



Environmental values and sustainable resource use

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Introduction

Purpose of the guideline

This guideline outlines the values and strategies for protecting the environment and optimising resource use in Priority Development Areas (PDAs) in Queensland. This guideline should be read in conjunction with the provisions of PDA development schemes, interim land use plans (ILUPs) and other relevant PDA guidelines.

A development scheme or ILUP may specify a different standard or specific response. Following consultation with the Minister for Economic Development Queensland (MEDQ) and other relevant parties as appropriate, an applicant for a development approval may propose alternative, innovative solutions which do not comply with the following requirements, but meet the PDA-wide criteria or related provisions of an ILUP.

The documents referenced in this guideline are the version current at the time a decision is made on a development application. The MEDQ may have regard to other documents in assessing development applications.

Development in PDAs is subject to the Environmental Protection Act 1994 and as such it should exercise a general environmental duty and avoid environmental harm as defined under that legislation. Provisions of the Nature Conservation Act 1992 and the Australian Government Environment Protection and Biodiversity Conservation Act 1999 also apply to PDAs in relation to the management of threatened species and communities.

While State Planning Policies (SPPs) under the Sustainable Planning Act 2009 do not bind development in PDAs they represent a reference point for the MEDQ to guide planning and management of issues that the state considers are important such as natural hazards, acid sulphate soils, and impacts on significant wetlands and listed species conservation.



Environmental values and strategies

The conservation and management of ecological processes, natural systems and cultural heritage retains and enhances habitats for flora and fauna, optimises air and water quality, promotes understanding of indigenous cultures and creates recreation opportunities for communities.

Ecological processes and natural systems

Values	Strategies	Resources and references
<p>1. Significant terrestrial biodiversity values.</p> <p>Areas of significant biodiversity value may include (but are not limited to):</p> <ul style="list-style-type: none"> » land mapped in the applicable PDA development scheme as having significant biodiversity values » mapped biodiversity corridors identified in the applicable PDA development scheme » other areas of significance identified in the applicable PDA development scheme » viable areas of remnant vegetation containing endangered regional ecosystems as defined in Appendix 1 » listed threatened species habitat. 	<p>Identify significant terrestrial biodiversity values within and adjoining the development area by undertaking:</p> <ul style="list-style-type: none"> » robust field surveys (appropriately timed and conducted for expected biodiversity) » desktop assessments using local, state and commonwealth environment databases and mapping searches. <p>Demonstrate how the development minimises impacts on significant biodiversity values by minimising vegetation clearing generally within the area and by specifically:</p> <ul style="list-style-type: none"> » retaining and enhancing areas of viable remnant vegetation containing endangered regional ecosystems as defined in Appendix 1 » avoiding, minimising or off-setting the clearing of non-viable remnant vegetation containing endangered regional ecosystems as defined in Appendix 1 » minimising the clearing of remnant and regulated regrowth vegetation within the area 	<ul style="list-style-type: none"> » Applicable development schemes » Applicable interim land use plans » Local government guidelines or planning scheme policies may identify a suitable methodology for conducting ecological surveys and reporting on ecological values. » Databases and mapping references include: <ul style="list-style-type: none"> » DNRM regional ecosystem mapping » DNRM regrowth vegetation mapping » property map of assessable vegetation register » Queensland government Environmental Offsets Policy and associated specific issues policies e.g. vegetation. » Environmental Management Plans, Vegetation and Fauna Management Plans or other management plans completed in accordance with the relevant local government authority guidelines or planning scheme policies. » Australian Standard (AS) 4970-2009 Protection of trees on development sites.

Values	Strategies	Resources and references
	<ul style="list-style-type: none"> » Providing adequate buffers between development and any identified significant biodiversity value within or adjoining the development site. » Providing management plans to reduce and control clearing and manage other development and construction impacts on the area. 	
2. Ecological connectivity	<ul style="list-style-type: none"> » Identify priority vegetation patches, fauna habitat features and fauna movement corridors in and beyond the application site through detailed site assessments completed in accordance with the relevant local government authority guidelines or planning scheme policies for ecological assessment. » Retain vegetation connections between priority vegetation patches, fauna habitat features and fauna linkages to ensure ecological connectivity is maintained or enhanced. » Minimise locating major infrastructure through identified corridor linkages. » Undertake strategic rehabilitation of degraded land where required to improve or create functioning corridors. 	<ul style="list-style-type: none"> » Relevant local government authority guidelines or planning scheme policies for ecological assessment. » Queensland Department of Transport and Main Roads- Fauna Sensitive Road Design Manual - Volume 2: Preferred Practices (for when infrastructure occurs within ecological corridors).

Values	Strategies	Resources and references
3. Sustainable landscaping practices	<ul style="list-style-type: none"> » Incorporate biodiversity friendly landscape principles and practices such as retaining habitat trees in road reserves and open space areas » Maximise use of locally occurring native species in landscaping » Identify opportunities for revegetation and rehabilitation along waterways and biodiversity corridors 	<ul style="list-style-type: none"> » Preferred local government species lists. » Applicable regional ecosystem or high value regrowth species descriptions.
4. Bushfire risk management	<ul style="list-style-type: none"> » Ensure significant biodiversity values are protected from exempt clearing by ensuring new built infrastructure is adequately set back from identified biodiversity areas. » Where a firebreak is required to protect new infrastructure ensure clearing associated with the firebreak is located external to significant biodiversity areas. <p>Note: Protection from bushfire is not considered suitable justification for impacts on significant biodiversity values.</p>	<ul style="list-style-type: none"> » EPBC Act fact sheet - Bushfire management and national environment law, Department of Sustainability, Environment, Water, Population and Communities. » State Planning Policy 1/03: Mitigating the adverse impacts of flood, bushfire and landslide.

Wetlands and waterways

Values	Strategies	Resources and references
1. Wetlands	<ul style="list-style-type: none"> » Identify and accurately map the extent of, and describe the values for, any identified wetlands of high ecological significance and referable wetlands. » Provide adequate buffers between development and wetlands that are in and adjacent to the PDA (where feasible incorporate low intensity land uses including open space, storm water treatment or fauna corridors within wetland buffers). » Where a wetland of high ecological significance occurs, a minimum buffer of 50 metres between the development proposal and the wetland is recommended. <p>Note: Trigger for assessment of wetland areas is where the stage of works occurs within 100m of the wetland area.</p>	<ul style="list-style-type: none"> » State Planning Policy 4/11 Guideline Protecting Wetlands of High Ecological Significance in Great Barrier Reef Catchments » State Planning Policy 4/10: Healthy Waters and associated Guideline. » Queensland Coastal Plan and Guidelines (DEHP). » WetlandInfo - wetland management resources (DEHP). » DEHP referable wetland mapping. » Aquatic Biodiversity Assessment and Mapping Method (AquaBAMM) - WetlandInfo (DEHP).

Values	Strategies	Resources and references
2. Waterways	<ul style="list-style-type: none"> » Identify and accurately map waterways in accordance with DEHP's stream order hierarchy (1-5). » Determine existing and proposed waterway values of site stream orders (eg. Intact remnant vegetation, riparian values, fauna connectivity, natural water quality function, watercourse stability). » Retain waterways in their undisturbed condition by minimising disturbance to natural drainage. Where this is not proposed provide a detailed waterway assessment report justifying encroachment or removal of waterway areas. » Provide adequate buffers between development and retained waterways to provide waterway protection including temperature, bank stability, light, aquatic habitat, terrestrial habitat. » Where waterways have been designated or identified to provide dual use (fauna corridor, open space connection, stormwater conveyance) provide additional buffer setbacks. 	<ul style="list-style-type: none"> » DEHP's Stream Order Hierarchy for mapping of waterways. » Stream Order Mapping of Waterways as depicted on High Value Regrowth Searches (Version 2 or greater). » Detailed site assessments completed in accordance with the relevant local government authority guidelines or planning scheme policies for ecological assessment. (Specific focus on waterway assessment).

Values	Strategies	Resources and references
<p>3. Water quality</p>	<ul style="list-style-type: none"> » Water discharge to on-site and adjacent water systems (freshwater, estuarine and marine) must meet water quality standards under current Queensland legislation. » Soil disturbance must be managed to avoid associated contaminants entering adjacent water systems. » Identify nutrient hazard areas and appropriately manage soil and groundwater disturbance to avoid or minimise nutrient mobilisation that may increase the risk of coastal algal blooms. » Avoid or minimise waste water discharge from the site in accordance with a waste water management plan prepared by a suitably qualified person. » Avoid areas with highly permeable soils or a high water table when locating waste disposal activities or facilities. » Provide adequate buffers for water quality between development and retained waterways. 	<ul style="list-style-type: none"> » State Planning Policy 4/10: Healthy Waters » State Planning Policy 2/02: Planning and Management Involving Acid Sulfate Soils » Queensland Acid Sulfate Soils Technical Manual: Soil Management Guidelines (DNRM) » Implementing Policies and Plans for Managing Nutrients of Concern for Coastal Algal Blooms in Queensland (Version 1.3)

Pollution sources and strategies

Optimisation of air, water and soil quality and management of thermal, noise and light pollution maintains and improves a community's quality of life and protects valuable natural resources.

Sources	Strategies	Resources and references
1. Site contamination	<ul style="list-style-type: none"> » Investigate land to identify any current/historical activities that have occurred that have the potential to cause contamination. » Investigate and remediate any identified contaminated land to ensure the site is fit for purpose. » Site contamination is required to be identified and assessed when considering land uses and precinct design. This applies specifically to land that is subject to notifiable activities or is listed on the Environmental Management Register (EMR) or the Contaminated Land Register (CLR) or is believed to be impacted by Unexploded Ordnance (UXO). 	<ul style="list-style-type: none"> » Environmental Protection Act 1994 » Draft Guidelines for the Assessment and Management of Contaminated Land 1998 (DOE) » Relevant guidelines and standards for the assessment and management of contaminated land » Department of Defence UXO register www.defence.gov.au/uxo
2. Noise	<ul style="list-style-type: none"> » Identify surrounding and/or internal land uses that have the potential to impact on the acoustic amenity of the development e.g. transport corridors, resource projects. » Manage sensitive land uses according to acceptable acoustic standards. 	<ul style="list-style-type: none"> » SPP 5/10: Air, Noise and Hazardous Materials » Environmental Protection (Noise) Policy 2008 » Queensland Development Code: Mandatory Part 4.4 - Buildings in transport noise corridors (DSDIP) » Road traffic noise management code of practice (DTMR) » AS 2021: 2000 Acoustics - Aircraft noise intrusion - Building siting and construction » Relevant local noise management criteria

Sources	Strategies	Resources and references
3. Air quality	<ul style="list-style-type: none"> » Identify surrounding land uses that have the potential to cause air quality impacts on the proposed development. » Manage land uses that may have an adverse air quality impact on development through appropriate site planning and design and according to acceptable standards. » Avoid or limit exposure and risk (to an accepted standard) associated with air pollutants that could have a potentially adverse effect on human health and adversely affect public amenity. » Ensure that applicable air quality standards are met. 	<ul style="list-style-type: none"> » State Planning Policy 5/10: Air, noise and hazardous materials » Environmental Protection (Air) Policy 2008 » Local government planning schemes (for surrounding land use zones)
4. Hazardous material	<ul style="list-style-type: none"> » Identify current/historical land uses that have the potential for hazardous materials to impact on the proposed development. Manage sensitive land uses in relation to hazardous industries according to acceptable standards. » Demonstrate the health and wellbeing of people in the encroaching communities is not adversely affected by adjacent industrial uses, if development is located closer than recommended separation distances in the state planning policy. 	<ul style="list-style-type: none"> » SPP 5/10: Air, Noise and Hazardous Materials » Dangerous Goods Safety Management Act 2001 » Dangerous Goods Safety Management Regulation 2001
5. Light	<ul style="list-style-type: none"> » Consider the impacts of light pollution through land use and urban design. » Avoid light pollution into ecologically sensitive areas or locate and orient lighting to minimise negative impacts on flora and fauna. » Ensure vertical illumination from permanent lighting measured at the boundary of an ecologically sensitive area is less than 1 lux. 	<ul style="list-style-type: none"> » Australian Standard AS-4282 1997 Control of the obtrusive effects of outdoor lighting provides guidance on the use of directional lighting

Sources	Strategies	Resources and references
6. Site management	<ul style="list-style-type: none"> » Prevention of erosion should be prioritised over control measures » Prepare for approval an erosion and sediment control plan that demonstrates release of sediment-laden water from the site is avoided during the construction and operation phases. <p>The erosion and sediment control plan should identify and manage impacts that may arise during civil works such as cutting and filling, vegetation clearing, road construction, stormwater works etc, and built form phase works involving construction of buildings on specific lots.</p> <ul style="list-style-type: none"> » The erosion and sediment control plan should identify and manage impacts that may arise during civil works such as cutting and filling, vegetation clearing, road construction, stormwater works etc. and built form phase works involving construction of buildings on specific lots. » Implement a waste management plan covering construction, operation and demolition which outlines specific measures to reduce waste generated and increase recycling of materials onsite. » Reduce waste to landfill to address Toward Q2 Carbon Target. » Demonstrate the efficient use of resources by reusing existing materials and using materials that minimise the development carbon footprint. 	<p>International Erosion Control Association (IECA) - Best Practice Erosion and Sediment Control</p> <p>Healthy Waterways, Water by Design, Erosion and Sediment Control Factsheets, http://waterbydesign.com.au/factsheets/</p> <p>Queensland waste reduction and recycling strategy 2010 - 2020(DERM)</p>

Climate change issues and strategies

A reduction in greenhouse gas emissions and building resilient communities can lessen the impacts from changes in the environment and natural disasters.

Issues	Strategies	Resources and references
Climate change resilience	<ul style="list-style-type: none"> » Locate and design infrastructure with regard to predicted sea level rise. » Incorporate design and construction elements that are responsive to changing climate that is likely to cause more intense storms, stronger winds, higher temperatures and sea level rise. » Retain and improve the extent of native vegetation and address other heat island management strategies in precinct and building design and construction. 	<ul style="list-style-type: none"> » Regional plans (DSDIP) » State Planning Policy 1/03: Mitigating the adverse impacts of flood, bushfire and landslide » State and regional coastal management plans » PDA Guideline no. 15 - Protection from flood and storm tide inundation
Greenhouse gas emission reduction	<ul style="list-style-type: none"> » Adopt subdivision and lot layouts that optimise solar orientation and natural ventilation. » Maximise opportunities for public and active transport use. » Use building design that encourages energy, water and materials conservation elements. » Use local and renewable energy sources where economically feasible and/or design buildings so that new technologies can be easily retrofitted. » Promote public transport systems that reduce dependence on private motor vehicles. 	<ul style="list-style-type: none"> » Regional plans (DSDIP) » Queensland Development Code MP 4.1 Sustainable Buildings

Natural resources strategies

Innovative approaches to efficient use and management of water, energy and materials acknowledges natural resources constraints and responds to changes in climatic conditions.

Resources	Strategies	Resources and references
Potable water	<ul style="list-style-type: none"> » Work with partners to implement Total Water Cycle Management principles to ensure the most effective and efficient use of water. » Develop and implement a water demand management plan that educates end users in reducing their water consumption. » Incorporate water efficient appliances and fittings into the design (minimum 4 star Water Efficiency Labelling and Standards (WELS) rating). 	<ul style="list-style-type: none"> » Healthy Waterways, Water by Design, Guidelines and Resources. » Queensland Development Code MP 4.2 » Queensland Development Code MP 4.3 (commercial buildings) » Water Efficiency Labelling and Standards (WELS) http://www.waterrating.gov.au
Recycled and re-used water	<ul style="list-style-type: none"> » Implement current best practice Water Sensitive Urban Design (WSUD) principles for Queensland. » Develop a site water management plan that considers a range of onsite water reuse strategies e.g. rainwater and stormwater harvesting, water recycling measures like home grey water or treated water from off-site sources such as treatment plants or sewer mining. 	<ul style="list-style-type: none"> » Healthy Waterways, Water by Design, Guidelines and Resources. » Queensland Development Code MP 4.2

Resources	Strategies	Resources and references
Energy	<ul style="list-style-type: none"> » Meet or exceed the regulated energy efficiency requirements for Queensland at the time of the development proposal. » Implement demand management strategies to shift energy loads to off-peak. » Maximise the passive thermal design of buildings to minimise use of artificial heating and cooling systems » Incorporate energy efficient plant and/or equipment. » Centrally locate internal services such as water where possible. » Maximise the use of natural light and energy efficient lighting. » Promote renewable energy and local or on-site energy generation. » Ensure development is able to be retrofitted with future demand management opportunities. » Promote energy efficient appliances and consider embedding peak saver appliances. 	<ul style="list-style-type: none"> » Queensland Development Code MP 4.1 Sustainable Buildings » Queensland Development Code Mandatory Part 4.1 - Sustainable buildings guideline: a guide to assist building industry professionals and homeowners comply with the sustainable buildings code » Air conditioner guide: a guide to assist with the design, installation and maintenance of air conditioners - Growth Management Queensland » NABERS or NatHERS energy rating systems » Relevant National Minimum Energy Performance Standards (MEPS)
Energy and water - heat island effects	<p>Development should incorporate heat island reduction strategies to minimise urban ambient temperature increases.</p> <p>Heat island reduction strategies include:</p> <ul style="list-style-type: none"> » retaining existing vegetation and/or increasing vegetation area throughout the development » providing street trees and pocket parks and promoting garden vegetation to provide shading to buildings and pavements » using building materials (particularly for roofs and pavements) with high reflectance and emissivity to reduce solar radiation absorption. 	<ul style="list-style-type: none"> » Reducing urban heat islands: a compendium of strategies (US Environmental Protection Agency)

Resources	Strategies	Resources and references
Sustainable building materials	Development should incorporate: <ul style="list-style-type: none"> » standardised materials » materials from certified sustainable and renewable resources e.g. ecospecifier, GECA » locally available materials where possible » materials manufactured in an environmentally responsible manner » non toxic and low volatile organic compound (VOC) and low emission products. » consider construction materials with low embodied energy. 	<ul style="list-style-type: none"> » Queensland Waste Reduction and Recycling Strategy 2010-2020 (DEHP)

Appendix 1:

Definitions

Remnant vegetation containing endangered regional ecosystems

Areas of remnant vegetation containing endangered regional ecosystems as shown on the regional ecosystem map prepared under the Vegetation Management Act 1999.

Confirmed areas of remnant vegetation containing endangered regional ecosystems

Areas of remnant vegetation containing endangered regional ecosystems as shown on the regional ecosystem map prepared under the Vegetation Management Act 1999 and confirmed by on-site investigations using a methodology accepted by the MEDQ.

Non viable areas of remnant vegetation containing endangered regional ecosystems

Areas of remnant vegetation containing endangered regional ecosystems as shown on the regional ecosystem map prepared under the Vegetation Management Act 1999 that:


- » are smaller than 5 hectares
- » are not connected to:
 - ⊘ other remnant or high value regrowth communities
 - ⊘ a watercourse or waterbody
 - ⊘ a mapped corridor within or external to the PDA (including state and local government corridor mapping)
- » are not confirmed endangered communities located within a:
 - ⊘ State or Regional Corridor
 - ⊘ Local Government Strategic Biodiversity Corridor
 - ⊘ Adjacent to a Protected Area Estate
- » has become, or is likely to become, isolated or fragmented as a result of the surrounding land use pattern; and
- » has greater than 50 per cent weed species through the understorey and ground layer.

Appendix 2:

Legislation applicable to development within a PDA

Legislation that remains applicable to development within a PDA includes:

- » Aboriginal Cultural Heritage Act 2003
- » Torres Strait Islander Cultural Heritage Act 2003
- » Environment Protection and Biodiversity Conservation Act 1999
- » Nature Conservation Act 1992
- » Wet Tropics World Heritage Protection and Management Act 1993
- » Marine Parks Act 2004 (for marine parks under this Act)
- » Great Barrier Reef Marine Park Act 1975
- » Nature Conservation Act 1992 (threatened species - endangered, vulnerable, near threatened - and threatened species habitat)
- » Building Act 1975



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