or vegetation removal • Any relevant development approvals or conditions
Chapter 3 Assessment Summary	Detail outcomes of the Code to be considered Provide an overview of assessments to be undertaken Provide details of qualifications and experience of the person undertaking the ecological assessment	• Also detail any matters referenced in the Code that have not been considered as part of the report
Chapter 4 Flora Features	Identify and evaluate the likely presence of flora, plant communities and ecosystems.	• Desktop study of flora • Regional Ecosystems (remnant and non-remnant plant community types) and discuss extent, location, structure, proportions and condition
Chapter 5 Fauna Features	Identify specific habitat features available for fauna and indications of fauna presence	• Include results of any diurnal searches for fauna and habitats
Chapter 6 Wetlands & Waterways /Local Watercourses	Detail and discuss impacts on the ecology of mapped waters	• Include details of works/development in or near waters, aquatic fauna and flora, and rehabilitation measures. • Coordinate report with any management plans that have been prepared.
Chapter 7 Evaluation of Impacts	Detail and discuss impacts of the development and mitigation measures appropriate.	• Show a current aerial photo highlighting existing environmental values overlaid with the plan of development. • Comparison of environmental areas, removed, replaced and restored.
Chapter 8	Address the relevant Performance and Acceptable Outcomes of the	• Detail each relevant outcome applicable to the development

Report Section	Outcomes	Considerations/requirements
Code Outcomes	Code in relation to the proposed development. Where a proposed development has the potential to adversely impact upon mapped environmental values, demonstrate how the outcomes of the Code are to be met.	• Identify how the outcomes are to be met (*which may include reference to specific recommendations and actions identified in Chapter 9*). • Describe environmental design principles adopted throughout the development
Chapter 9 Recommendations and Actions	Expand upon management strategies to reduce potential impacts to an acceptable level. Identify and describe avoidance, mitigation and management measures Detail how specific outcomes of the Code are to be achieved. Provide consolidated and coordinated *Recommendations and Actions* which also incorporate outcomes from: • Vegetation Management Plan; • Environmental Offsets Report; and • any other reports or investigations.	• Revegetation or restoration. • Landscaping. • Wildlife movement infrastructure. • Fauna management. • Development design. • Alternative location for the development. • Protection of aquatic ecologies.
Additional Material to be submitted	Provide all technical data as an Appendix to the report.	• Maps • Aerial Imagery • Photographs • Technical assessments
Vegetation Management Plan	To be: (1) included as an appendix to the Ecological Assessment; or (2) prepared as a later stand-alone document to be submitted as part of an operational works application. ***Note** - If prepared as a later standalone plan, a vegetation management concept plan must be provided as part of the ecological assessment.*	Contents as per **Appendix C - Vegetation Management Plan Template** ***Editor's Note** - Contact Council for a guideline to assist in completing the template.*

Appendix B Detailed Ecological Assessment Template

A Detailed Ecological Assessment is undertaken over a five day/four-night period. Fauna and flora surveys are conducted. Trapping is undertaken. To adequately describe vegetation structure a mix of Secondary and Quaternary sites are required. In some instances, seasonal survey information may be required (e.g. Summer and Winter surveys). All prevailing environments are assessed. An assessment of impacts on wetlands and watercourses is conducted where required, and appropriate mitigation measures outlined.

Where clearing of native vegetation is involved, a Detailed Ecological Assessment is supported by a VMP describing the actions to be applied to manage vegetation before, during and after development. An FMP is also required to describing the actions to be applied to manage vegetation before, during and after development. An EOP may be required.

Such Plans may be required either:

(1) prior to development approval as part of the development assessment process; or

(2) as a condition of a development approval, in which case it will be required to be lodged before the commencement of site works or any interference with vegetation. This plan provides certainty surrounding how actions are to occur to ensure environmental best-practice is undertaken.

Report Section	Outcomes (*Refer Overlay Code*)	Considerations/requirements
Chapter 1 *Site Description*	Describe the existing physical characteristics of the site	• Description of the physical characteristics of the site • Geology and soils • Hydrology and water quality (surface and groundwater) • Topography, slope and landform. • Water bodies
Chapter 2 *Description of Development*	Provide an overview of the existing land uses and the proposed development or use. Show a current aerial photo highlighting existing environmental values overlaid with the plan of development	• Existing or previous uses • Existing infrastructure • Influence of past and present land use on the site • Type of proposed development/use. • Associated infrastructure required for the development • Associated site works including proposed earth works and/or vegetation removal • Any relevant prior development approvals and conditions.
Chapter 3 Assessment Summary	Detail outcomes of the Code to be considered Provide an overview of assessments to be undertaken Provide details of qualifications and experience of the person undertaking the ecological assessment	• Detail any matters referenced in the Code that have not considered as part of the report
Chapter 4 *Identify Flora Features*	Identify and evaluate the likely presence of flora, plant communities and ecosystems.	• Field and desktop methodology and assumptions • Desktop and field studies of flora. • Priority Species • Regional Ecosystems (remnant and non-remnant plant community types) and discuss extent, location, structure, proportions and condition • Flora species listed in Appendix F where in a mapped area on the

Report Section	Outcomes (*Refer Overlay Code*)	Considerations/requirements
		Environmental Significance Overlay Map OM-04-B - Local Biodiversity
Chapter 5 *Identify Fauna Features*	Discuss habitat requirements, movement paths, breeding and dispersal behaviours Identify specific habitat features available for fauna and indications of fauna presence	Field surveys of fauna species including identifying; • Habitat function and ecological processes • Wildlife movement - current and future opportunities • Riparian zone and riparian buffer zone • Water quality and stream health indicators • Presence of weed and pest species • Fauna species listed in Appendix F where in a mapped area on the Environmental Significance Overlay Map OM-04-B - Local Biodiversity
Chapter 6 Wetlands & Waterways/Local Watercourses	Detail and discuss the presence or otherwise of water features including rivers and streams, freshwater wetlands, estuarine or marine environments Identify any impacts on the ecology of waters	• Include details of works/development in or near waters, aquatic fauna and flora, and rehabilitation measures • Coordinate report with any SQMP or WMP that have been prepared • If wetlands are present, they should be delineated according to the Queensland Wetland Definition and Delineation Guideline (DERM, 2011)

Chapter 7
 	
Evaluation of Impacts
	• Evaluate all threatening processes and potential impacts, both temporary and permanent
	• Detail and discuss mitigation measures appropriate to the scale of impact protects and avoids impact on Matters of State and/or Local Environmental Significance
	• Discuss and identify how development will act to protect matters of environmental significance by (in hierarchical order):
	  ○ Protect existing matters;
	  ○ Avoid impacts;
	  ○ Minimise impacts;
	  ○ Mitigate impacts caused;
	  ○ Reinstate matters damaged during development.
		• Edge effects
		• Biodiversity loss
		• Landscape effects
		• Invasive species
		• Downstream effects
		• Site hazard assessment for wildlife.
		• Part 4.0 Environmental Design

Chapter 8 *Code Outcomes*	Address the relevant Performance and Acceptable Outcomes of the Environmental Significance Overlay Code in relation to the proposed development.	• Detail each relevant outcome applicable to the development • Identify how the outcomes are to be met (*which may include reference to specific*

Report Section	Outcomes (*Refer Overlay Code*)	Considerations/requirements
	Where a proposed development has the potential to adversely impact upon mapped environmental values, demonstrate how the outcomes of the Code are to be met	*recommendations and actions identified in Chapter 9*)
Chapter 9 *Recommendations and Actions*	Identify and describe avoidance, mitigation and management measures Expand upon management strategies to reduce potential impacts to an acceptable level Incorporate outcomes from: • Vegetation Management Plan; • Environmental Offsets report; and • any other reports; to provide consolidated and coordinated Recommendations and Actions Where habitat or vegetation is proposed to be damaged, management strategies are implemented to ensure the protection and safety of wildlife and the protection of nearby habitat in areas identified as either Matters of State and/or Local Environmental Significance	• Species specific interventions • Environmental buffers • Revegetation or restoration • Landscaping • Wildlife movement infrastructure • Nest box habitat • Fauna management • Development design. • Alternative location for the development • Minimisation of edge effects • Environmental Offset concept plan • Part 4.0 Environmental Design ***Note** - Offset delivery is provided as per an offset delivery plan.*
Additional Material to be submitted *Maps, Aerial Imagery, Photographs and technical assessments*	Provide all technical data as part of report List all references used including wildlife records, database extractions	• Technical information or data including where applicable, GIS datasets • Authorities and agencies consulted – include any correspondence • Records of field surveys. (GPS points should be provided in GIS format). • Background reports and literature reviewed
Vegetation Management Plan	To be: (1) included as an appendix to the Ecological Assessment; or (2) prepared as a later stand-alone document to be submitted as part of an operational works application. ***Note** - If prepared as a later standalone plan, a vegetation management concept plan must be provided as part of the ecological assessment.*	Contents as per **Appendix C - Vegetation Management Plan Template**
Offset Delivery Plan	Detail how impacts are offset so that the environmental value proposed to be removed from the site is maintained. To be: (1) included as an appendix to the Ecological Assessment; or (2) prepared as a later stand-alone document to be submitted as part of an operational works application.	Contents as per **Appendix D Environmental Offsets Plan**

Report Section	Outcomes (*Refer Overlay Code*)	Considerations/requirements
	***Note** - If prepared as a later standalone plan, an offsets concept plan must be provided as part of the ecological assessment.* ***Note** - Applies where significant residual impacts resulting from damage to vegetation in areas identified as Matters of Local Environmental Significance (and where not identified as Matters of State Environmental Significance) cannot be avoided or mitigated.*	

Appendix C Vegetation Management Plan Template

A Vegetation Management Plan shall have regard to **Part 5 Environmental Design.**

Report Section	Outcomes	Considerations/Requirements
Chapter 1 *Vegetation Management Actions* *Responsibilities*	To clearly identify objectives, methods and reporting lines. To nominate all relevant stakeholders of responsibilities	• Project manage vegetation management as an integral part of the construction and operational phase. • Nominate the person with responsibility for overseeing development works (e.g. the site supervisor or works supervisor) to be responsible for implementing vegetation management actions on site and is considered the point of contact for Local Government. • Detail the role of all contractors in vegetation management. • Supply an action plan outlining timeframes for the implementation of each phase, and monitoring and reporting activities.
Chapter 2 *Vegetation Protection*	To protect vegetation and during construction and operational phases of development	• Establish an inventory of both native and exotic species on the site. Including those listed as *Priority Species.* • Identify any species listed under the Nature Conservation Act 1992, and the Environmental Protection and Biodiversity Conservation Act 2000 which are to be protected under this legislation. • Produce a map of vegetation areas requiring protection on the site. • Establish disturbance setbacks for vegetation retention areas and riparian and waterway corridors. • Establish methodology to implement vegetation protection measures prior to construction works commencing including vehicle access ways, work areas, signage, barrier fences and tree guards.
Chapter 3 *Clearing and Disposal*	To minimise the adverse impacts of vegetation clearance. To maximise recycling or reuse of cleared vegetation. To minimise the impacts of habitat loss due to the removal of hollow bearing trees.	• Clearly identify areas of vegetation to be cleared, retained, and areas containing hollow bearing trees. • Relocate wildlife prior to the removal of habitat trees. • Ensure appropriate permits have been obtained prior to these actions. • Use clearing methods that will not damage adjacent protected vegetation and will minimise soil profile disturbance.

Report Section	Outcomes	Considerations/Requirements
		• Recycle cleared vegetation for reuse on or off site. Recycling techniques include mulching, tub-grinding, wood chipping and salvage. • Trees containing hollows and habitat elements should have those aspects reclaimed/salvaged. • Trees with identified hollows should have the hollow section preserved and mounted on nearby or adjacent suitable trees.
Chapter 4 Rehabilitation and Maintenance	To restore and enhance disturbed areas in the post construction phase. To maximise survival opportunities for areas of retained vegetation and newly rehabilitated areas. To minimise work durations and delays to enable timely rehabilitation. To prioritise rehabilitation through staged developments.	• Determine the rehabilitation techniques suitable for the site taking into account the topography, soils, and Ecological Processes (i.e. natural regeneration, direct seeding, and soil seed-bank translocation techniques). • Provide recommended native species lists for rehabilitation. • Specify proposed maintenance programs to ensure the short and long-term health and vigour of retained vegetation and the healthy growth of new plantings and/or direct seeded areas. • Detail sediment and erosion control measures to be undertaken of cleared or disturbed areas. • Give details on mulching, watering and fertiliser regimes, regular inspection schedules for damage or disease, replacement planting criteria and weed eradication measures in this program. • Provide control methodologies for both declared and environmental weeds. • Where Offsets are proposed, an Offset Delivery Plan is to be provided in conjunction with the VMP.
Post Clearing - Reporting and Reviewing	Detail reporting and review procedure of the VMP including time frames.	• Detail how the Outcomes of the Code were achieved. • Report on the vegetation clearing and VMP implementation
Additional Material to be submitted	To provide any relevant information regarding development	• Maps, Aerial Imagery, Photographs and GIS datasets as applicable

Appendix D Environmental Offsets Plan

1.0 Overview

Where likely significant residual impacts, resulting from damage to vegetation in areas identified as Matters of Local Environmental Significance (and where not identified as Matters of State Environmental Significance) cannot be avoided or mitigated, impacts are offset so that the environmental value proposed to be removed from the site is maintained.

Environmental Offsets under the Policy are to achieve a conservation outcome for the impacted matter(s). They are proposed as a last resort action to offset unavoidable impacts where reasonable action has been taken to avoid impacts.

The proponent may choose to either deliver the offset on the site where development is to occur or on an alternative site protected in perpetuity.

The Ecological Assessment shall include an assessment of likely significant residual impacts, and compensatory measures proposed to be undertaken.

Offsets under the policy are to achieve a conservation outcome for the impacted matter(s). They are proposed as a last resort action to environmental impacts where reasonable action has been taken to avoid impacts or mitigate the impacts.

2.0 Principles

Environmental Offsets under the Policy must meet the following eight principles before an offset is considered an appropriate measure of environmental impact management:

(1) Offsets will not replace or undermine existing environmental standards or regulatory requirements, or be used to allow development in areas otherwise prohibited through legislation or policy.

(2) Environmental impacts must first be avoided, then minimised, before considering the use of Offsets for any remaining impact.

(3) Offsets must achieve a conservation outcome that achieves an equivalent or better environmental outcome.

(4) Offsets must provide environmental values as similar as possible to those being lost.

(5) Offsets provision must minimise the time-lag between the impact and delivery of the environmental offset.

(6) Offsets must provide additional protection (land) to environmental values at risk, or additional management actions to improve environmental values.

(7) Where legal security is required, offsets must be legally secured for the duration of the impact on the environmental value.

(8) Offsets should be as close as practical to the location of the impact on the prescribed environmental matter.

3.1 Types and hierarchy of determination

The following offset types are applicable and are listed in preference order with offsets being first considered at or nearest the site to which environmental values are lost.

(1) **Site-based offset** - located on the land subject to the develop application on which the impacts will occur.

(2) **Land-based offset** - offset delivered off-site and protected in perpetuity.

(3) **Other offset** - This can include offsets not otherwise specified that provide an equal or greater ecological benefit.

In certain situations, it may be reasonable to provide a combination of the offset hierarchy above. Such circumstances should be considered on an individual bases and form part of early development discussions with Council. Financial offsets are not applicable under this Policy.

3.3 Offset receiving sites

Offset receiving sites must be within the Scenic Rim Regional Council Local Government Area and be generally consistent with the requirements of the Environmental Offsets Act 2014.

Environmental Offset Areas should be located:

(1) upon the land subject to the development application; or

(2) where the development area is located within an area identified on **Environmental Significance Overlay Map – Local Biodiversity OM-04-B**, on land within, adjoining or linking areas mapped as;

  (a) Core Corridor;

  (b) Node Corridor;

  (c) Stepping Stone;

  (d) Critical Linkage; or

(3) where the development area is located within an area identified on **Environmental Significance Overlay Map – Local Biodiversity OM-04-C**, on land within, adjoining or linking areas mapped as Koala Habitat; or

(4) be other such land approved by Council where it can be demonstrated that the offset will achieve positive regional biodiversity and connectivity outcomes.

> ***Editor's Note*** *- refer to Councils Biodiversity Strategy 2015-2025: Bushland Corridor Network which identifies local corridors*

3.4 Suitability of receiving sites

A receiving site may constitute an entire lot or be a defined area within one or more lots. One lot may contain a number of offset receiving sites so long as the extent of any one receiving site does not overlap with another.

Receiving sites must:

(1) be:

  (a) on the same site; **or**

  (b) greater than 0.5 hectares in size; **or**

  (c) immediately adjacent to an area of native vegetation which is at least 0.5 hectares which is protected by regulation or binding agreement; **and**

(2) planted with native trees, endemic to the site.

The management objective for any receiving site will be to;

(1) undertake direct planting works, and reach a level where minimal maintenance is required and the receiving site has become self-sustaining. This stage will be certified by a *suitably qualified person*.

(2) undertake a sufficient level of maintenance to address weed incursion and other external factors.

(3) progress towards the pre-clearing vegetation type of the offset receiving site.

3.6 Overlap of Offsets

Where an impact is to occur in an area identified as containing greater than one environmental value, only one offset shall apply. The applicant will provide an offset for the greater requirement and implement the environmental offset in the way described in the Policy.

3.7 Preparing a Delivery Plan

A Delivery Plan shall be submitted to and approved by Council either:

(1) as part of the Environmental Offset Plan; or

(2) prior to the development approval being issued; or

(3) in the instance of a *Material Change of Use*, prior to development commencing in accordance with a condition of development approval.

A delivery plan must be prepared, and all subsequent management actions must be implemented by a *suitably qualified person*.

Table 3.7: Requirements for an Offset Delivery Plan

Report Section	Requirements	Notes
1. Justification of unavoidable impacts	a) Description of avoidance and minimisation efforts. b) Description of environmental values proposed for Offsetting.	
2. Determine obligation	a) Methodology for determination of the Offset amount and type. b) Details of the Offset proposed.	*Native trees proposed to be cleared are to be counted. (mandatory where areas less than one hectare) or estimated at a rate of 2000 trees per hectare). Planting is to be at a minimum density of 2000 stems per hectare.*
3. Scale map	A scale map showing the vegetation proposed for clearing and the receiving site.	*A digital copy is to be provided in Arc GIS shapefile format.*
4. Legal mechanism	Details of the legal mechanism proposed to protect the site in perpetuity.	*Example, for a subdivision, the proponent may choose to offset on land to be designated as Council reserve.*
5. Maintenance	Proposed monitoring/maintenance actions to be undertaken.	*A minimum 5 year maintenance period by the proponent addressing weed control, watering or any maintenance actions required as part of the plan.*
6. Outcomes	Annual survival rate of trees to be 90% of the original Offset quantity. Additional replacement plantings are required annually where this is not achieved. To be finalised, offset must: • include at least 70% of trees more than 3 years old; and • at least 90% of the number of trees originally required.	*Replacement plantings should occur within twelve months of each Annual Review (subject to weather).*
7. Reporting	Reporting to be provided to Council on: • Planting • Maintenance • Assessments/survival rates • Replacement plantings • Growth rates • Matters affecting survival or viability of trees	• *Completion of initial planting* • *Quarterly assessments for the initial 12 months* • *Annual reporting thereafter* • *Final assessment after at least 5 years*
8. Bonding	Provide a cost estimate of offset works, in the form of a schedule of rates. Detail proposed staging of bonds for staged developments.	*A schedule should consider initial planting, maintenance, replacement plantings and assessment costs.*

Appendix E Koala Food and Habitat Trees

Species	Location
Queensland Blue Gum (*Eucalyptus tereticornis*)	Prefers fertile areas – fertile creek flats and drier slopes
Tallowwood (*E. microcorys*)	Prefers deeper moister soils on slopes
Grey Gum (*E. major*)	Well-drained soils in wetter areas
Small-fruited Grey Gum (*E. propinqua*)	Well-drained soils on slopes
Gum-topped Box (*E. moluccana*)	Prefers areas with clay soils
Spotted Gum (*Corymbia citriodora var variegata*)	Dry well-drained slopes
Narrow-leaved Red Gum (*E. seeana*)	Sandy loam with some clay
Grey Ironbark (*E. siderophloia*)	Wide variety of soils
Narrow-leaved Ironbark (*E. crebra*)	Dry well-drained slopes
Broad-leaved Ironbark (*E. fibrosa ssp fibrosa*)	Dry well-drained stony slopes
Pink Bloodwood (*C. intermedia*)	Wide variety of deeper soils
White Mahogany (*E. acmenoides*)	Dry well-drained slopes
Thin-leaved Stringybark (*E. eugenioides*)	Deeper volcanic soils on slopes
Brush Box (*Lophostemon confertus*)	Moist gullies
Scribbly Gum (*E. racemosa*)	Sandy deeper soils

Appendix F Priority Species

The following species are locally significant species

FLORA			
Scientific Name	**Common Name**	**Form**	**Comments**
Acacia bakeri	marblewood	shrub	uncommon in the area
Acacia binervata	two-veined hickory	shrub	uncommon in the area
Acacia blakei ssp blakei		tree	uncommon in the area
Acacia brunioides ssp brunioides	brown wattle	shrub	uncommon in the area
Acacia floribunda	Gossimer Wattle	shrub	uncommon in the area
Acacia harpophylla	Brigalow	tree	iconic tree of Kalbar area
Acacia myrtifolia	myrtle wattle	shrub	uncommon in the area
Acacia obtusifolia	blunt-leaved wattle	shrub	uncommon in the area
Acacia stricta	Hop Wattle	shrub	uncommon in the area
Acacia viscidula	sticky wattle	shrub	uncommon in the area
Ailanthus triphysa	White Bean	tree	uncommon in the area
Anopterus macleayanus	Macleay Laurel	tree	uncommon in the area
Argophyllum nullumense	silver leaf	shrub	uncommon in the area
Arundinella montana	Mountain reed grass	herb	uncommon in the area
Astrotricha pauciflora		shrub	uncommon in the area
Atalaya multiflora	Broad-leaved Whitewood	tree	uncommon in the area
Banksia integrifolia ssp monticola		tree	uncommon in the area
Banksia spinulosa var cunninghamii	hairpin banksia	shrub	uncommon in the area
Barklya syringifolia	crown of gold	tree	uncommon in the area
Boronia anemonifolia		shrub	uncommon in the area
Bosistoa transversa	heart-leaved bosistoa	tree	uncommon in the area
Bossiaea buxifolia		shrub	uncommon in the area
Brachychiton rupestris	narrow-leaved bottle tree	tree	inconic tree in Kalbar area
Brunoniella spiciflora	white brunoniella	herb	uncommon in the area
Callitris monticola	dwarf cypress pine	tree	uncommon in the area
Cassinia compacta	tall cassinia	shrub	uncommon in the area
Citrus australasica	finger lime	shrub	uncommon in the area
Comesperma esulifolium	mountain match-heads	shrub	uncommon in the area
Comesperma volubile	love creeper	vine	uncommon in the area
Correa reflexa	native fuchsia	shrub	uncommon in the area
Croton stigmatosus	white croton	tree	uncommon in the area
Daviesia arborea	tree pea	tree	uncommon in the area
Daviesia mimosoides		shrub	uncommon in the area
Dodonaea viscosa ssp spatulata		shrub	uncommon in the area
Eucalyptus amplifolia ssp sessiliflora	cabbage gum	tree	uncommon in the area
Eucalyptus banksii	tenterfield woollybutt	tree	uncommon in the area
Eucalyptus deanei	mountain blue gum	tree	uncommon in the area
Eucalyptus exerta	Queensland Peppermint	tree	uncommon in the area
Eucalyptus fusiformis	an Ironbark	tree	uncommon in the area
Eucalyptus interstans	narrow-leaved red gum	tree	uncommon in the area. Disjunct distribution.

FLORA			
Scientific Name	**Common Name**	**Form**	**Comments**
Eucalyptus michaeliana	hillgrove gum	tree	uncommon in the area
Eucalyptus nobilis	manna gum	tree	uncommon in the area
Eucalyptus notabilis	Blue Mountains Mahogany	tree	uncommon in the area
Eucalyptus obliqua	messmate stringybark	tree	uncommon in the area
Eucalyptus oreades	blue mountains ash	tree	uncommon in the area
Eucalyptus quadrangulata	white-topped box	tree	uncommon in the area
Gmelina leichhardtii	White Beech	tree	uncommon in the area iconic commercial species
Gompholobium uncinatum		shrub	uncommon in the area
Goodenia ovata	hop goodenia	shrub	uncommon in the area
Gossia bidwillii	Pythonwood	tree	uncommon in the area
Harnieria hygrophiloides		herb	uncommon in the area
Hibbertia riparia	erect guinea flower	shrub	uncommon in the area
Hovea impressinerva		shrub	uncommon in the area
Keraudrenia hookeriana		shrub	uncommon in the area
Lepidozamia peroffskyana	Shining Burrawang	herb	uncommon in the area
Lycopodium deuterodensum	Bushy Clubmoss	herb	uncommon in the area
Marsdenia hemiptera	rusty vine	vine	uncommon in the area
Melaleuca pallida	lemon bottlebrush	shrub	uncommon in the area
Monococcus echinophorus	Monococcus	shrub	uncommon in the area
Myrsine subsessilis ssp subsessilis	Red Muttonwood	shrub	uncommon in the area
Notelaea johnsonii	Veinless Mock-Olive	shrub	uncommon in the area
Olearia microphylla	small-leaved daisy bush	shrub	uncommon in the area
Ozothamnus rufescens	brown dogwood	shrub	uncommon in the area
Ozothamnus whitei		shrub	uncommon in the area
Pandorea baileyana	large-leaved wonga vine	vine	uncommon in the area
Pandorea sp Mt Maroon		vine	uncommon in the area
Persoonia volcanica	Mountain Geebung	shrub	uncommon in the area
Philotheca difformis ssp smithiana		shrub	uncommon in the area
Phyllanthus subcrenulatus		shrub	uncommon in the area
Plectranthus alloplectus	narrow-leaved plectranthus	herb	uncommon in the area
Pomaderris nitidula		shrub	uncommon in the area
Pomaderris queenslandica		shrub	uncommon in the area
Prostanthera nivea	snowy mint bush	shrub	uncommon in the area
Quintinia sieberi	Rough Possumwood	tree	uncommon in the area
Santalum obtusifolium	Sandalwood	shrub	uncommon in the area
Senna acclinus	brush senna	shrub	uncommon in the area
Seringia hillii		shrub	uncommon in the area
Sphaerolobium minus	short globe pea	shrub	uncommon in the area
Tapeinosperma repandulum	southern tapeinosperma	shrub	uncommon in the area
Tephrosia bidwillii		shrub	uncommon in the area
Teucrium corymbosum	forest germander	shrub	uncommon in the area
Thelionema grande	tufted granite	herb	uncommon in the area
Wahlenbergia glabra		herb	uncommon in the area
Xylosma terrae-reginae	xylosma	tree	uncommon in the area

FAUNA			
Class	**Scientific Name**	**Common Name**	**Comments**
amphibian	Litoria verreauxii	whistling treefrog	Associated with wetlands. Limited distribution.
amphibian	Litoria chloris	orange eyed treefrog	Associated with rainforests. Limited distribution.
amphibian	Litoria revelata	whirring treefrog	Uncommon
amphibian	Litoria tyleri	southern laughing treefrog	Associated with rainforests. Limited distribution.
amphibian	Lechriodus fletcheri	black soled frog	Associated with wetlands. Limited distribution.
amphibian	Philoria loveridgei	masked mountain frog	Uncommon
amphibian	Assa darlingtonii	pouched frog	Uncommon.
amphibian	Pseudophryne coriacea	red backed broodfrog	Associated with wetlands. Limited distribution.
amphibian	Uperoleia fusca	dusky gungan	Associated with wetlands. Limited distribution.
bird	Chthonicola sagittata	speckled warbler	Associated with intact open forests. Uncommon.
bird	Accipitridae novaehollandiae	grey goshawk	uncommon
bird	Circus approximans	swamp harrier	Associated with wetlands. Limited distribution.
bird	Hieraaetus morphnoides	little eagle	Uncommon.
bird	Lophoictinia isura	square-tailed kite	Very Uncommon.
bird	Aegotheles cristatus	Australian owlet-nightjar	Uncommon.
bird	Anas rhynchotis	Australasian shoveler	Associated with wetlands. Limited distribution.
bird	Malacorhynchus membranaceus	pink-eared duck	Associated with wetlands. Limited distribution.
bird	Anseranas semipalmata	magpie goose	Associated with wetlands. Limited distribution.
bird	Ixobrychus flavicollis	black bittern	Associated with wetlands. Limited distribution.
bird	Burhinus grallarius	bush stone-curlew	Uncommon.
bird	Coracina lineata	barred cuckoo-shrike	Associated with rainforests. Limited distribution.
bird	Ephippiorhynchus asiaticus	black-necked stork	Uncommon
bird	Chalcophaps indica	emerald dove	Uncommon.
bird	Lopholaimus antarcticus	topknot pigeon	Associated with rainforests. Limited distribution.
bird	Ptilinopus superbus	superb fruit-dove	Uncommon. Associated with rainforests. Limited distribution.
bird	Stagonopleura guttata	diamond firetail	Very Uncommon.
bird	Eurostopodus mystacalis	white-throated nightjar	Uncommon
bird	Falco peregrinus	peregrine falcon	Uncommon
bird	Melithreptus gularis	black-chinned honeyeater	Very Uncommon.
bird	Symposiarchus trivirgatus	spectacled monarch	Associated with rainforests. Limited distribution.
bird	Orthonyx temminckii	Australian logrunner	Associated with rainforests. Limited distribution. IBA species.
bird	Falcunculus frontatus	crested shrike-tit	uncommon
bird	Ptiloris paradiseus	paradise riflebird	Associated with rainforests. Limited distribution. IBA species.

FAUNA			
Class	**Scientific Name**	**Common Name**	**Comments**
bird	Microeca fascinans	jacky winter	bush bird suffering population pressures
bird	Petroica rosea	rose robin	bush bird suffering population pressures
bird	Tregellasia capito	pale-yellow robin	Associated with rainforests. Limited distribution. IBA species.
bird	Excalfactoria chinensis	king quail	Very Uncommon.
bird	Pitta versicolor	noisy pitta	Associated with rainforests. Limited distribution.
bird	Pomatostomus temporalis	grey-crowned babbler	populations under pressure.
bird	Cinclosoma punctatum	spotted quail-thrush	uncommon
bird	Ailuroedus crassirostris	green catbird	Associated with rainforests. Limited distribution. IBA species.
bird	Sericulus chrysocephalus	regent bowerbird	Associated with rainforests. Limited distribution. IBA species.
bird	Amaurornis moluccana	pale-vented bush-hen	Very Uncommon.
bird	Lewinia pectoralis	lewin's rail	Very Uncommon.
bird	Ninox connivens	barking owl	Very Uncommon.
bird	Plegadis falcinellus	glossy ibis	Associated with wetlands. Limited distribution.
bird	Zoothera heinei	russet-tailed thrush	Associated with rainforests. Limited distribution.
bird	Zoothera lunulata	Bassian thrush	Associated with rainforests. Limited distribution.
bird	Tyto longimembris	eastern grass owl	Very Uncommon.
bird	Tyto novaehollandiae	masked owl	Very Uncommon.
bird	Tyto tenebricosa	sooty owl	Very Uncommon.
bony fish	Mogurnda adspersa	southern purplespotted gudgeon	Very Uncommon.
bony fish	Galaxias olidus	mountain galaxias	Very Uncommon.
bony fish	Melanotaenia duboulayi	crimsonspotted rainbowfish	Very Uncommon.
bony fish	Mugil cephalus	Sea Mullet	Scenic Rim is a critical nursery area for a commercial species.
bony fish	Myxus petardi	pinkeye mullet	Uncommon.
bony fish	Pseudomugil signifer	Pacific blue eye	Very Uncommon.
bony fish	Retropinna semoni	Australian smelt	Uncommon.
mammal	Acrobates pygmaeus	feathertail glider	Uncommon.
mammal	Antechinus subtropicus	subtropical antechinus	Limited distribution.
mammal	Phascogale tapoatafa	brush-tailed phascogale	Uncommon.
mammal	Planigale maculata	common planigale	Uncommon.
mammal	Sminthopsis murina	common dunnart	Uncommon.
mammal	Macropus dorsalis	black-striped wallaby	Uncommon.
mammal	Thylogale stigmatica	red-legged pademelon	Associated with rainforests. Limited distribution.
mammal	Pseudomys gracilicaudatus	eastern chestnut mouse	Uncommon.
mammal	Ornithorhynchus anatinus	platypus	Iconic species associated with good water quality.
mammal	Petaurus australis australis	yellow-bellied glider	Uncommon.
mammal	Petaurus norfolcensis	squirrel glider	Uncommon.
mammal	Trichosurus caninus	short-eared possum	Uncommon.

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Class	**Scientific Name**	**Common Name**	**Comments**
mammal macrobat	Nyctimene robinsoni	eastern tube-nosed bat	Uncommon.
mammal microbat	Mormopterus planiceps	eastern freetail bat	Uncommon.
mammal microbat	Kerivoula papuensis	golden-tipped bat	Uncommon.
mammal microbat	Myotis macropus	large-footed myotis	Uncommon.
mammal microbat	Nyctophilus bifax	northern long-eared bat	Uncommon.
mammal microbat	Nyctophilus gouldi	Gould's long-eared bat	Uncommon.
mammal microbat	Scoteanax rueppellii	greater broad-nosed bat	Uncommon.
mammal microbat	Vespadelus pumilus	eastern forest bat	Uncommon.
reptile	Chlamydosaurus kingii	frilled lizard	Uncommon. Southern edge of distribution.
reptile	Hypsilurus spinipes	southern angle-headed dragon	Uncommon. Associated with rainforests.
reptile	Cacophis krefftii	dwarf crowned snake	Uncommon.
reptile	Demansia vestigiata	black whip snake	Uncommon. Recovering population.
reptile	Hoplocephalus stephensii	Stephens' banded snake	Uncommon. Associated with rainforests.
reptile	Pseudechis guttatus	spotted black snake	Uncommon. Recovering population.
reptile	Simoselaps australis	coral snake	Uncommon.
reptile	Vermicella annulata	bandy-bandy	Uncommon.
reptile	Saltuarius swaini	leaf-tailed gecko	Associated with rainforests. Limited distribution.
reptile	Egernia frerei	major skink	Associated with rainforests. Limited distribution.
reptile	Egernia major	land mullet	Associated with rainforests. Limited distribution.
reptile	Eroticoscincus graciloides	elf skink	Uncommon.
reptile	Ophioscincus ophioscincus		Uncommon.
reptile	Saiphos equalis		Uncommon.
crustacean decapod	Euastacus sulcatus	Lamington Spiny Crayfish	Associated with mountain rainforests. Limited distribution.
insect	Tetragonula carbonaria	Social Stingless Bee	Uncommon. Essential ecosystem species.
insect	Tetragonula hockingsi	Social Stingless Bee	Uncommon. Essential ecosystem species.