

Citation and commencement

This planning scheme may be cited as the Lockyer Valley Planning Scheme.

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The commencement date for the planning scheme was 22 July 2024.

Amendments to the planning scheme are included at Appendix 2.

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Part 1 About the planning scheme

1.1 Introduction

1. The Lockyer Valley Planning Scheme ('the planning scheme') has been prepared under the *Planning Act 2016* as a framework for managing development in a way that advances the purpose of the Act.
2. In seeking to achieve this purpose, the planning scheme sets out Lockyer Valley Regional Council's intention for the future development in the planning scheme area, over the next 15 years.
3. The planning scheme seeks to advance state and regional policies through more detailed local responses, considering the local context.
4. While the planning scheme has been prepared with a 15 year horizon, Council will review it continuously across the ten year period in accordance with the *Planning Act* to ensure that it responds to the changes of the community at a local, regional and state level.
5. The planning scheme applies to the local government area of Lockyer Valley Regional Council including all premises, roads and internal waterways and interrelates with the surrounding local government areas illustrated in Figure 1-1: Local government planning scheme area and context.

Editor's note—State legislation may state that the planning scheme does not apply to certain areas.

Figure 1-1: Local government planning scheme area and context



1.2 Planning scheme components

1. The planning scheme includes the following components:
 - a. Part 1 About the planning scheme (this part);
 - b. Part 2 State planning provisions;
 - c. Part 3 Strategic framework;
 - d. Part 4 Local government infrastructure plan;
 - e. Part 5 Tables of assessment;
 - f. Part 6 Zones including the following zones:
 - i. Community facilities zone;
 - ii. Conservation zone;
 - iii. Emerging community zone;
 - iv. Industry zone;
 - v. Limited development zone;
 - vi. Local centre zone;
 - vii. Low density residential zone;
 - viii. Low-medium density residential zone;
 - ix. Major centre zone;
 - x. Mixed use zone;
 - A. Highway precinct;
 - xi. Open space zone;

- xii. Principal centre zone;
 - xiii. Rural zone;
 - A. Tenthill Creek subdivision precinct;
 - xiv. Rural residential zone;
 - xv. Special industry zone;
 - xvi. Sport and recreation zone;
 - xvii. Township zone;
 - g. Part 7 Local Plans (there are no Local plans);
 - h. Part 8 Overlays including the following overlays:
 - i. Agricultural land overlay;
 - ii. Biodiversity overlay;
 - iii. Bushfire hazard overlay;
 - iv. Cultural heritage overlay;
 - v. Extractive resources overlay;
 - vi. Flood hazard overlay;
 - vii. Helidon management area overlay;
 - viii. Infrastructure overlay;
 - ix. Scenic landscape overlay;
 - x. Steep land overlay;
 - xi. Waterways and water resources overlay.
 - xii. the following information overlays:
 - A. High risk soils — information overlay;
 - B. Transport noise corridor — information overlay;
 - C. Road hierarchy — information overlay.
 - i. Part 9 Development Codes including the following use and works codes:
 - i. Commercial activities code;
 - ii. Community and recreation activities code;
 - iii. Dwelling house code;
 - iv. Extractive industry code;
 - v. Home-based business code;
 - vi. Industry activities code;
 - vii. Market code;
 - viii. Medium density residential uses code;
 - ix. Outstation code;
 - x. Renewable energy facility code;
 - xi. Retirement and Residential care facility code;
 - xii. Roadside stall code;
 - xiii. Rural uses code;
 - xiv. Sales office code;
 - xv. Service station and Car wash code;
 - xvi. Telecommunications facility code;
 - xvii. Tourism uses code;
 - xviii. Workers' accommodation code;
 - xix. Advertising devices code;
 - xx. Building design code;
 - xxi. Earthworks, filling and excavation code;
 - xxii. Environment and amenity code;
 - xxiii. Infrastructure and services code;
 - xxiv. Landscaping code;
 - xxv. Stormwater management code;
 - xxvi. Transport, access and parking code;
 - xxvii. Reconfiguring a lot code;
 - j. Part 10 Other plans (there are no Other plans);
 - k. Schedules and appendices;
2. The following planning scheme policies support the planning scheme:
- a. 1 Biodiversity;
 - b. 2 Bushfire management plans;
 - c. 3 Cultural heritage;
 - d. 4 Flood hazard;
 - e. 5 Geotechnical assessment;
 - f. 6 Infrastructure design;
 - g. 7 Landscaping;
 - h. 8 Scenic landscape assessment;
 - i. 9 Stormwater management;
 - j. 10 Transport assessment.

1.3 Interpretation

1.3.1 Definitions

1. A term used in the planning scheme has the meaning assigned to that term by one of the following:
 - a. the *Planning Act*;
 - b. the *Planning Regulation*;
 - c. the definitions in schedule 1 of the planning scheme;
 - d. the *Acts Interpretation Act*; or
 - e. the ordinary meaning where that term is not defined in subparagraph a. to d. above.
2. In the event a term has been assigned a meaning in more than one of the instruments listed in sub-section 1.3.1(1), the meaning contained in the instrument highest on the list will prevail.
3. A reference in the planning scheme to any act includes any regulation or instrument made under it and where amended or replaced, if the context permits, means the amended or replaced act.
4. A reference in the planning scheme to a specific resource document or standard means the latest version of the resource document or standard.
5. A reference to a part, section, table or schedule is a reference to a part, section, table or schedule of the planning scheme.
6. A reference to a term listed in the legend of a map in schedule 2 Planning Scheme Maps is reference to the term and the relevant mapped areas for the purpose of the planning scheme.

Editor's note—Under section 16(3) of the Planning Act, the regulated requirements apply to this planning scheme to the extent of any inconsistency with the definitions in the planning scheme.

1.3.2 Standard drawings, maps, notes, editor's notes and footnotes

1. Standard drawings contained in codes or schedules are part of the planning scheme.
2. Photographic images, unless specifically referenced, are provided for illustrative purposes only and do not represent policy or a desired outcome of the planning scheme.
3. Maps provide information to support the outcomes and are part of the planning scheme.
4. Notes are identified by the title 'note' and are part of the planning scheme.
5. Editor's notes and footnotes are extrinsic material, as specified in the *Acts Interpretation Act* and are identified by the title 'editor's note' and 'footnote'. Editor's notes and footnotes are provided to assist in the interpretation of the planning scheme; they do not have the force of law.

Note—This is an example of a note.

Editor's note—This is an example of an editor's note.

Footnote¹—See example at bottom of page.

1.3.3 Punctuation

1. A word followed by ';' or 'and' is considered to be 'and'.
2. A word followed by ';' or 'or' means either or both options can apply.

1.3.4 Zones for roads, closed roads, waterways and reclaimed land

1. The following applies to a road, closed road, waterway or reclaimed land in the planning scheme area:
 - a. if adjoined on both sides by land in the same zone—the road, closed road, waterway or reclaimed land is in the same zone as the adjoining land;
 - b. if adjoined on one side by land in a zone and adjoined on the other side by land in another zone—the road, closed road, waterway or reclaimed land is in the same zone as the adjoining land when measured from a point equidistant from the adjoining boundaries;
 - c. if the road, closed road, waterway or reclaimed land is adjoined on one side only by land in a zone—the entire waterway or reclaimed land is in the same zone as the adjoining land;
 - d. if the road, closed road, waterway or reclaimed land is covered by a zone then that zone applies.

Editor's note—The boundaries of the local government area are described by the maps referred to in the Local Government Regulation.

1.4 Categories of development

1. The categories of development under the *Planning Act* are:
 - a. accepted development;

Editor's note—A development permit is not required for development that is accepted development. Under section 44(6)(a) of the Planning Act, if the planning scheme does not apply a category of development to a particular development, the development is accepted development. Schedule 7 of the Planning Regulation also prescribes accepted development.

- b. assessable development:
 - i. code assessment;
 - ii. impact assessment;

Editor's note—A development permit is required for assessable development. Schedules 9, 10 and 12 of the Planning Regulation also prescribe assessable development.

- c. prohibited development.

Editor's note—A development application may not be made for prohibited development. Schedule 10 of the Planning Regulation prescribes prohibited development.

2. The planning scheme states the category of development for certain types of development and specifies the category of assessment for assessable development in the planning scheme area in Part 5 Tables of Assessment.

Editor's note—Section 43 of the Act identifies that a categorising instrument categories development and specifies categories of assessment and may be a regulation or local categorising instrument. A local categorising instrument includes a planning scheme, a temporary local planning instrument or a variation approval.

1.5 Hierarchy of assessment benchmarks

1. Where there is inconsistency between provisions in the planning scheme, the following rules apply:
 - a. the relevant assessment benchmarks specified in the *Planning Regulation* prevail over the planning scheme to the extent of any inconsistency.
 - b. the strategic framework prevails over all other components to the extent of the inconsistency for impact assessment;
 - c. the relevant codes specified in schedules 6 and 10 of the *Planning Regulation* prevails over all other components to the extent of the inconsistency;
 - d. overlays prevail over all other components (other than the matters mentioned in b. and c.) to the extent of the inconsistency;
 - e. zone codes prevail over use codes, works codes and other development codes to the extent of the inconsistency;
 - f. notwithstanding a. to e. where the meaning between a provision in a development code, zone or overlay code, the provision requiring the highest standard prevails (e.g. the furthest setback distance);
 - g. any assessment benchmark in Part 10 Other plans may override any of the above.

1.6 Building work regulated under the planning scheme

1. Section 8(5) of the *Planning Act* states that a local planning instrument must not include provisions about Building work to the extent the Building work is regulated under the building assessment provisions, unless allowed under the *Building Act*.
2. The building assessment provisions are listed in section 30 of the *Building Act*.

Editor's note—The building assessment provisions are stated in section 30 of the Building Act and are assessment benchmarks for the carrying out of building assessment work or Building work that is accepted development subject to any requirements (see also section 31 of the Building Act).

3. This planning scheme, through Part 5 Tables of Assessment, regulates Building work under sections 32 and 33 of the *Building Act*.

Editor's note—The Building Act permits planning schemes to:

- regulate, for the mandatory provisions in the National Construction Code (NCC) series Building Code of Australia (BCA) or the Queensland Development Code (QDC), matters prescribed under section 32. These include variations to provisions contained in parts MP 1.1, MP 1.2 and MP 1.3 of the QDC such as heights of buildings related to obstruction and overshadowing, siting and design of buildings to provide visual privacy and adequate sight lines, on-site parking and outdoor living spaces. It may also regulate other matters, such as designating land liable to flooding, designating land as bushfire prone areas and transport noise corridors;
- deal with an aspect of, or matter related or incidental to, Building work prescribed under a regulation under section 32 of the Building Act;

- specify alternative boundary clearances and site cover provisions for Class 1 and 10 structures under section 33 of the *Building Act*. Refer to schedule 10 of the *Regulation* to identify assessable development, the type of assessment and any referrals applying to the *Building work*.

4. The building assessment provisions are contained in the parts and sections of this planning scheme identified in Table 1.6-1: Building assessment provisions in the planning scheme for an assessment manager.

Table 1.6-1: Building assessment provisions in the planning scheme for an assessment manager

COLUMN 1 CATEGORIES OF ASSESSMENT AND/OR CODE	COLUMN 2 DESCRIPTION AND REGULATION	COLUMN 3 BUILDING ASSESSMENT PROVISIONS OF THE PLANNING SCHEME
Bushfire hazard	Designated bushfire prone areas for the NCC and QDC under section 32 of the <i>Building Act</i> , section 32 of the <i>Building Regulation</i> and the NCC. For the purposes of section 7 of the <i>Building Regulation</i> the date of designation is the date of commencement of this planning scheme unless otherwise stated on the map.	section 8.4 Bushfire hazard overlay code including land identified in the following sub-categories on OM4 Bushfire hazard overlay, bushfire prone areas: a. Very high potential bushfire intensity; b. High potential bushfire intensity; c. Medium potential bushfire intensity; d. Potential bushfire impact buffer.
Dwelling house	Alternative to the QDC parts MP 1.1 and MP 1.2 under section 32 and 33 of the <i>Building Act</i> including Boundary clearance provisions (Performance criteria 1 and 2).	section 9.3.3 Dwelling house code, Performance Outcome 3.
Dwelling house	Alternative to the QDC parts MP 1.1 and MP 1.2 under section 32 and 33 of the <i>Building Act</i> including Site cover provisions (Performance criteria 3).	
Dwelling house	Alternative to the QDC parts MP 1.1 and MP 1.2 under section 32 and 33 of the <i>Building Act</i> and section 6 of the <i>Building Regulation</i> including Building and structure heights (Performance criteria 4).	section 9.3.3 Dwelling house code, Performance Outcome 2.
Dwelling house	Alternative to the QDC parts MP 1.1 and MP 1.2 under section 32 and 33 of the <i>Building Act</i> and section 6 of the <i>Building Regulation</i> including On-site car parking (Performance criteria 8).	section 9.3.3 Dwelling house code, Performance Outcome 8.
Designated Local Government Area, QDC MP 4.1 Sustainable Buildings	Designate the entire Lockyer Valley Region for the QDC parts MP 4.1 Sustainable Buildings as a Designated local government area.	Not applicable

Note—Building development applications in a ‘designated bushfire prone area’ are required to meet the mandatory bushfire provisions in the NCC series BCA and in AS.3959 Construction of buildings in bushfire prone areas. Bushfire protection provisions in the NCC apply to Class 1, 2 and 3 residential buildings and accommodation buildings and associated Class 10a structures such as garages, sheds and carports, and from the commencement of NCC on 1 May 2022 certain class 9 buildings.

Note—The NCC performance requirement is that ‘a building that is constructed in a ‘designated bushfire prone area’, must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by bushfire; and intensity of the bushfire attack on the building. The NCC performance requirement is deemed to be met where the building complies with AS.3959 Construction of buildings in bushfire prone areas and / or National Association of Steel-framed Housing (NASH) Standard for Steel Framed Construction in Bushfire Areas. AS.3959 Construction of buildings in bushfire prone areas contains provisions which can be used in construction to resist bushfires, to reduce the risk to life and minimise the risk of property loss. These provisions include requirements for burning debris and ember protection, controls on the combustibility of exterior material, and the protection of openings, such as windows and doors.

Note—A local planning instrument cannot otherwise deal with building matters covered by AS.3959 Construction of buildings in bushfire prone areas.

Editor’s note—A decision in relation to Building work that is assessable development under the planning scheme should only be issued as a preliminary approval. See section 83(1)(b) of the Building Act.

Editor’s note—In a development application, the applicant may request a preliminary approval for Building work. The decision on that development application can also be taken to be a referral agency’s response under section 56 of the Act, for Building work assessable against the Building Act. The decision notice must state this.

Note—The provisions identified in Table 1.6.1—Building assessment provisions in the planning scheme are limited to those referenced in section 30(1)(f) of the Building Act, being provisions made under sections 32 and 33 of the Building Act. The planning scheme contains other provisions which apply to Building work, for example:

- a. 8.5 Cultural heritage overlay code, under Part 5—Tables of Assessment, applies to Building work on a Local heritage place mapped on OM5 Cultural heritage overlay. Refer to section 5.10 Categories of development and assessment - Overlays which identifies when a code assessable development application is to be made to the local government for assessment against section 8.5 Cultural heritage overlay code, is required for Building work on a Local heritage place;
- b. OM14 Transport noise corridor overlay, shows the transport noise corridors designated under section 246X of the Building Act and referred to in QDC MP4.4 Building in a transport noise corridor applies to Building work in the designated locations.

1.7 Local government administrative matters

1.7.1 Notation of decisions affecting the Planning Scheme s 89 of the Planning Act

1. Schedule 4, section SC4.1 notes decisions affecting the planning scheme under section 89 of the *Planning Act*. For the purpose of section 89(1)(a) (approvals that are substantially inconsistent with the planning scheme), notation of the development approval will be included if the development conflicts with overall outcomes or purpose of the applicable code/s.

1.7.2 Temporary uses

Note—For this section, the following terms and expressions have the meaning ascribed to them in Council’s local laws and subordinate local laws:

- a. prescribed activity;
- b. “establishment or occupation of a temporary home”;
- c. “commercial use of local government controlled areas and roads”;
- d. “operation of temporary entertainment events”;
- e. “undertaking regulated activities on local government controlled areas and roads”;
- f. road;
- g. entertainment event;
- h. public place activity.

1. A temporary use may not constitute a material change of use under the Act if the temporary use does not:
 - a. include any permanent or continuing activities; or
 - b. require works such as vegetation clearing or other Operational work; or
 - c. require construction of permanent buildings or structures.
2. Where consistent with the “requirements for temporary use” in Table 1.7-1 Temporary uses, a development approval is not required as the temporary use does not constitute development under the Act.

Editor’s note—Temporary uses may be subject to other requirements, standards and approvals specified in local or State laws. Compliance with the requirements of the planning scheme does not, on its own, provide authorization for a temporary use to be conducted. Potential operators should contact Council for further details.

Table 1.7-1: Temporary uses

COLUMN 1 USE	COLUMN 2 REQUIREMENTS FOR TEMPORARY USE
Bar Food and drink outlet Hotel	Where footpath dining on a paved footpath and: <ul style="list-style-type: none"> a. operated from an adjoining, lawfully operated Bar, Food and drink outlet or Hotel; b. tables, chairs, other furniture and advertising devices are not fixed to the footpath; c. are only located on the footpath during the operating hours of the adjoining Bar, Food and drink outlet or Hotel; d. all other relevant approvals and licences are obtained, e.g. approval under the local law, licence under the <i>Food Act</i>, licence under the <i>Liquor Act</i>.
Car wash	Where: <ul style="list-style-type: none"> a. a manual Car wash;

	b. for no more than 1 day every 3 months.
Function facility	Where: a. no more than 2 days each week and no more than 12 days each calendar year whichever is less; or b. on land owned by Council or land where Council is trustee and undertaken on Council land under a local law approval for the prescribed activity, "operation of temporary entertainment events" (e.g. Park weddings).
Garden centre	Where: a. located in the Community facilities zone, Local centre zone, Major centre zone, Principal centre zone, Open space zone, Sport and recreation zone or Township zone; b. for no more than 12 days each calendar year.
Food and Drink outlet	Where an itinerant vendor and for no more than 2 days each week and no more than 12 days each calendar year, whichever is less.
Indoor sport and recreation	Where on land owned by Council or land where Council is trustee and undertaken under a local law approval for the prescribed activity, "operation of temporary entertainment events".
Market	Where: a. on land owned by Council or land where Council is trustee; b. a maximum of 14 days a year; c. undertaken under a local law approval for any of the following prescribed activities: i. "commercial use of local government controlled areas and roads" as itinerant vending, display of goods or sale of goods; or ii. "operation of temporary entertainment events"; or iii. "undertaking regulated activities on local government controlled areas and roads" in the form of a public place activity.
Nature-based tourism	Where: a. located in the Open space zone or Rural zone; b. for no more than 14 days in a 12 month period; c. at least 250m from a Dwelling house on an adjacent premises.
Nightclub entertainment facility	Where: a. located on premises in the Sport and recreation zone or Rural zone; b. for no more than 2 days each calendar year. OR Where on land owned by Council or land where Council is trustee and undertaken under a local law approval for the prescribed activity, "operation of temporary entertainment events".
Outdoor sales	Where: a. located in the Community facilities zone, Local centre zone, Major centre zone, Open space zone, Principal centre zone, Sport and recreation zone or Township zone; b. for no more than 14 days in a 12 month period.
Outdoor sport and recreation	a. Where on land owned by Council or land where Council is trustee and undertaken under a local law approval for the prescribed activity, "operation of temporary entertainment events" (e.g. Rodeo). b. Where: i. conducted on a site in the Rural zone; ii. involving hang gliding or mountain biking; iii. for no more than 4 days in a 12 month period. c. Where: i. located in the Community facilities zone, Local centre zone, Major centre zone, Open space zone, Principal centre zone, Sport and recreation zone or Township zone; ii. for no more than 1 day each week.
Parking station	Where: a. located in the Community facilities zone, Local centre zone, Major centre zone, Open space zone, Principal centre zone, Sport and recreation zone or Township zone; b. for no more than 14 days in a 12 month period.
Place of worship	Where: a. located in the Community facilities zone, Local centre zone, Major centre zone, Open space zone, Principal centre zone, Sport and recreation zone, Industry zone or Township zone; b. for no more than 14 days in a 12 month period.
Theatre	Where outdoor film production for no more than six months.
Tourist park	Where: a. located in the Rural zone;

	<ul style="list-style-type: none">b. for no more than 20 people;c. for no more than 14 days in a 12 month period;d. the camp sites are located more than 250m from a Dwelling house on adjacent premises.
Tourist attraction	Where a temporary entertainment event (e.g. a circus) and for no more than 14 days a year.

1 This is an example of a footnote.

Part 2 State planning provisions

2.1 State planning policy

1. The Minister has identified that the State planning policy is integrated in the planning scheme in the following ways:
 - a. State interests in the State planning policy are integrated:
 - i. Guiding principles;
 - ii. Liveable communities and housing:
 - A. Housing supply and diversity;
 - B. Liveable communities;
 - iii. Economic growth:
 - A. Agriculture;
 - B. Development and construction;
 - C. Mining and extractive resources;
 - D. Tourism;
 - iv. Environment and heritage:
 - A. Biodiversity;
 - B. Cultural heritage;
 - C. Water quality;
 - v. Safety and resilience to hazards:
 - A. Emissions and hazardous activities;
 - B. Natural hazards, risk and resilience;
 - vi. Infrastructure:
 - A. Energy and water supply;
 - B. Infrastructure integration;
 - C. Transport infrastructure.
 - b. State interests in the State planning policy not relevant to Lockyer Valley Region:
 - i. Environment and heritage:
 - A. Coastal environment.
 - ii. Infrastructure:
 - A. Strategic airports and aviation facilities;
 - B. Strategic ports.
 - c. State interests in the State planning policy not integrated:
 - i. Nil

Editor's note—Under section 8(4)(a) of the Planning Act the State planning policy applies to the extent of any inconsistency.

2.2 Regional plan

1. The Minister has identified that the planning scheme, specifically the strategic framework, advances the ShapingSEQ: South East Queensland Regional Plan, as it applies in the planning scheme area.

2.3 Referral agency delegations

1. Schedules 9 and 10 of the *Planning Regulation* identifies referral agencies for certain aspects of development. The following referral agencies have delegated the following referral agency jurisdictions to Lockyer Valley Regional Council.

Table 2.3-1: Delegated referral agency jurisdictions

COLUMN 1 APPLICATION INVOLVING	COLUMN 2 REFERRAL AGENCY AND TYPE	COLUMN 3 REFERRAL JURISDICTION
Nil	Nil	Nil

Editor's note—For the above listed referral agency delegations the applicant is not required to refer the application to 'the entity' listed under schedule 9 and 10 of the Planning Regulation because the local government will undertake this assessment role.

2.4 Regulated requirements

1. The following regulated requirements prescribed in the *Planning Regulation* are reflected in the planning scheme:
 - a. Zones, purpose statements and RGB colours for zones stated in schedule 2 of the *Planning Regulation*;
 - b. Use terms stated in schedule 3, column 1 of the *Planning Regulation*;

c. Administrative terms in schedule 4 of the *Planning Regulation*.

Editor's note—Section 16(3) of the Planning Act states that the content prescribed by the Planning Regulation prevails over a local planning instrument, to the extent of any inconsistency.

Editor's note—Under section 8(2) of the Planning Regulation, a planning scheme may include an administrative term, other than a term in schedule 4 of the Planning Regulation, only if the term is consistent with and does not change the effect of:

- a. the administrative terms in schedule 4, column 1; and***
- b. the definitions of those terms stated in schedule 4, column 2.***

Part 3 Strategic Framework

3.1 Preliminary

1. The strategic framework sets the policy direction for the planning scheme and forms the basis for ensuring suitable development occurs in the planning scheme area for the life of the planning scheme.
2. Maps for the strategic framework are included in schedule 2 Planning Scheme Maps.
3. To describe the policy direction for the planning scheme, the strategic framework is structured in the following way:
 - a. Strategic Intent;
 - b. The five themes that collectively achieve the Strategic Intent, being:
 - i. Growing communities;
 - ii. Prosperous economy;
 - iii. Connecting infrastructure;
 - iv. Sustaining the natural environment;
 - v. Living in a great place.
4. The five themes are divided into elements that refine and further describe the context and strategic outcomes for each theme.
5. Each element has a strategic goal and strategic outcomes. Some elements have outcomes that include land use or development strategies that are related to the element's goal. Inconsistency with the land use or development strategies under each element is inconsistency with the element.
6. The following strategic framework maps reflect the themes:
 - a. Strategic Framework Map SFM1 Growing communities;
 - b. Strategic Framework Map SFM2 Prosperous economy;
 - c. Strategic Framework Map SFM3 Connecting infrastructure;
 - d. Strategic Framework Map SFM4A Sustaining the natural environment - Habitat;
 - e. Strategic Framework Map SFM4B Sustaining the natural environment - Landscape;
 - f. Strategic Framework Map SFM5 Living in a great place.
7. The strategic framework in its entirety is the policy intent for the planning scheme and must be read in its entirety as the policy direction for the planning scheme.
8. The strategic outcomes and the land use strategies progress the regional goals, elements and strategies of ShapingSEQ: South East Queensland Regional Plan and are the local expression of the relevant State interests identified in the State planning policy.

3.1.1 Strategic vision

1. The planning scheme carries forward the vision of the *Community Plan 2017-2027* and looks towards 2041.

3.1.1.1 The Lockyer Valley - Who are we?

1. Building on its natural qualities, rich agricultural history, growing centres and picturesque settlements nestled throughout the 2,272 square kilometres of abundant land, the Lockyer Valley is the region of choice in 2041 and home to a diverse population of almost 60,000. The unique characteristics of each of our historic settlements, townships and centres are celebrated, new development enhances the liveability and amenity of the region, and our natural environment is protected and enhanced to provide a scenic, healthy and safe place to live, work and play. Growth through new development has occurred with consideration of the natural hazards and constraints that exist in our distinct part of the world.
2. Residential growth and the provision of services and industry have occurred in the principal centre of Gatton, and the major centre of Plainland continues to emerge as an important hub for the region, accommodating large scale employment, health and retail precincts alongside a variety of education choices and family friendly neighbourhoods.
3. The local centres of Laidley and Withcott have grown through well managed residential development and are home to diverse communities who enjoy a robust community spirit. The communities of Forest Hill, Grantham, Helidon and Murphy's Creek continue to support and service the surrounding agricultural areas and celebrate the heritage and resilience they are known for.
4. Lockyer Valley residents enjoy a community that is supported throughout all of life's stages and well serviced by connection to business, industry, government, culture and the environment. Our healthy community enjoys a variety of leisure activities and sports in a range of well-maintained parks, open spaces and purpose-built facilities.
5. The Valley's rich agricultural history is preserved and bursting with innovation, technology and connectivity built on a foundation of business confidence and collaborative partnerships. Our deep association with agriculture, food production and the natural environment ensures strong visitation from outside the region to enjoy our unique range of tourism, accommodation and event options.

3.1.2 Strategic intent

1. The Lockyer Valley Regional Council acknowledges the traditional owners of the land within the local government area being the Yuggera Ugarapul (Yugera) people.
2. The Lockyer Valley Regional Council acknowledges the importance of its economy, community and natural values as equally important to its liveability and prosperity.
3. Growth in the Lockyer Valley is about identifying a long-term sustainable pattern of development that focuses growth in urban areas, locating people and jobs closer together and moving people and goods more efficiently and reliably.
4. The Lockyer Valley supports strong rural communities and economic diversification and using our natural assets and advantages to harness our economic strengths to compete locally and globally.
5. The Lockyer Valley values, protects and manages our natural environment, productive land, resources, landscapes and cultural heritage to support growth, our economic future, and environmental sustainability and biodiversity.
6. The Lockyer Valley values design that embraces the climate to create high quality living environments that are also vibrant and sustainable.
7. The Lockyer Valley is a 'valley of places'. At the heart of these places is a strong connection to the land and natural assets and resources which support:
 - a. growing our community;
 - b. a prosperous economy;
 - c. connecting infrastructure to places;
 - d. sustaining and protecting the natural environment; and
 - e. creating a great place to live.
8. The Lockyer Valley continues to be significant rural area of South East Queensland with a network of towns and existing rural residential areas.
9. The Lockyer Valley's economy continues to grow, building on its agricultural traditions whilst also diversifying and responding to wider economic changes.
10. The Lockyer Valley's rural industries' productivity and diversity is increased and improved without adversely affecting natural and urban areas that accommodates future population and employment growth.
11. Communities and residents live and work in diverse rural and urban settings with access to affordable, attractive housing that is serviced by infrastructure and facilities they need.

3.1.3 Achieving the strategic intent

1. The strategic intent and the other components of the strategic framework seek to deliver the best possible outcomes for the Lockyer Valley for both existing and future generations.
2. Council will work in partnership with the community, business and industry and other levels of government to deliver the strategic intent to manage growth, promote economic development, provide much needed infrastructure, build community cohesion and resilience and protect and improve our natural assets.
3. However, the planning scheme is only one of a range of tools available to Council and the community to achieve the vision for the Lockyer Valley. The Council's Corporate Plan specifies several Council programs that contribute to achieving this vision.

3.2 Theme 1 - Growing communities

1. The Growing communities theme identifies strategic outcomes related to the following:
 - a. Growth management;
 - b. Housing choice;
 - c. Local land use response;
 - i. Rural areas;
 - A. Rural hamlets;
 - B. Rural townships;
 - ii. Rural residential areas;
 - iii. Urban areas;
 - A. Urban centres;
 - B. Urban towns;
 - d. Residential density;
 - e. Emerging community areas;
 - f. Urban localities;
 - i. Gatton;
 - ii. Grantham;
 - iii. Helidon;
 - iv. Laidley;
 - v. Plainland;
 - vi. Withcott.
2. The Strategic Framework Map (SFM) 1 Growing communities identifies elements of the strategic framework relevant to the Growing communities theme.

3.2.1 Element 1 – Growth management

Urban and rural residential development is limited to land within the defined local boundaries mapped on Strategic Framework Map SFM1 Growing Communities and in further detail on the zoning maps.

1. The pattern, form and structure of settlements are consistent with the land use categories and defined urban area boundaries mapped on Strategic Framework Map SFM1 Growing communities.
 2. Development in Urban areas and Rural residential areas mapped on Strategic Framework Map SFM1 Growing Communities is provided where it:
 - a. avoids negative effects on matters of environmental significance, ecological connectivity, natural waterways, wetlands and waterbodies. Where impacts cannot be avoided, they are minimised and mitigated;
 - b. protects natural resources including Agricultural Land Classification (ALC) Class A and Class B, drinking water resource catchments associated with Atkinson Dam, Bill Gunn Dam and Clarendon Dam, Important agricultural areas, rural land (in general), extractive resources and mineral resources;
- Editor's note—For the purposes of this planning scheme the land known as Agricultural Land Classification (ALC) Class A and Class B soils is abbreviated to ALC Class A & B soils.***
- c. avoids areas of high and extreme risk hazards and mitigates natural hazard risks to an acceptable level;
 - d. maintains the largest possible area of land for rural, landscape and environmental protection purposes;
 - e. protects the discrete identities of individual places and communities; and
 - f. maximises opportunities for the cost and land efficient delivery of infrastructure and services.
 3. Residential development is accommodated in the Urban areas on Strategic Framework Map SFM1 Growing Communities. Medium density forms of residential development may occur in Urban areas only in well-served locations and where it is in low concentrations and on sites where it maintains the character and amenity of surrounding residential areas.
 4. New urban communities may occur in those locations identified as Emerging community areas on Strategic Framework Map SFM1 Growing communities where:
 - a. they are not premature;
 - b. consistent with section 3.2.5 Element 5 — Emerging community areas;
 - c. impacts to matters of environmental significance can be avoided or if avoidance is not possible, impacts are minimised or mitigated.
 5. Rural residential development only occurs in Rural residential areas, or in Urban areas where it can be demonstrated that the land is unsuitable for urban purposes.
 6. In Rural areas, lands are maintained and improved for their rural, agricultural, landscape and biodiversity values.
 7. Development and growth will be sensitively planned and well-designed so it integrates with existing local character and identity.

3.2.2 Element 2 – Housing choice

An increase in housing choice is provided through a comprehensive mix of accommodation types and densities in well-serviced locations that are responsive to the diverse needs of the Lockyer Valley community.

1. A diverse and attractive range of housing and living opportunities is spread throughout Urban areas and includes accommodation types for key workers, low-income earners and the elderly. A proportion of new developments may comprise of smaller dwellings located close to activity centres, with ease of access to community facilities, services, public and active transport networks.
2. Housing choice:
 - a. meets the changing make-up of our population, community needs and lifestyles;
 - b. is increased by delivering a mix of lot sizes, dwelling types and sizes in higher density development;
 - c. meets the needs of residents through innovative and adaptable design solutions;
 - d. caters for a diverse range of communities including ageing populations, multi-generational families, group housing, people with special needs and those from distinct cultural experiences.
3. Neighbourhoods of established permanent housing are protected and managed from short term visitor accommodation that would affect amenity enjoyed by residents, however residents may share their home with guests in a well-managed fashion to limit potential impacts.
4. Housing for workers that supports rural industries or infrastructure projects is located close to the operations that they support without adversely affecting existing employment, industry and rural operations, transport, services, the community and infrastructure.
5. Federal and State Government and community based not-for-profit entities delivering a diverse and comprehensive range of social and affordable housing options are supported and encouraged.

3.2.3 Element 3 – Local land use response

The number of people who work, live and recreate in the region increases while the region remains a valley, where the character and identity of each community is recognised and protected by the individual strategies.

1. Specific localities identified in Table 3.2-1: Description of Localities are recognised and protected for their overarching purpose.

Table 3.2-1: Description of localities

URBAN AREAS	LOCATION
<p>Urban centres</p> <p>Urban centres offer a range of lifestyles with higher order levels of access to employment, infrastructure and services with a strong affinity with community and high tourism visitation. These areas form the growth centres of the Lockyer Valley and are intended for expansion and consolidation. The Principal centre of Gatton forms the highest order centre.</p>	Gatton, Plainland
<p>Urban towns</p> <p>Urban towns offer a range of lifestyles with moderate levels of access to employment, infrastructure and services and a strong affinity with community and rural areas. These towns also often have medium to high tourism visitation values. Consolidation of established areas is expected. Growth is limited by topography, natural hazards, environmental and scenic values.</p>	Grantham, Helidon, Laidley, Withcott
RURAL AREAS	LOCATION
<p>Rural townships</p> <p>Rural townships offer a range of lifestyles with moderate to very low levels of access to employment, infrastructure and services and a strong affinity with the rural areas and natural environment. These towns have unique tourism and visitation values. Townships are the higher hubs in the order of rural centres but are supported by higher urban hubs. Rural townships are not expected to expand beyond their current boundaries. Growth is limited by topography, natural hazards, environmental and scenic values. Any growth is expected to be consolidated within Rural townships.</p>	Glenore Grove, Forest Hill, Ma Ma Creek, Murphy's Creek
<p>Rural hamlets</p>	Blenheim, Caffey, Kentville,

Rural hamlets provide for rural and community support in a way that has changed little in the last 25 years or more. Rural hamlets are remote locations that service a community or convenience function and are the lowest order of rural centres. Rural hamlets may grow through consolidation but not beyond their existing limits.	Lake Clarendon, Lockrose, Mount Sylvia, Mount Whitestone, Mulgowie, Thornton, Upper Tenthill, Veradilla
RURAL RESIDENTIAL AREAS	LOCATION
<p>Rural residential areas</p> <p>Rural residential areas fulfil the dormitory function of rural areas and are not intended to expand. Historically, rural residential areas have been built around historical rural hamlets in the greater Lower Lockyer Rural Residential area. Rural residential areas service a community or convenience function.</p>	<p>Adare, Blanchview, Brightview, Forest Hill, Grantham, Hatton Vale, Helidon, Helidon Spa, Kensington Grove, Laidley Heights, Lake Clarendon, Lockrose, Regency Downs, Upper Lockyer, Veradilla, Winwill, Withcott, Woodlands</p>

2. Development in all localities (including those not specifically mentioned in Table 3.2-1: Description of Localities) respects and responds to local character, amenity, physical features, natural hazards, cultural significance, views and vistas.
3. Compact and diverse urban forms are provided to:
 - a. ensure efficient use of social and physical infrastructure and resources;
 - b. provide the co-location of compatible, supporting and subordinate uses;
 - c. provide opportunities for knowledge sharing and collaboration within employment and industry areas;
 - d. create complete communities;
 - e. protect the natural environment.

3.2.3.1 Rural areas

Rural areas of the Lockyer Valley are protected to ensure rural production is protected from urban encroachment and land uses which do not directly support Rural activities.

Rural areas that do not form part of the rural production areas are protected to perform vital natural functions of drinking water supply, matters of environmental significance, scenic landscapes, flood storage and air quality.

Rural areas are protected to also fulfil a range of secondary roles, including providing for rural industries, quarrying, tourism, special uses, life sustaining services, cultural heritage and scenic landscape areas. Rural areas are to be retained for all of these purposes due to their economic, cultural, social and environmental values.

1. In Rural areas, lands are maintained and improved for their rural, landscape and biodiversity values. The uplands accommodate historical towns and hamlets, rural living, agricultural and supporting enterprises on alluvial flood plains and natural bushland tracts against a backdrop of mountains, ranges and waterways. The Valley floodplain precinct protects food production areas and promotes risk-aware, low intensity rural uses on the Lockyer Creek floodplain. The Valley Rural Floodplain Precinct limits uses that put people and property at intolerable flood risk.
2. Subdivision of Rural areas for rural residential or urban purposes does not occur.
3. Non rural land uses, such as residential activities e.g. Dwelling houses and Caretaker's accommodation, are located on the least productive part of the land and directly support the rural productive capacity of the land.
4. Uses other than Cropping and Animal husbandry are located outside of Important agricultural areas and the Valley floodplain precinct and directly support the rural productive capacity of the land.
5. Rural areas protect land with natural assets and scenic landscape areas to ensure the continuing production of ecosystem services essential to supporting communities (such as drinking water quality) in the Lockyer Valley and South-East Queensland.
6. Rural areas support development and economic growth of rural communities and industries and sustainable tourism and recreation activities.
7. Rural areas support diversified farming, regenerative farming, Home-based businesses and cottage industries. Large Intensive animal industry is avoided where affected by natural topography and flood constraints in Rural areas.
8. Lots in the Tenthill Creek precinct are amalgamated, where practicable, into lots with a minimum area of 5 hectares to facilitate their continuing use for rural uses.

3.2.3.1.1 Rural hamlets

Rural hamlets are the lowest order of rural centres and retained and improved for cultural, social, environmental, tourism and scenic landscape areas.

1. Rural hamlets avoid expanding beyond their existing boundaries to protect matters of environmental significance, as well as the character and productivity of surrounding rural land.
2. Development in Rural hamlets reuses existing buildings and infrastructure to support surrounding rural communities and tourism.
3. New development in Rural hamlets is provided where it is designed to be sleeved between existing buildings, to reflect the colonial or Queenslander vernacular to create a cohesive streetscape.
4. Existing Rural hamlets act as tourist nodes in the Rural zone. Rural hamlets are retained as a primary focus for rural based tourism, small-scale visitor accommodation and services.
5. Tourist activities are subservient to the Rural hamlets and the rural and natural values of the area.
6. Residents of Rural hamlets continue to rely upon Urban centres to fulfil higher order business, employment, community, sport and recreation needs.
7. The connection of Rural hamlets to matters of environmental significance and scenic landscape areas in remote areas of the Great Eastern Ranges Terrestrial Corridor and Little Liverpool Range Terrestrial Corridor (including Main Range National Park, Glen Rock National Park, Flagstone Creek Conservation Park, Dwyers Scrub Conservation Park and Tenthill Conservation Park) are improved.

3.2.3.1.2 Rural townships

Rural townships are retained and improved for cultural, social, tourism, scenic and environmental values.

1. Rural townships provide for a mix of uses and businesses that service the basic convenience needs of residents, tourists, surrounding rural and rural residential communities. Residents and surrounding rural and rural residential communities continue to rely upon Urban centres of Gatton or Plainland to fulfil higher order business, employment, community, sport and recreation needs.
2. Rural townships do not grow beyond their existing boundaries to limit their exposure to bushfire hazards as well as high and extreme flood risk areas.
3. Rural townships will remain compact to protect and retain the environmental and scenic features that constrain their expansion. They will accommodate residential growth in the form of detached houses. The form and scale of development is low-rise with buildings setback from roads.
4. The traditional built form and character of Rural townships is retained and new development is designed to be sleeved between existing buildings, to reflect the colonial or Queenslander vernacular to create a cohesive streetscape character.
5. Rural townships cater to and support rural and/or Nature-based tourism, small-scale Short-term accommodation and visitor services.

3.2.3.2 Rural residential areas

Rural residential areas offer a semi-rural living option outside of urban areas, with a strong affinity with the natural environment. These areas are well defined and fulfil roles other than residential living including providing separation to rural areas, protecting drinking water supply catchments and other life sustaining services, matters of environmental significance, scenic landscape areas and residential amenity.

1. Subdivision in the Rural residential zone is limited to the Small, Medium and Large lot precincts. Any new lots created are of an appropriate size and shape having regard to the minimum lot size for the precinct, and environmental values and natural hazard constraints.
2. Subdivision of land within the No further subdivision precinct, as identified on ZM2 Zone - Precincts map, is not supported and the land is protected and conserved to accommodate future urban growth.
3. Rural residential development is separated and visually screened from Important agricultural areas and existing agricultural operations to protect residential amenity and ensure that normal farming practices are not constrained.
4. Rural residential areas do not expand beyond their current boundaries, to protect and retain the land features that constrain their expansion such as bushfire hazard areas.
5. Some convenience services are provided in Rural residential areas to support residents. However, Rural residential areas continue to rely upon Urban centres to fulfil higher order business, employment, community, sport and recreation needs.
6. Development is designed and sited to protect matters of environmental significance, scenic landscape areas, important landscape features, including One Mile Lagoon, Schecht Lagoon, Seven Mile Lagoon, Laidley Creek, Lockyer Creek Riparian Corridor, Woolshed Creek Riparian Corridor and Mount Tarampa, and to reflect the physical characteristics and constraints of the land including avoiding flood hazard areas and providing suitable buffers to watercourses and rural uses.

3.2.3.3 Urban areas

Urban areas are defined to maintain the distinct character of individual communities while contributing to a compact and consolidated urban form; avoid biophysical constraints and natural hazards; protect environmental values and landscape

features; protect natural resources and important productive rural area; and plan for the timely and cost effective delivery of infrastructure and services while avoiding harmful effects.

1. Urban development:
 - a. supports a mix of land uses, lot sizes and configurations to meet residential needs while providing housing choice and affordability;
 - b. improves and protects the character and identity of established urban centres and urban towns.
2. Urban consolidation or infill development occurs:
 - a. within and surrounding existing and planned centres; or
 - b. in areas that have access to urban services, active and public transport networks, employment, community facilities and open space; and
 - c. where it is compatible with and respects the existing amenity and character of the location.
3. Residential development occurs:
 - a. on land that is intended for housing and avoids any unnecessary removal of significant features of the land;
 - b. where it avoids natural hazard areas, infrastructure corridors, separation or buffer areas;
 - c. where it will not prevent or inhibit existing land uses that are legitimately located or planned for in that location.
4. Residents of urban areas have good access housing and a range of everyday goods, services, education and employment opportunities.
5. Places and spaces promote strong legibility to enable residents and visitors to navigate easily and successfully.
6. Urban form supports higher density development and provides access to education, jobs, affordable housing, public and active transport, retail shops, social and other services, recreational and cultural opportunities, nature and greenspace.

3.2.3.3.1 Urban centres

Urban centres are higher order hubs of urban activity with a mix of uses supporting economic diversity, social inclusion, housing choice, active transport, community services and well-connected fast communication and digital services.

1. The local economy grows and diversifies by directing new commercial and retail development into the urban centres of the Lockyer Valley each of which has different role and function.
2. Opportunities for affordable workspaces, convenient work from home enterprises, shop-top housing and co-working spaces are increased to assist the growth and relocation of Home-based businesses to larger premises as they grow.
3. Urban centres provide well designed spaces for community interaction and vitality and include high levels of streetscape appeal, outdoor meeting areas and effective connection between public spaces and private development.
4. Urban centres provide a built environment and streetscape that are complete, attractive, adaptable, accessible and legible.
5. Urban centres consist of:
 - a. a service core comprising finer grained retail and commercial activities that act as a focus for the entire area;
 - b. a service core that is centred on the main retail strip or centre with key entry and access points adjacent to other parts of the centre;
 - c. higher intensity uses with higher employment ratios (employee to site area) located close to the service core;
 - d. higher impact uses located centrally within the area to provide maximum separation from sensitive land uses outside the area;
 - e. provide access by a connector or higher order road (to avoid heavy vehicles passing through residential areas);
 - f. provide access to the lots from an internal street network only.
 - g. be protected from encroachment, incompatible development or uses that can be located elsewhere.
6. Urban centres maximise the co-location of compatible and supporting land uses to improve and integrate existing transport network and infrastructure services that are under-used.
7. The most diverse mix of dwelling types and sizes occurs in Gatton and Plainland on large infill development or greenfield sites.

3.2.3.3.2 Urban towns

Urban towns are lower order urban activity centres with a mix of uses supporting economic diversity, social inclusion, housing choice, active transport, community services and well-connected communication and digital services.

1. Development in Urban towns remains compact and within the urban area to:
 - a. protect and reinforce the town's character and identity;
 - b. provide cost effective and efficient infrastructure and services;
 - c. avoid areas of natural hazard and constraint that limit development;
 - d. protect the character of surrounding rural areas and rural productivity.
2. Threats to growth, the 'country town' character and amenity from the proposed the Inland rail network; lack of infrastructure services and natural hazards is managed.
3. Urban towns have high quality urban design and amenity.
4. Urban towns service the residential community and surrounding rural areas, rural industries and tourism.

5. Tourism development in Urban towns focuses on local heritage, rural activities, nature and/or upland tourism experiences supported by small-scale Short-term accommodation and visitor services.
6. Connection of Urban towns to Urban centres is improved and increased through active and public transport networks and improved local connectivity and permeability providing safe and efficient access to development sites and the town centre.
7. Industrial development is small-scale, low impact and specialised to provide employment opportunities within Urban towns.
8. Urban towns provide for a mix of uses and businesses that service the convenience needs of residents, tourists, surrounding rural and rural residential communities. Residents and surrounding rural and rural residential communities continue to rely upon Urban centres to fulfil higher order business, employment, community, sport and recreation needs.
9. The traditional built form and character of Urban towns is retained and new development is designed to be sleeved between existing buildings, to reflect the colonial or Queenslander vernacular to create a cohesive streetscape character.

3.2.4 Element 4 – Residential density

Housing density provides a mix of dwelling types and densities for infill or greenfield development that facilitates access to employment, education, transport, services, community, cultural, sport and recreation activities and support the community's health, wellbeing and prosperity into the future.

1. Development ensures residential density remains consistent with the existing streetscape character. Opportunities for increased residential density are encouraged in Urban areas where the site is located within easy walking distance to a range of services and the development is sensitively designed to address amenity impacts on neighbouring uses.

3.2.5 Element 5 — Emerging community areas

Emerging community areas contain land within the urban areas that may be suitable for long-term urban or industrial development.

1. Emerging community areas mapped on Strategic Framework Map SFM1 Growing communities and include:
 - a. Gatton (potential for residential and employment activities);
 - b. Grantham (potential for residential, community and employment activities);
 - c. Helidon (potential for residential, community, tourism and employment activities);
 - d. Employment investigation area on Strategic Framework Map SFM2 Strategic Framework - Prosperous economy (potential for employment activities);
 - e. Plainland (potential for residential, community and employment activities).
2. Residential expansion of urban areas occurs within the Emerging community zone and is supported by structure planning that uses best practice planning measures, is informed by this Strategic framework to create complete communities and ensures adequate separation from productive agricultural areas.
3. Structure plans will decide:
 - a. whether the further area contains land suitable to accommodate urban development;
 - b. how the available developable area will be serviced with the full range of necessary urban infrastructure in a manner which is logical, sequential, safe, efficient and equitable;
 - c. the preferred form and timing of any urban development that may occur.
4. Inclusion of land in a structure plan area is not a development commitment and does not imply that all or any part of the area will be made available for urban development.
5. Development does not compromise or pre-empt the structure planning process.
6. Emerging community areas are maintained as their current zone and protected from land fragmentation until comprehensive structure planning has been completed.
7. Emerging community areas described above may within the life of the planning scheme be considered as part of future amendments to the planning scheme.

3.2.6 Element 6 – Urban localities

3.2.6.1 Gatton

1. Development consolidates Gatton's role as a principal rural activity centre and integrates new development with the traditional town centre and surrounding urban areas. Growth occurs by consolidation and expansion.
2. Gatton's principal centre is consolidated to provide a broad range of regional-scale higher order uses and activities capable of servicing its resident population as well as surrounding rural towns, villages, rural residential and rural communities.
3. Urban design of the Gatton principal centre should reflect and blend the traditional and contemporary town character. Medium density residential development is consolidated around the town centre to provide a transition to the wider

suburban expansion areas and avoids high and extreme flood risk hazards and bushfire hazard areas.

4. Southern expansion areas of Gatton are constrained by flooding, bushfire hazard, high risk soils, waterways and vegetation (notably koala habitat). Significant structure planning is required to realise Gatton's potential. As part of structure planning, various matters require further investigation including:
 - a. flood evacuation routes and emergency access;
 - b. locations for Medium density residential and mixed-use development;
 - c. town centre precinct planning;
 - d. industrial precinct planning for more diversified employment activities in a future industrial area;
 - e. viability of Emerging community zoned land for urban development and complete communities;
 - f. locations for advanced koala offsets;
 - g. opportunities to retain and enhance areas of regulated vegetation.

3.2.6.2 Grantham

1. Urban development within Grantham is limited to the existing urban footprint. To protect and reinforce Grantham's semi-urban character and identity, cost effective infrastructure and services are provided, the character and productivity of surrounding rural land is maintained.
2. Growth does not occur south of the railway line as it is restricted by high levels of flooding. Existing services in this location are retained to serve the convenience needs of residents, workers and tourists.
3. Growth occurs by expansion into those areas uncompleted under the Grantham Reconstruction Area — Development Scheme including refocusing the Local centre to a location that avoids exposing people and property to high and extreme risk hazard areas (e.g. high and extreme flood risk area and bushfire hazard areas) and mitigate hazard risks to an acceptable or tolerable level.
4. Revised structure planning is required to realise Grantham's potential and identify a new local centre. Uncompleted actions of the Grantham Reconstruction Area — Development Scheme include:
 - a. complete conversion of the Limited development zone for rural purposes or open space;
 - b. expansion of the town further north;
 - c. introduction of community facilities and Parks centrally located to and close to residential areas;
 - d. provision of new employment such as rural industries and supporting uses that grow and support the agricultural economic foundation of the town;
 - e. emergency access and evacuation routes to the Warrego Highway or other alternative;
 - f. expansion of infrastructure services such as:
 - i. water reservoir in the Employment investigation area;
 - ii. stormwater treatment and detention basins;
 - iii. electricity Substation near the sewage treatment plant.
5. Expansion of the town towards the north means that commercial, employment and community activities may be expanded to achieve long-term sustainability and self-contained employment.
6. Any revised structure planning of the community land will need to address the remediation options of contamination on Lot 2 on RP204243.

3.2.6.3 Helidon

1. Helidon continues to grow and develop as an urban town with a distinct heritage character, primarily servicing the local community and tourist industry. Its location equidistant between Toowoomba and Gatton makes it an ideal dormitory suburb of both towns.
2. Existing services in this location are retained to serve the convenience needs of residents, workers, tourists and surrounding rural community.
3. Helidon has the potential to grow through consolidation and expansion. Consolidation of the historical township north of the Warrego Highway is constrained by limited stormwater drainage and noise generating activities (e.g. heavy vehicle routes, Inland rail, Warrego Highway).
4. The largely under developed south has the potential to refocus the growth of the town toward less constrained areas for residential expansion, neighbourhood convenience shops and employment generating industry. Structure planning is required to realise Helidon's potential.

3.2.6.4 Laidley

1. Development maintains Laidley's role as an urban town with a traditional rural town centre and surrounding rural residential areas. Development responds to the local flood risk.
2. Laidley's high level of flood exposure limits its potential to grow as major centre.
3. Laidley provides a range of higher order uses and activities for the local community as well as surrounding hamlets, rural residential, rural areas and adjacent communities in the Ipswich Region (i.e. Grandchester).
4. Laidley's industrial areas to the south are constrained by flooding and a high pressure gas pipeline corridor. Consolidation of industrial areas may be considered where all urban services can be provided and the flood hazard area is avoided.

5. Residential growth opportunities are limited and contained within the existing zoned area. Growth areas are constrained by limited infrastructure (i.e. water, sewerage, stormwater), noise-generating infrastructure (e.g. inland rail) and environmental features including slopes, high risk soils, waterways, vegetation and flood risk.

3.2.6.5 Plainland

1. Plainland comprises of an emerging and expanding contemporary major activity centre. Plainland is surrounded by mature rural residential areas and rural land. As an emerging and expanding centre, Plainland's main constraint to development is infrastructure provision. Plainland is intended to grow as a modern, contemporary town centre in a greenfield location that services surrounding rural and rural residential communities including areas outside of the Lockyer Valley such as the town of Lowood.
2. Plainland comprises of four major areas:
 - a. Business and administrative centre — north of the Warrego Highway and west of Gehrke Road;
 - b. Big box or bulk retail - north of the Warrego Highway and east of Gehrke Road;
 - c. Mixed use — south of the Warrego Highway;
 - d. Low medium density residential — south of Mountain View Drive, east of Gehrke Road and north of the bulk retail area.
3. Plainland is intended to have a concentration of commercial, retail, government and community activities including a Hospital, police station, other Emergency services, Park and library. A community hub will assist in reinforcing Plainland as a place to live and work. The Mixed-use zone area in south Plainland provides a convenience function for the surrounding residential and rural residential community. Further infrastructure planning is required to realise Plainland's potential.

3.2.6.6 Withcott

1. Withcott continues to develop as an urban town and dormitory suburb of Toowoomba. Withcott maintains very low dwelling densities and a dispersed settlement pattern. Withcott continues to service the convenience needs of the local community and tourist industry.
2. Development to Withcott responds to the local flood risk.
3. Steep slopes, bushfire hazard, flood and overland flow constraints from Gatton Creek restrict redevelopment opportunities of Withcott. Limited capacity to improve road networks and service the community with urban services such as sewerage and stormwater drainage further restricts Withcott's growth.
4. Withcott's complex topography, being at the foothills of the Great Dividing Range and other environmental features, constrains urban residential and industrial development.

3.3 Theme 2 - Prosperous economy

1. The Prosperous economy theme identifies strategic outcomes related to the following:
 - a. Activity centres;
 - i. Circular economy;
 - ii. Creative industries;
 - iii. Outward focussed economy;
 - b. Industry areas;
 - i. Future enterprise and industry areas;
 - ii. Knowledge and technology area;
 - c. Rural industries;
 - i. Agricultural areas;
 - ii. Animal industries;
 - iii. Extractive industries;
 - iv. Forestry;
 - v. Mining;
 - d. Special uses;
 - i. Helidon Reserve;
 - ii. South Queensland Correctional Centre;
 - e. Tourism;
 - i. Agri and food tourism;
 - ii. Nature and recreation-based tourism.
2. The Strategic Framework Map SFM2 - Prosperous economy identifies elements of the strategic framework relevant to the Prosperous economy theme.

3.3.1 Element 1 – Activity centres

Activity centres are developed as vibrant mixed-use places that provide a focus for economic activity, private and public investment, residential development and community and cultural activities and interaction.

1. A hierarchy of centres (shown in Strategic Framework Map SFM2 - Prosperous economy) is maintained and improved to ensure each centre has a defined role and positively contributes to the local and regional network of centres. The viability of the centre hierarchy is maximised by preventing out-of-centre development and avoiding incompatible uses within centres.
2. Development does not undermine and does not compromise the existing centres in Table 3.3-1: Centre hierarchy, either by starting a new centre or duplicating activities outside of an urban activity centre or proposing a higher order or larger scale of uses than is intended for an activity centre.
3. Employment needs and economic growth are supported by facilitating a range of commercial, retail, industrial and mixed-use development opportunities.

Table 3.3-1: Centre hierarchy (from highest to lowest)

URBAN ACTIVITY CENTRES	LOCATION
<p>Principal activity centre</p> <p>Provides for the largest and most diverse mix of activity groups that form the core Urban area and includes the highest concentration of activities in the whole of the Lockyer Valley. This centre grows through expansion.</p> <p><i>Editor's note—Gatton is designated as Principal rural activity centre in South East Queensland Regional Plan.</i></p>	Gatton
<p>Major (transitional) activity centre</p> <p>Provides for a mix of activity groups that form part of the Urban area and includes a moderate concentration of activities that service this community and surrounding rural and rural residential communities. This centre grows through expansion.</p> <p><i>Editor's note—Plainland is identified as an expansion area under in South East Queensland Regional Plan. Expansion areas are intended to deliver new and more complete communities that are well-planned and serviced.</i></p>	Plainland

<p>Local centres</p> <p>Provides for activity groups that service the local community and provides convenience services to surrounding rural and rural residential communities. These activity centres are supported by higher order activity centres in the centre network. These centres grow through consolidation rather than expansion.</p>	<p>Grantham, Helidon, Laidley, Withcott</p>
<p>RURAL CENTRES</p>	<p>LOCATION</p>
<p>Townships</p> <p>Provide for local and visitor convenience service for rural districts by providing a small range of activities. Activities are low scale and low impact. Townships are outside the Urban area and supported by Major or Principal activity centres in urban areas. Townships grow through consolidation rather than expansion.</p>	<p>Glenore Grove, Forest Hill, Ma Ma Creek, Murphy's Creek</p>
<p>Hamlets</p> <p>Hamlets provide two or three activities. They consist of low scale and low impact activities. Hamlets do not form a part of the activity centres network within the Lockyer Valley. Growth of hamlets is not expected as they are to be supported by Major or Principal activity centres in urban areas.</p>	<p>Blenheim, Caffey, Kentville, Lake Clarendon, Lockrose, Mount Sylvia, Mount Whitestone, Mulgowie, Thornton, Upper Tenthill, Veradilla</p>

4. In higher order centres building height and form reinforce higher levels of activity and intensity. The highest intensity of built form occurs in the highest order centres. In Local centres, building form is more modest and provides a sensitive transition to adjacent residential areas. Building height reflects the surrounding residential neighbourhood.
5. Urban activity centres incorporate most or all the following elements:
 - a. a main street or other externally focussed configuration with active or semi-active street frontages that connect to surrounding communities and community spaces;
 - b. high amenity public spaces that support and encourage social interaction, informal meetings and active lifestyles;
 - c. creative industries (such as the arts and digital industries) and cultural and community activities which contribute to economic and community vitality;
 - d. support new and emerging industries in the science, technology, small-scale manufacturing, medical and health, education and training sectors.
6. Urban activity centres are a focal point for community life accommodating a range of activity groups to support other elements and strategies such as housing choice and an integrated planning and transport network.
7. Urban activity centres provide enough land for growth to match projected population increases and changes in demand for goods and services to create complete communities.
8. Out-of-centre development occurs only where there is demonstrated overwhelming community and economic need.
9. Overwhelming community need is where:
 - a. the community would experience a harmful cultural, social, economic and/or environmental impact if the development were not to proceed;
 - b. the development would provide large cultural, social, economic and environmental benefits to the community;
 - c. the development cannot be accommodated in the place or zone intended for the development within the life of the planning scheme because of its place-oriented needs or environmental constraints;
 - d. the development is consistent with the character and amenity of a transitioning place and zone in which it is to be located;
 - e. the development cannot be located on an equally practicable alternative site which is better suited to the development;
 - f. there is no prudent and practicable alternative to the carrying out of the development.
10. Overwhelming economic need is where:
 - a. existing developed and developing centres would experience harmful economic impacts if the development were to proceed; OR
 - b. the community would experience harmful economic impacts if the development were not to proceed.

3.3.1.1 Circular economy

Opportunities to establish a circular economy and improve economic benefits to the region are increased where they can co-exist with existing commercial, industrial rural and natural resource developments.

1. Circular economy development opportunities including, but not limited to, Permanent plantations, Renewable energy facilities, repurpose exhausted Extractive industry areas, re-use of waste quarry material, or environmental offset projects, locate in rural areas and:
 - a. avoid Important agricultural areas and ALC Class A & B soils;
 - b. minimise harmful off-site effects on sensitive land uses and the environment;
 - c. maximises the highest and best use of land and economic output; and

- d. maintains scenic landscape areas.
2. Activity centres and industrial areas support established and emerging industry sectors by providing opportunities for business growth and encourage synergies between knowledge and technology sectors.

3.3.1.2 Creative industries

Creative industries are encouraged to provide affordable and accessible spaces for artists and creative activities that grow the cultural sector and economic diversity.

1. The co-location of creative businesses and industries is supported to activate walkable centres, tourism and visitation.
2. The development of hubs and co-working spaces is encouraged for creative businesses and industries.
3. Creative businesses and industries are located, designed and managed to avoid or mitigate harmful emissions on sensitive land uses, matters of environmental significance and scenic landscape areas.
4. Development that supports new and existing creative businesses, industries, micro-businesses and sole traders is encouraged where in a Local, Major or Principal centre zone.

3.3.1.3 Outward focussed economy

High levels of economic activity and employment in export-oriented and high value sectors is encouraged to strengthen the region's economic diversity and growth.

1. Investigate and plan for existing or potential economic relationships between employment areas to maximise economic output and productivity.

3.3.2 Element 2 – Industry areas

Industry land supply meets the current and future needs of the community while providing access to suitable infrastructure, transport networks and services for industry supply chain networks to grow, diversify and improve local, regional and national trade.

1. Development does not undermine and does not compromise the industry areas in Table 3.3-2: Description of industry areas either by starting new industry activities outside of an industry area or proposing a higher order or larger scale of uses than intended for an industry area.

Table 3.3-2: Description of industry areas

DESCRIPTION	LOCATION
<p>Major regional industry area</p> <p>Large industry areas of regional significance with high levels of access, most diverse mix and highest concentration of industrial development with regional freight corridors, proximity to a workforce and enough separation from incompatible land uses to accommodate some High impact industry uses in suitable locations.</p>	Employment investigation area close to the Warrego Highway (see SFM2 Strategic Framework Map)
<p>Sub-regional industry area</p> <p>Moderate to large industrial area of sub-regional significance (e.g. logistics, freight and manufacturing) that with highway access, proximity to a workforce and enough separation from incompatible land uses is suitable for new industrial development.</p>	Helidon
<p>Local industry areas</p> <p>Small to moderate or specialised or service industries of local significance that primarily services demands of the local community and surrounding rural districts.</p>	Gatton, Helidon, Laidley, Plainland, Withcott

1. Industry areas in Table 3.3-2: Description of industry areas are protected from encroachment by development that would compromise the ability of industrial uses to operate safely and effectively.
2. Development is encouraged where it caters for industries with high economic yield and low or no environmental impacts and where sustainable practices are the norm.
3. Industrial development is located, designed and managed to avoid or mitigate harmful emissions and effects on sensitive land uses and the natural environment.
4. Industry areas are well-designed and serviced by activity centres and surrounding Urban areas by active and public

transport networks.

5. Renewable energy facilities are supported throughout the region where:
 - a. they are co-located with other energy generating infrastructure;
 - b. off-site impacts on sensitive land uses can be mitigated; and
 - c. the effective and efficient use of agricultural land is not compromised.
6. Industrial development, major gas, waste and sewerage infrastructure and sport and recreation activities are located, designed and managed to avoid or mitigate adverse effects of emissions on sensitive land uses and the natural environment.
7. Development protects the following existing and approved land uses or areas from encroachment by development that would compromise the ability of the land use to function safely and effectively:
 - a. Medium impact and High impact industries;
 - b. Extractive industries;
 - c. Hazardous chemical facilities;
 - d. Explosive facilities and explosive reserves;
 - e. High pressure gas pipelines;
 - f. Waste management facilities;
 - g. Sewage treatment plants;
 - h. Major sport, recreation and entertainment facilities;
 - i. Shooting facilities;
 - j. Motor sport facilities.

3.3.2.1 Future enterprise and industry areas

Plan for and protect the future location of major enterprise and industrial areas, including potential connections to freight, intermodal and supply chain networks that form part of the strategic transport system, from encroachment by incompatible land uses where they can accommodate regionally and state significant agglomerations of industry and business activity.

1. Potential future enterprise and industry areas are protected from encroachment by incompatible land uses such as sensitive land uses and sport and recreation activities.
2. Development of future enterprise and industry areas provides for business investment and employment opportunities for a range of high value industries.
3. The potential future enterprise and industry areas have access to regional freight routes and infrastructure including the Warrego Highway and other State-controlled roads, Main Line railway and Inland Rail to minimise freight movements through the Urban areas of the Lockyer Valley.
4. The development of future enterprise and industry areas is located, designed and managed to avoid or mitigate harmful emissions and effects on sensitive land uses and the natural environment.
5. The Employment investigation area at Grantham presents an opportunity to establish a future transport node or logistics hub in the region with frontage to the Warrego Highway, West Moreton Rail system and Inland Rail corridor. Future detailed structure planning should consider the inclusion of sub-precincts that would best utilise access to transport infrastructure adjoining the site.

3.3.3 Element 3 – Knowledge and technology area

Innovative and sustainable businesses and industries are encouraged and supported where they are responsive to innovative technologies and changing market conditions.

1. The co-location of mutually supportive and value-adding activities that protect and improve the primary purpose of the University of Queensland for research, education and technological development is supported.
2. The University of Queensland knowledge and technology area (such as the Queensland Animal Science Precinct) continues to grow as a world class educational institute for rural industries and technology and is protected from encroachment by incompatible development.
3. The University of Queensland knowledge and technology area provides allied research, educational and technological value-adding activities that protect and improve the primary purpose of the facility for research, education and technological development.

3.3.4 Element 4 - Rural industries

The number and diversity of rural industries in the Lockyer Valley are increased to ensure rural production grows and supports the community and the region where development does not diminish ALC Class A & B soils and avoids, maintains and improves matters of environmental significance, ecological resilience and scenic landscape.

1. Diversification and innovation of agriculture, agribusiness and supporting industries such as tourism and recreational

- activities are supported and encouraged where sited to improve agricultural productivity, value-add and promote the landscape values of rural land.
2. The stock route network is not compromised and continues to be available for its primary use for moving stock on foot and other uses including grazing, environmental, recreational, cultural heritage and tourism.
 3. Rural industries and high impact industries are located where they will protect and maintain:
 - a. the productive potential of Important agricultural areas and ALC Class A & B soils;
 - b. matters of environmental significance, ecological connectivity and ecological processes;
 - c. drinking water quality and water quality buffer areas;
 - d. the visual amenity values of scenic landscapes.
 4. Rural industries and high impact industries are design to:
 - a. improve the land condition;
 - b. reduce soil salinity;
 - c. prevent erosion and sedimentation;
 - d. avoid exposing people and property to high and extreme risk hazard areas (e.g. high and extreme flood risk areas, slopes more than 15%, high and very high bushfire hazard) and mitigate hazard risks to an acceptable or tolerable level.
 5. Environmental offsets, Nature-based tourism and recreation are supported in all rural areas where they support and provide resilience and diversification to rural industries, without diminishing agricultural production capacity.
 6. Rural industries are protected from encroachment by incompatible development such as sensitive land uses.

3.3.4.1 Agriculture areas

The productivity and diversity of Important agricultural areas are protected and supported to increase resilience to climate change and market cycles, and grow the agricultural use of the land for affordable fresh food and food security.

1. Rural industries that support or add value to agricultural production may be located in Important agricultural areas but are located outside of ALC Class A & B soils.
2. Important agricultural areas are protected from encroachment by incompatible development (e.g. sensitive land uses) and continue to contribute to the Lockyer Valley economy and food and water security for future generations.
3. Development in the Valley flood plain precinct maintains the agricultural primacy of the floodplain for Cropping. Supporting rural activities and industries avoid the Valley flood plain precinct to build resilient business and industry that have continued operation and growth.
4. Development in the Valley flood plain precinct supports risk-aware, low intensity rural land uses and limit residential activities and other uses which put people and property at intolerable risk.
5. Development that has an irreversible adverse impact on ALC Class A & B soils is avoided. Important agricultural areas and ALC Class A & B soils are not used to buffer urban and rural residential areas to protect residential amenity.
6. The subdivision of land in the Rural zone (where 100 hectares and under) identified as ALC Class A & B soils is not supported. The amalgamation of land in the Rural zone is encouraged.
7. Erosion of Important agricultural areas is minimised and land condition improved by:
 - a. improving soil health, soil biodiversity and soil stewardship by encouraging farming methods such as diversified farming, no-till farming, soil-building, composting, contour farming and crop rotation;
 - b. increasing the planting of wind breaks and restoration of riparian areas to attract beneficial insects for pollination and pest control.

3.3.4.2 Animal industries

Opportunities for animal industries are encouraged in rural areas where low in scale, have access to existing freight networks, minimise adverse effects on sensitive land uses and minimise negative impacts on ALC Class A & B soils.

1. The Lockyer Valley's equine industry is increased and strengthened by the development of the multi-purpose equine precinct and hub by providing an innovative world-class facility that draws specialists in the equine industry and health to the region.
2. Intensive animal industries including pond Aquaculture, feedlots, piggeries and poultry farms avoid locating within Important agricultural areas and ALC Class A & B soils as these areas are protected for vegetable food production.
3. Diversified farming practices are encouraged to minimise harm on and protect:
 - a. matters of environmental significance, ecological connectivity and ecological processes;
 - b. Lockyer Creek water resource catchment, drinking water quality and environmental values;
 - c. the amenity of urban and rural residential areas or sensitive land uses on surrounding land;
 - d. the visual amenity values of scenic landscapes.
4. Animal industries are encouraged to adapt to a changing climate and be flexible and innovative in the face of changing conditions over the long-term.
5. Animal industries do not locate or operate in the Valley flood plain precinct and avoid exposing people and property to high and extreme risk hazard areas or intolerable risk.

3.3.4.3 Extractive resources

Lockyer Valley's extractive resources are protected and managed to ensure the ready availability of materials to support sustainable growth into the future.

1. Key resource areas (KRAs) including the resource or processing area, separation area, transport route and transport route separation are protected from encroachment by incompatible development and sensitive land uses to maintain the long-term availability of the extractive resource and access to the KRAs.
2. Extractive industries are co-located with supporting activities to minimise harm on and to protect sensitive land uses, matters of environmental significance, scenic landscape areas and local amenity of activity centres and transport networks.
3. Subdivision of land associated with a KRA including the resource area, separation area, transport route and transport route separation area does not occur. Amalgamation of land within KRAs is encouraged.
4. Extractive industries are expanded without negatively affecting the floodplain, Important agricultural areas, ALC Class A & B, other rural industries, matters of environmental significance, scenic landscape areas and cultural heritage.

3.3.4.4 Forestry

Native and plantation forests are protected, managed and used in an efficient and environmentally responsible manner, to supply timber and other forest products consistent with sustainability principles.

1. Native and plantation forests adhere to best management practices to protect matters of environmental significance, scenic landscape areas, environmental values (e.g. soil, air and water quality) and local amenity.
2. Negative off-site effects from forestry enterprises are minimised and consider:
 - a. surrounding land uses;
 - b. matters of environmental significance and processes;
 - c. haulage routes through urban areas;
 - d. landslip and bushfire hazard risk;
 - e. separation area from incompatible uses.
3. Native and plantation forests are protected from encroachment by incompatible development such as sensitive land uses.
4. Permanent plantations are expanded but avoid locating in Important agricultural areas as these conflict with continued use of ALC Class A & B soils to produce affordable fresh food.

3.3.4.5 Mining

Mining tenements and leases are compatible with adjoining other activities and are protected from encroaching upon incompatible land uses.

1. Where possible, extractive industries are co-located with mining activities to minimise harm on and to protect sensitive land uses, matters of environmental significance, biodiversity, ecosystems processes, scenic landscapes values and local amenity.
2. Mining activities are protected from encroachment by incompatible development such as sensitive land uses.
3. Sensitive land uses and incompatible land uses are protected from the impacts of previous mining activities that may cause risk to people or property including:
 - a. Former mining activities;
 - b. Related hazards (e.g. disused underground mines, tunnels and shafts).
4. Former mining activities and related hazards (e.g. disused underground mines, tunnels and shafts) are rehabilitated to assist reuse of the site and minimise the impacts and risks to people, property and the environment (e.g. release of contaminants).
5. Large scale mines, coal exploration, coal mining, coal seam gas exploration and coal seam gas production are not supported due to their incompatibility with Lockyer Valley's natural assets and lifestyle.

3.3.5 Element 5 - Special uses

Specialised uses in the Lockyer Valley are protected from encroachment from incompatible activities (such as sensitive land uses) to ensure their long-term economic effectiveness.

3.3.5.1 Helidon Reserve

1. The Helidon Reserve provides for the safe manufacturing, assembly, storage, distribution, disposal and testing of

- explosives.
2. Helidon Reserve is protected from encroachment by development that compromises or reduces the capacity of the reserve to function safely and effectively.
 3. Development that reduces the capacity of the Helidon Reserve to operate and expand is not supported.
 4. Development that is subservient to and directly involves the manufacturing, assembly, storage, distribution, disposal of explosives, is encouraged where these activities protect and improve the use and capacity of the reserve.
 5. Activities associated with the Helidon Reserve and supporting industries prevent increasing explosion risk to people and property in the surrounding area.

3.3.5.2 Southern Queensland Correctional Centre

1. Southern Queensland Correctional Centre is protected from encroachment by incompatible development such as sensitive land uses.

3.3.6 Element 6 - Tourism

Tourism development in the Lockyer Valley is increased and diversified where compatible with surrounding land uses to improve resilience of rural activities and the local economy to climate change and market cycles.

1. Tourism planning and development opportunities that are suitable and sustainable are supported and the social, cultural and natural values underpinning tourism developments are protected.
2. A diverse range of tourism, sport and recreation activities is supported in the rural areas of the Lockyer Valley where they:
 - a. do not locate within the Valley flood plain precinct to avoid exposing people and property to high and extreme risk hazard areas or intolerable risk;
 - b. do not locate in bushfire hazard areas to avoid exposing vulnerable people and property to an intolerable risk;
 - c. protect and improve matters of environmental significance;
 - d. protect and improve scenic landscape areas;
 - e. protect and maintain the centre hierarchy;
 - f. protect Important agricultural areas from further alienation or fragmentation;
 - g. do not negatively affect current and future agricultural productivity;
 - h. protect and do not adversely impact the drinking water supply catchments.
3. Tourism development and attractions are located where they have access to transport networks and the necessary infrastructure services to support the development.
4. A range of Short-term accommodation and tourist services is provided that is consistent with the intended role of the respective tourism locations in Table 3.3-3: Description of tourism features with an emphasis on those uses that are well suited to, compatible with, or an alternative to existing tourism development.
5. Tourism development is located, designed and managed to avoid or mitigate harm caused by emissions and effects on sensitive land uses and matters of environmental significance.
6. New Tourist attractions cluster around or in locations or features in Table 3.3-3: Description of tourism features in a manner consistent with the intended role of the tourism description.

Table 3.3-3: Description of tourism features

DESCRIPTION	LOCATION OR FEATURE
<p>Urban tourism locations</p> <p>Areas within Urban areas accommodating heritage towns, Tourist attractions and facilities including a concentration of Short-term accommodation and related tourism services.</p>	<p>Townships from Laidley along the historical Cobb & Co Way to Toowoomba.</p> <p>Locally important natural features:</p> <ul style="list-style-type: none"> • Lake Apex • Lake Freeman • Nada Lagoon
<p>Agritourism and food tourism</p> <p>Areas with a primary emphasis on rural or farm gate food tourism experiences and related tourism services.</p>	<p>Rural areas outside the Valley flood plain precinct</p> <p>Native bushfoods</p>
<p>Nature and recreation-based tourism and nature-based recreation locations</p> <p>Areas with a primary emphasis on nature and recreation-based tourism experiences and accommodating low impact, sustainable visitor accommodation and related tourism services.</p>	<p>Natural features such as:</p> <ul style="list-style-type: none"> • National and Conservation Parks • mountains, ranges and escarpments • waterways, wetland and lakes • uplands communities and hamlets

Natural and culturally significant tourism

Challawong Rock Petroglyph
Cobb and Co trail
Gorman's Gap trail
Healing places, scarred trees, borra rings and pathways
Hell Hole Creek
Jahnke's Lagoon
Lake Clarendon
Lake Dyer
Lake Galletly
Range crossings
Seven Mile Lagoon
Spring Bluff Railway Station
Table Top Mountain (Meewah)

3.3.6.1 Agri and food tourism

1. Rural and agri-tourism is supported where it builds upon the clean and green identity of the region and does not prejudice the productive potential of rural land.
2. The Lockyer Valley grows its regional food production experiences to develop farm trails and agri-tourism opportunities that increases the resilience of the region's agricultural and tourism businesses.
3. Tourism in the rural uplands provides boutique and low scale Short-term accommodation and facilities that contribute to widening the range of tourism experiences in the region.
4. Tourism is supported in the rural uplands where increasing the growth of creative and boutique industries and recreation activities that provide and increase economic diversity and resilience of existing farming operations.

3.3.6.2 Nature and recreation-based tourism

1. Nature and recreation-based tourism optimises access to National Parks and conservation reserves, active transport routes, Parks, sport and recreation activities, greenspace and visual amenity of open spaces.
2. Tourism, sport and recreation activities in rural areas and uplands communities protect and improve the natural and cultural heritage assets of the Lockyer Valley.

3.4 Theme 3 - Connecting infrastructure

1. The Connecting infrastructure theme identifies strategic outcomes related to the following:
 - a. Integrated planning and infrastructure networks;
 - b. Efficient infrastructure;
 - c. Transport networks;
 - i. Active transport;
 - ii. Air transport;
 - iii. Freight transport;
 - iv. Public transport;
 - v. Rail;
 - vi. Road;
 - d. Linear infrastructure;
 - e. Protection of infrastructure corridors and sites;
 - f. Service infrastructure networks.
2. The Strategic Framework Map SFM3 Connecting infrastructure identifies elements of the strategic framework relevant to the Connecting infrastructure theme.

3.4.1 Element 1 – Integrated planning and infrastructure networks

Land use planning and development is integrated and coordinated with infrastructure planning to facilitate cost effective delivery of State and local infrastructure and services in a logical and orderly location, form and sequence, to optimise the location of resilient infrastructure within communities.

1. Development achieves a high level of integration with infrastructure planning to:
 - a. facilitate the most efficient, cost effective and flexible use of existing and planned infrastructure;
 - b. realise multiple economic, social and environmental benefits from infrastructure investment;
 - c. ensure consideration of future infrastructure needed to support the preferred pattern of growth for infill development and greenfield areas;
 - d. optimise the location of future infrastructure within communities to increase access to facilities and services and provide productivity improvements;
 - e. avoid exposing people and property to high, very high and extreme risk hazard areas or intolerable risk.
2. Development occurs:
 - a. in areas serviced by State and/or local infrastructure providers; and
 - b. in a logical and orderly location, form and sequence to provide the cost effective and efficient delivery of State and local infrastructure.
3. Existing and planned infrastructure is protected from development that would compromise the ability of infrastructure and associated services to operate safely and efficiently.
4. Out of sequence development or development in areas not currently serviced does not occur unless it can be demonstrated that the development:
 - a. is in the public interest (i.e. provides a cultural, social, economic and environmental benefit to the community); or
 - b. can be cost-effectively serviced without placing an undue burden on State and/or local infrastructure providers.

3.4.2 Element 2 - Efficient infrastructure

The Lockyer Valley is serviced by efficient and reliable infrastructure networks that are planned, coordinated and delivered in a logical and orderly location, form and sequence which supports the community's growth.

1. Efficient infrastructure delivery and services occur through co-location with other infrastructure wherever possible.
2. The sequencing of development prioritises the use of spare capacity of existing infrastructure and maximises the efficient use of new and augmented infrastructure.
3. Development contributes to a fair and equitable share of the cost of infrastructure to meet the needs of the community.
4. Existing and future infrastructure is protected from development that would compromise infrastructure connection, corridor integrity or expansion, cost effective delivery and functioning.
5. Infrastructure is designed to cater for the effects of climate change and natural hazards by avoiding exposing people and property to high, very high and extreme risk hazard areas or intolerable risk.
6. New developments maximise the capacity, opportunity and viability of existing and future infrastructure and supporting facilities to manage the delivery of services.
7. Critical infrastructure remains operational during and after a natural hazard event.

3.4.3 Element 3 — Transport networks

The safe and efficient movement of people and goods is facilitated, and land use patterns that encourage sustainable transport are supported.

1. Infill development is located in areas serviced by the transport network and where this cannot be achieved, development is facilitated in a logical and orderly sequence and form to provide cost effective delivery of any extended or expanded networks to service development.
2. Development is of a type and scale that is located, designed and constructed to achieve a high level of integration with the transport network and supports public passenger transport and active transport as alternatives to private transport.
3. Development is located and designed to mitigate adverse effects on development from environmental emissions generated by transport.
4. Development surrounding, adjoining and adjacent to existing and future State transport infrastructure and corridors:
 - a. protects the performance of transport infrastructure, corridors and networks from incompatible uses;
 - b. improves or maintains the safe and efficient movement of people and goods within the transport network (e.g. manufacturing, assembly, storage, distribution or disposal of hazardous chemicals does not locate adjacent to public passenger transport infrastructure).
5. High traffic generating uses protect and improve the operation of the transport network. Where the network is deficient or already impaired, the network is upgraded to cater to the development.
6. Except where provided by the State or Federal government, no new major transport corridors are created other than those identified on the Strategic Framework Map SFM3 Connecting infrastructure.
7. Infrastructure that supports public and active transport is concentrated in and around high generating land uses such as activity centres and higher density residential development.
8. Development provides parking facilities to encourage a reduction in private motor vehicles, including design responses to suit the local character and adapting innovative technologies where suitable.
9. Emergency access and evacuation routes are safe and practical during natural hazard events.

3.4.3.1 Active transport

Active transport networks with end-of-trip facilities are improved as the preferred transport mode option over private vehicle dependence in and between Urban areas to provide affordable access to employment, education and services.

1. New communities and development are designed and contribute to an active transport network within and between Urban areas for pedestrians and cyclists, that is pervasive, safe, convenient, attractive, connected, legible and easy to use.
2. Active transport networks are connected to public transport stops and stations in Urban areas.
3. Active transport networks connect centres, industry areas, community facilities, educational institutions, sport and recreation activities and natural areas, parks and reserves within Urban areas.
4. Development supports the State's principal cycle network in and between Gatton, Forest Hill, Laidley, Plainland and the University of Queensland Gatton Campus by providing safe, convenient and accessible end-of-trip facilities.

Note—Transport assessments are to determine the impact on active transport networks consistent with the planning and design principles of the walking network planning guidance.

3.4.3.2 Air transport

Gatton Airpark is retained as a private light aircraft facility and continues to grow under the Gatton Airpark master plan.

1. Development does not harm the safe operation of the Gatton Airpark and does not encroach into the airspace of the airstrip.

3.4.3.3 Freight transport

Existing and planned freight transport corridors, including those mapped on Strategic Framework Map SFM3 Connecting infrastructure are secured, protected and improved to support the long-term growth and infrastructure needs of the Lockyer Valley.

1. Development near a major freight route mapped on Strategic Framework Map SFM3 Connecting infrastructure:
 - a. protects the infrastructure from encroachment by incompatible development such as sensitive land uses;
 - b. maintains the safe and effective operation of the freight route; and
 - c. implements measures to prevent reverse amenity impacts.
2. Development provides for the safe and efficient operation of existing and future road and rail freight transport networks to

support the economic development of the Lockyer Valley.

3. Freight transport networks are effective in servicing intra-regional and regional freight needs without compromising safety and public amenity.
4. Large scale industrial uses or other heavy traffic-generating activities are located close to an identified freight route.
5. Alternative routes to the Warrego Highway are investigated to assist the transport of goods during natural hazard events.

3.4.3.4 Public transport

Public transport is improved as a supporting secondary transport mode option over private vehicle dependence in and between Urban areas to provide affordable access to employment, education and services.

1. Development and the pattern of growth in Urban areas supports an extensive, efficient, safe, accessible, attractive and legible public transport network both within and between the Urban areas of the Lockyer Valley.
2. Public transport connects people, places and employment in an efficient, safe, convenient, accessible, reliable, equitable and easy to use manner.
3. Urban growth and expansion areas incorporate transit-oriented development principles and are supported by active transport infrastructure to maximise public transport patronage.
4. The operational needs of public transport are designed into subdivisions, facilitating the provision of future public transport services.
5. Park and ride facilities are located on arterial or sub-arterial roads where they are serviced by frequent, quality bus or rail connections to key destinations.

Note—Transport assessments are to determine the impact on public transport infrastructure consistent with the planning and design principles of the public transport infrastructure manual.

3.4.3.5 Rail

The rail network and corridors are provided in a manner that provides cultural, social, economic and environmental benefits to the community and places of the Lockyer Valley.

1. The existing rail corridor is used for a future commuter service, public and active transport connection between Ipswich and Toowoomba which also services Laidley, Forest Hill, Gatton, Grantham and Helidon.
2. The existing centres, community and rural areas of the Lockyer Valley are protected and improved culturally, socially, economically and environmentally from the construction and operation of Inland Rail.

3.4.3.6 Road

Road network corridor planning and design contribute to the development of a multi-modal transport network that includes active and public transport networks.

1. The Lockyer Valley is serviced with a safe, efficient, legible and convenient road network that connects all communities, centres and employment areas.
2. The road hierarchy is improved and supports growth in areas identified in section 3.2 Growing communities.
3. Private motor vehicle transport is reduced as the primary mode of transport where possible.
4. The road network reflects the level of service based on the density of development and amenity of the place.
5. The operational safety and efficiency of major road transport corridors is protected and improved, including the corridors mapped on Strategic Framework Map SFM3 Connecting infrastructure.
6. Road corridors are designed and constructed to contribute to the built and urban environment by providing:
 - a. attractive streetscape landscaping that is suited to a sub-tropical climate; and
 - b. landscaped entry statements to the region and to individual Urban areas, rural towns and hamlets.
7. Development supports an improved road hierarchy and the provision of a free flowing transport system that protects the safety and amenity of roads for all anticipated users.
8. Roads are designed to allow emergency vehicles to gain access to sites safely whether on-street parking spaces are available or not.

3.4.4 Element 4 – Linear infrastructure

Linear infrastructure corridors are located and designed to minimise their adverse impacts on economic development, social cohesion, ecological connectivity and ecological processes.

1. Linear infrastructure corridors:

- a. are located and designed to protect the character and social cohesion of communities by including treatments such as landscaped visual buffers and acoustic attenuation devices.
 - b. are designed and constructed to incorporate safe fauna movement connection and other design elements that reduce effects on matters of environmental significance.
 - c. avoid creating associated infrastructure (such as bare acoustic walls and large advertising devices) that harm scenic landscape areas and social cohesion.
 - d. incorporate opportunities for active transport both within the corridor and across the corridor.
2. New linear infrastructure provides economic and social benefits to the Lockyer Valley community and do not use the region only as a thoroughfare.

3.4.5 Element 5 – Protection of infrastructure corridors and sites

Existing and future transport and service infrastructure corridors and sites, including those mapped on Strategic Framework Map SFM3 Connecting infrastructure are secured and protected to support the long-term growth and infrastructure needs of the Lockyer Valley community.

1. All infrastructure networks, corridors and sites, including supporting networks, are protected from encroachment from sensitive land uses and other development that would compromise the ongoing safety, efficient delivery and functioning of the infrastructure.
2. All infrastructure networks, corridors and sites are located, designed and operated to avoid or otherwise minimise adverse effects on surrounding sensitive land uses, matters of environmental significance, scenic landscape areas and the health, safety, wellbeing and amenity of the community.

3.4.6 Element 6 - Service infrastructure networks

Existing and future service infrastructure networks, corridors and sites are secured and protected to support the long-term growth and infrastructure needs of the Lockyer Valley community.

1. Service infrastructure networks are designed and constructed to the desired standard of service of the service providers, to meet the needs of the community in a cost effective manner.
2. Energy and telecommunications infrastructure use the latest technological standards to achieve the desired standard of service, supports economic development and minimises negative environmental impacts.
3. Development maintains and protects sites and corridors for existing and future infrastructure to ensure efficient delivery and functioning of infrastructure needed to meet the Lockyer Valley's growth needs.
4. The region's high pressure gas infrastructure is managed to minimise its adverse effects on sensitive land uses, the natural environment and communities while meeting existing and future needs of the Lockyer Valley and surrounding communities.
5. Stormwater and wastewater are minimised and managed to protect and improve water quality of the Lockyer Creek water resource catchment and the ecological and hydrological processes of the sub-catchments to maintain the health, safety and wellbeing of the community and environment.
6. Development takes a precautionary approach to stormwater management by applying best practice management methods (such as total water cycle management and water sensitive urban design (WSUD), sustainable land management and erosion and sediment controls (ESC)) to manage stormwater runoff and provide for the sustainable and safe collection, treatment and conveyance of stormwater to waterways.
7. The Lockyer Valley is serviced by waste management and recycling facilities that are adequate for development and the community, minimises environmental effects and uses the latest standards of waste management technology to support economic development.
8. Water supply and sewerage infrastructure and solutions are provided to the desired standards of service for development and is managed and improved on a total water cycle basis to maximise the efficient use of water resources and maintain the health and wellbeing of the community and the environment, consistent with the South East Queensland Water Security Program 2023.
9. Community infrastructure is designed to cater for the effects of climate change and natural hazards by avoiding exposing people and property to high, very high and extreme risk hazard areas or intolerable risk. If essential community infrastructure is in the public interest and there is no alternative location, the provision of asset protection zones is balanced with the protection of natural values.

3.5 Theme 4 - Sustaining the natural environment

1. The Sustaining the natural environment theme identifies strategic outcomes related to the following:
 - a. Climate impacts and effects;
 - b. Matters of environmental significance;
 - c. Emissions and hazardous activities;
 - d. First nations peoples' and indigenous landscapes;
 - e. Wildlife conservation;
 - f. Renewable and non-renewable resources;
 - g. Safety and natural hazards;
 - h. Scenic landscapes;
 - i. Waterways and water quality;
 - i. Fish habitats;
 - ii. High risk soils.
2. The Strategic Framework Map SFM4A Sustaining the natural environment — Habitat and Strategic Framework Map SFM4B Sustaining the natural environment — Landscape identifies elements of the strategic framework relevant to the sustaining landscapes and natural assets theme.
3. Elements of the natural hazards theme are not mapped on the strategic framework maps but are reflected through measures in other parts of the planning scheme, primarily overlays.

3.5.1 Element 1 - Climate impacts and effects

The Lockyer Valley community will live sustainably by minimising climate disruptions and avoiding damage to our environment, lifestyle and economy. The effects of climate change are mitigated and managed to minimise risks to the safety, economy, lifestyle and resilience of the community and resilience of the natural environment and drinking water supply catchments.

1. Increases to vegetation cover across the region will be pursued where possible to minimise the adverse effects of climate change, the heat island effect and salinity expression while improving stormwater infiltration to groundwater aquifers.
2. Development supports reductions in greenhouse gas emissions and the community's exposure to climate impacts and improves the resilience and capacity of:
 - a. flora, fauna, natural places, livestock, crops and people to adapt; and
 - b. people, infrastructure, flora and fauna, livestock and crops from the effects of extreme natural hazard events.
3. Development incorporates materials that are recycled or have low levels of embodied energy and where possible are energy, water and waste efficient.
4. Development incorporates materials that are resilient to the long-term effects of climate change (e.g. increased flooding and bushfire hazard risks) in addition to avoiding areas natural hazards and mitigating hazard to a tolerable or acceptable level.
5. Low emission manufacturing, adaptive land use management practices, and best practice resource recovery and reuse are supported and encouraged.
6. The ecological resilience and capacity for the natural environment to change and adapt to the predicted effects of climate change is supported through the maintenance of healthy, well-functioning ecosystems that assist genetic, species and ecosystem diversity and movement both within and beyond the Lockyer Valley.

3.5.2 Element 2 – Matters of environmental significance

Matters of environmental significance within the Lockyer Valley are protected and improved to support ecological connectivity and ecological processes, to ensure ecosystem resilience and support the community's health, wellbeing and prosperity into the future.

1. Development is located outside of matters of environmental significance.
2. Development avoids and minimise negative impact on matters of State environmental significance and matters of National environmental significance.
3. Development is located within cleared or degraded areas, which are restored or improved to increase matters of environmental significance, biodiversity, ecological processes, ecosystem resilience, ecological connectivity and separation from the adverse effects of development.
4. Development protects, maintains and improves the ecological connectivity, ecological value, ecological processes, ecosystem resilience, biodiversity, scenic landscape areas and community wellbeing in matters of environmental significance and corridors by reducing fragmentation and edge effects through the restoration of degraded areas.
5. Safe movement of koalas through urban and rural residential areas is facilitated by incorporating fauna-friendly development design measures, fauna fencing and fauna movement devices.

6. The ecosystem resilience and capacity for the natural environment to change and adapt to the predicted effects of climate change is supported through the maintenance of healthy, well-functioning ecosystems that assist genetic, species and ecosystem resilience, diversity and movement both within and beyond Lockyer Valley.
7. Development located within a matter of environmental significance is not supported unless it is demonstrated that avoidance is not possible, the impacts are minimised and residual environmental impacts are mitigated, resulting in a net gain in environmental values in the Lockyer Valley.
8. Development protects and avoids adversely affecting the natural and cultural heritage significance of the Gondwana Rainforests of Australia World Heritage Area (Main Range Group).

3.5.3 Element 3 - Emissions and hazardous activities

The community's public health and safety and the natural and built environment are protected from potential harmful emissions and hazardous activities by ensuring development is located, designed, constructed and operated to avoid or minimise environmental emissions on the environment and sensitive receptors.

1. The quality of water, light, air (dust and odour) and acoustic environments is maintained and improved at a high level to protect and improve the public health and safety of the community and the natural environment.
2. Development that is incompatible with existing and approved land uses is located designed, constructed and operated to avoid impacts to these uses and where the impacts cannot be practicably avoided, minimise exposure of workers and residents to environmental emissions, and public health and safety risks.
3. Development involving the manufacturing, assembly, storage, disposal or testing of hazardous materials and hazardous chemicals, is located and managed to minimise the public health and safety risks to communities, individuals and the environment.
4. Sensitive land uses are protected from adverse effects of emitting activities that may cause risk to people, property, fauna or livestock.

3.5.4 Element 4 - First nations peoples' and indigenous landscapes

First nations peoples' identified heritage places and physical and spiritual connection with landscapes within the Lockyer Valley is improved.

1. First nations peoples' unique cultural, spiritual and historical association with land and water is recognised and reflected in planning for the region for the benefit of the community and future generations.
2. Artefacts, places and landscape values of cultural significance are protected from development consistent with the *Aboriginal Cultural Heritage Act* and the *Native Title Act*.
3. The protection of artefacts, places and landscape values facilitates traditional owners to re-establish and continue their physical and spiritual connection with history, country (i.e. land and water) and tradition.

3.5.5 Element 5 - Wildlife conservation

Wildlife habitat areas are protected and connectivity between areas is improved to sustain the long-term health of wildlife across the Lockyer Valley and adjoining regions.

1. Ecological corridors and wildlife habitat areas are protected and connectivity between areas is improved to sustain the long-term health of wildlife across the Lockyer Valley and adjoining regions.
2. Existing cleared areas are used as wildlife restoration or offsets areas.
3. Safe movement of wildlife through urban and rural residential areas is facilitated by incorporating fauna-friendly development design measures, fauna fencing and fauna movement devices.
4. Restored areas or ecological offsets increase the connectivity, quality and quantity of wildlife habitat at a strategic landscape-scale and local-scale as well as buffering habitat areas from development.

3.5.6 Element 6 – Renewable and non-renewable resources

The region's renewable and non-renewable natural resources are protected or managed so they are retained for long-term productive use and capacity and not overused, fragmented or isolated.

1. Innovative technological advancements and processes are encouraged to minimise the waste of renewable and non-renewable resources and the reuse of by-products.
2. Areas with non-renewable resources that have been exhausted are rehabilitated, restored, re-purposed and reused to minimise continuing degradation, contamination or sterilisation of the site and provide for an alternative productive use.

3.5.7 Element 7 - Safety and natural hazards

The risks associated with natural hazards, including the projected impacts of climate change, are avoided in the first instance and, where not able to be avoided, are mitigated to protect people, property and the environment and improve the community's resilience and adaptation to natural hazards. The planning scheme is responsive to climate change and protects natural corridors and processes to minimise the increasing impacts of climate change including, but not limited to, urban heat, intensifying storms, more frequent flooding, landslips and fire events. Mitigation methods to achieve acceptable risk levels from natural hazards are necessary.

1. Impacts of climate change are avoided or mitigated to protect people, property, the environment and economic activity to improve the community's resilience to natural hazards.
2. Development avoids natural hazard areas (e.g. a very high or high bushfire hazard) that have an intolerable risk. Where development cannot avoid intolerable risk, development does not occur.
3. Development incorporates adaptive measures to mitigate the known impacts of climate change to improve the community's resilience to natural hazards.
4. Development protects people, property, the environment and economic activity from climate change and natural hazard events.
5. Existing development in areas of intolerable risk is not intensified and transitions away from risk.
6. New urban areas mitigate risk to demonstrate development can proceed with an acceptable risk level. Residual areas with intolerable risk are to remain undeveloped.
7. Infill development should proceed on the part of a site that has the lowest level of risk, reducing the risk to an acceptable level, which may involve specific built form or site based mitigation methods.
8. Development maintains or improves the protective function of landforms and vegetation that can mitigate risks associated with the natural hazard.
9. Development supports and does not unduly burden a disaster management response or recovery capacity and capabilities.
10. Development ensures that adequate evacuation routes and emergency service access are available in a natural hazard event.
11. Critical infrastructure and Essential community infrastructure are designed and constructed to remain operational during and after a natural hazard event and in a total cost of ownership when considering risks from all natural hazards and climate change.
12. Vulnerable uses, Essential community infrastructure and Critical infrastructure are located outside of areas of natural hazard and the risk from adjacent areas of natural hazard are managed to an acceptable risk. Locating infrastructure within an area of tolerable risk may be considered if the location is in the public interest and no alternative location is feasible and the risk can be mitigated to an acceptable level.

3.5.8 Element 8 - Scenic landscapes

Scenic landscape areas are protected and improved so they continue to contribute to the region's liveability, health, lifestyle, economy, environmental values, physical and mental wellbeing, sense of place and community cohesion.

1. Development avoids, protects and improves the scenic landscape areas.
2. Development that intrudes into scenic landscape areas including those in Table 3.5-1: Locally important landscape features, minimises scarring and visual prominence in the landscape.
3. Scenic routes and lookouts are protected from both the detrimental visual impacts of development (including advertising devices) and inappropriate vegetation clearing that may detract from the scenic qualities of the scenic route or outlook.
4. The scenic landscape areas are retained as the backdrop to the region and ensure the ecological values and landscape character of the hillslopes are protected from development.
5. Development in scenic landscape areas responds to the constraints of the land including vegetation, gradient and slope stability.

Table 3.5-1: Locally important landscape features

LANDSCAPE FEATURES	NAME			
Mountains, ridgelines and escarpments	Balaam Hill	Mistake Mountains	Mount Mistake	
	Beins Mountain	Katoomba Point	Mount Whitestone	
	Ben Lomond	Mount Beau Brummell	Mount Zahel	
	Grass Tree Knob	Mount Cross	Rocky Knob	
	Great Dividing Range	Mount Davidson	Stringybark Mountain	
	Little Liverpool Range	Mount Haldon	Table Top Mountain (Meewah)	
	Main Paradise Range	Mount Ma	Vinegar Hill	
	Main Range	Mount Michael	White Mountain	

	Mantheys Knob		
Waterways	Black Duck Creek Blackfellow Creek Buaraba Creek (South Branch) Deep Gully Dry Creek Flagstone Creek Gatton Creek	Laidley Creek Little Oakey Creek Lockyer Creek Ma Ma Creek Murphy's Creek Rocky Creek Sandy Creek (Grantham & Helidon)	Sandy Creek (Forest Hill) Soda Spring Creek Spring Creek Stockyard Creek Tenthill Creek Wonga Creek Yellow Gully Woolshed Creek
Waterbodies	Bill Gun Dam (Lake Dyer) Clarendon Dam (Lake Clarendon) Giesemann Lagoon	Jahnke's Lagoon Lake Apex Lake Freeman Lake Galletly	Narda Lagoon One Mile Lagoon Schecht Lagoon Seven Mile Lagoon

3.5.9 Element 9 — Waterways and water quality

Water resource catchments in the Lockyer Valley and water supply to community are protected and improved to ensure the delivery of a safe, secure, reliable and cost efficient drinking water supply to support the health and wellbeing of the community as well as ecological processes.

1. Development in Lockyer Creek water resource catchment, water supply buffer and separation areas, protects and improves water quality and protects the environmental values of the groundwater and surface water drinking water supply.
2. Development avoids locating in overland flow paths, waterways, wetlands, separation areas, riparian areas and high risk soils areas to minimise water contamination, sedimentation and salination and negative effects on aquatic ecosystems.
3. Development retains and improves overland flow paths, wetlands, waterways, riparian areas and matters of environmental significance (such as groundwater dependant ecosystems) to minimise and mitigate negative effects on:
 - a. the water quality of receiving waters and groundwater (including but not limited to urban and irrigation supply storages);
 - b. the ecological, hydrological and geomorphological processes of receiving waterways and catchments;
 - c. hydrologic conditions within Lockyer Creek catchment and sub-catchments.

3.5.9.1 Fish habitats

Fish habitats and fisheries are protected from development and pollution from urban and rural activities to sustain fish stock levels, to improve and maximise downstream fisheries for the ongoing benefit of the environment and community.

1. Fish habitats, including waterways, are protected, managed and improved to sustain fish stock levels and maximise fish harvested from wild sources.
2. Fish habitats, including waterways and wetlands, are protected from encroachment by urban and incompatible development.
3. Fish and aquatic fauna movement is maintained and improved by ensuring in-stream barriers (waterway barrier works) are designed and constructed to protect and enhance natural fish passage and movement.

3.5.9.2 High risk soils

The natural and built environment is protected from potential detrimental effects from high risk soils by avoiding, or where avoidance is not practicable, manage the disturbance of high risk soils to minimise the mobilisation and release of sediment and contaminants.

1. Development mitigates and manages the risks from high risk soils to the natural and built environment by:
 - a. designing the development to suit the soil type and land features;
 - b. avoiding and minimising soil disturbance and earthworks for development, dams and on-site detention basins in salinity expression areas and soil management areas;
 - c. minimising the number of on-site effluent disposal areas in salinity expression areas and soil management areas;
 - d. protecting and restoring habitat in areas mapped as soil management areas, matters of environmental significance, scenic landscape areas, waterways, overland flow paths and steep slopes.

3.6 Theme 5 - Living in a great place

1. The Living in a great place theme identifies strategic outcomes related to the following:
 - a. Affordable living;
 - b. Community activities and infrastructure;
 - c. Community health and wellbeing;
 - d. Cultural heritage;
 - e. Open space, sport and recreation;
 - f. Urban Design.
2. The Strategic Framework Map SFM 5 Living in a great place identifies elements of the strategic framework relevant to the living in a great place theme.
3. Strategic Framework Map SFM 4B Sustaining the natural environment - Landscapes is also relevant to Living in a great place theme in that it identifies the major natural environment elements that contribute to the landscape character and identity of the Lockyer Valley.

3.6.1 Element 1 - Affordable living

Living in the Lockyer Valley is affordable by creating complete communities as infill or greenfield development that facilitates a housing density and choice with convenient access to employment, education, transport, services, infrastructure, community, cultural, sport and recreation activities and connection to the natural environment or natural areas.

1. Housing, employment, education, community, cultural, sport and recreation activities:
 - a. cater to a diverse range of communities including ageing populations, multi-generational families, group housing, people with special needs and those from distinct cultural experience;
 - b. allow people to remain within their local community throughout their life and age in place;
 - c. facilitate community inclusion through increased mobility, access to employment, community services, infrastructure, recreation and natural areas;
 - d. provide best practice affordable, innovative and adaptable living options;
 - e. provide various low-cost living options that are compatible with and sympathetic to the preferred character of the local area.
2. Accommodation for students and single person households is integrated within existing principal and major activity centres, to maintain local character and amenity of towns.

3.6.2 Element 2 – Community activities and infrastructure

Social infrastructure and community services (e.g. education, health) are maintained and increased to meet the changing community demand for high quality community and cultural facilities that contribute to a sense of belonging and involvement in community life.

1. Communities are provided with equitable access to a range of community facilities within the context of the planned community facilities and infrastructure network consistent with the changing needs of the community and to a standard of service commensurate with the locality. New community facilities will be located to be integrated with other community activities and services.
2. Development provides and/or contributes to the provision of flexible, multi-purpose and multi-functional community facilities and/or land for community facilities that are well-located, cost effective and multi-functional to form complete communities.
3. Existing community facilities and future sites for community facilities are protected from encroachment by incompatible land uses and adverse effects of development.
4. Community and cultural facilities are located to be available for emergency purposes during and after natural disasters.

3.6.3 Element 3 – Community health and wellbeing

Communities in the Lockyer Valley are designed and supported by infrastructure and assets to promote community health and wellbeing, resilience and adaptability to change including economic change, social change and climate change adaptation and mitigation through healthy, liveable places that promote mental and physical wellbeing.

1. Development integrates with existing development and connects communities.
2. Development supports the diverse needs and aspirations of people of all ages and abilities in the community.

3.6.4 Element 4 - Cultural heritage

The unique blend of Lockyer Valley's environmental, Indigenous, early settlement and built heritage is recognised, retained, protected and, where practicable to do so, restored for the benefit of the community and future generations.

1. The unique architectural, cultural, historic, scientific, natural and spiritual qualities of heritage places are protected from encroachment by development that diminishes their heritage values and qualities.
2. The Main Range National Park being a part of the Gondwana Rainforest of Australia World Heritage Area is protected under the *Environment Protection and Biodiversity Conservation Act* (Cth) and development is avoided that may harm its World Heritage listing.
3. Other State reserves including Lockyer National Park, Gatton National Park, Glen Rock National Park, Flagstone Creek Conservation Park, Dwyer's Scrub Conservation Park and Tenthill Conservation Park are protected and development is in the form of recreational Tourist activities.
4. Development of cultural heritage places and heritage areas of National, State and/or Local significance are protected from harm or damage that destroys heritage features, significance, integrity or structural integrity of the place or area.
5. Heritage places, areas and streetscapes are protected and improved through restoration and adaptive reuse.

3.6.5 Element 5 – Open space, sport and recreation

Open space, sport and recreation areas within the Lockyer Valley are places of high quality, well connected, adaptable, diverse and accessible spaces that connect natural and recreational spaces to expand their use and accessibility for the growing community demand.

1. Lockyer Valley has an interconnected and accessible network of open space for both conservation and recreation.
2. All communities are provided with equitable access to sport and recreation opportunities within the context of the planned open space infrastructure network and to a standard of service which is commensurate to the locality.
3. Development provides and/or contributes to the provision of land and/or embellishments for public open space that meets the needs of the community and is consistent with the planned open space infrastructure network.
4. The open space, sport and recreation resources are protected from encroachment by incompatible land uses and development.
5. Development protects and maintains green corridors of open space within urban and rural residential areas to:
 - a. connect with the broader environment and landscape;
 - b. maintain public access to natural areas.
6. Parks, open space and sport and recreational facilities are designed, located and managed to:
 - a. protect and improve the values and attributes of open space and ecologically important matters of environmental significance;
 - b. be compatible with the long-term management of the values and other uses of the land;
 - c. protect and maintain the amenity of surrounding areas and land uses;
 - d. be safe for public use and maximise outdoor comfort for users;
 - e. provide opportunities for shared uses and facilities including for Markets, community gardens and community assembly and meeting places where suitable and practicable;
 - f. provide opportunities for Nature-based tourism and recreation where suitable and practicable;
 - g. protect and do not adversely impact the drinking water supply catchments and water supply infrastructure.
7. Recreation facilities:
 - a. accommodate temporary uses such as festivals or community evacuation centres in times of need;
 - b. incorporate activities such as community gardens, companion animal exercise areas, cafes or Markets;
 - c. are flexible, adaptable and multi-use to support a range of sporting, cultural and civic uses;
 - d. provide a balance of active and passive recreation opportunities.
8. Development avoids locating and constructing infrastructure within these areas that is incompatible with the purpose of the open space and sport and recreation areas.

3.6.6 Element 6 – Urban design

Best practice urban design is used to create places and spaces that are comfortable, compact, safe, resource efficient, cost effective and climate resilient while maintaining local identity and a sense of place.

1. Development improves the individual sense of identity, character, intensity, scale and form, reflects the intended outcomes and desired character of centres, towns and townships in the Lockyer Valley.
2. Buildings, public places and active transport routes are designed to assist and encourage passive surveillance and incorporate Crime Prevention through Environmental Design (CPTED) principles to reduce the risk and fear of crime and ensure public safety and wellbeing.
3. Development creates communities that are walkable, comfortable, attractive places, and provides streetscapes that have

a high level of privacy and amenity.

4. Development respects and works with local landscape, character, community identity and historical features in the design of buildings, streets and spaces to create and maintain local character.
5. Development uses sustainable design that responds to the local character, and orients buildings, streetscapes and places to optimise user comfort in a subtropical climate. Sustainable design includes landscaped open spaces around buildings that conserve and improve water quality management and provide low-energy, low-cost living solutions to improve community resilience to the adverse effects of climate change.
6. Subdivision provides centres and neighbourhoods that reflect local conditions, needs and character.
7. Building design facilitates high quality urban design and place-making outcomes in the built and natural environment that promote highly attractive, accessible, adaptive, functional, legible and connected places and spaces.

Part 4 Local government infrastructure plan

4.1 Preliminary

1. This local government infrastructure plan has been prepared in accordance with the requirements of the *Planning Act 2016*.
2. The purpose of the local government infrastructure plan is to:
 - a. integrate infrastructure planning with the land-use planning identified in the planning scheme;
 - b. provide transparency regarding a local government's intentions for the provision of trunk infrastructure;
 - c. enable a local government to estimate the cost of infrastructure provision to assist its long-term financial planning;
 - d. ensure that trunk infrastructure is planned and provided in an efficient and orderly manner;
 - e. provide a basis for the imposition of conditions about infrastructure on development approvals.
3. The local government infrastructure plan:
 - a. states in section 4.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network;
 - b. identifies in section 4.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2031;
 - c. states in section 4.4 (desired standards of service), for each trunk infrastructure network, the desired standard of performance;
 - d. identifies in section 4.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - i. stormwater network;
 - ii. transport network;
 - iii. parks and land for community facilities network;
 - e. provides a list of supporting documents that assists in the interpretation of the local government infrastructure plan in the section 4.5-1: List of Extrinsic material at the end of section 4.5.

4.2 Planning assumptions

1. The planning assumptions state the assumptions about:
 - a. population and employment growth;
 - b. the type, scale, location and timing of development, including the demand for each trunk infrastructure network.
2. The planning assumptions, together with the desired standards of service, form the basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
3. The planning assumptions have been prepared for:
 - a. the base date 2016 and the following projection years:
 - i. mid 2021;
 - ii. mid 2026;
 - iii. mid 2031;
 - iv. mid 2036;
 - v. ultimate development.
 - b. the LGIP development types in column 2 that include the uses in column 3 of Table 4.2-1.
 - c. the projection areas identified on Local government infrastructure plan map LGIP Priority infrastructure area PIA-1:7 in schedule 3 Local government infrastructure plan maps and tables.

Table 4.2-1: Relationship between LGIP development categories, LGIP development types and uses

COLUMN 1 LGIP DEVELOPMENT CATEGORY	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 USES
Residential development	Detached dwelling	Caretaker's accommodation Dwelling house
	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling Retirement facility Short-term accommodation
	Other dwellings	Community residence Home-based business Relocatable home park Residential care facility Rooming accommodation Rural workers' accommodation Tourist park Workforce accommodation
Non-residential development	Retail	Agricultural supplies store Bulk landscape supplies Car wash Food and drink outlet Garden centre Hardware and trade supplies Market Outdoor sales Sales office Service station Shop Shopping centre Showroom Wholesale nursery
	Commercial	Club Function facility Hotel Indoor sport and recreation Nature-based tourism Nightclub entertainment facility Office Theatre

	Veterinary services
Industry	Extractive industry High impact industry Low impact industry Medium impact industry Service industry Special industry Transport depot Warehouse
Community purposes	Cemetery Childcare centre Community care centre Crematorium Community use Educational establishment Emergency services Funeral parlour Health care services Hospital Motor sport facility Outdoor sport and recreation Park Place of Worship
Rural and other uses	Air services Animal husbandry Animal keeping Aquaculture Battery storage facility Cropping Environment facility Intensive animal industry Intensive horticulture Major electricity infrastructure Permanent plantation Roadside stall Rural industry Substation Telecommunications facility Utility installation Winery

4. Details of the methodology used to prepare the planning assumptions are stated in the extrinsic material.

4.2.1 Population and employment growth

1. A summary of the assumptions about population and employment growth for the planning scheme area is stated in Table 4.2-2: Population and employment assumptions summary.

Table 4.2-2: Population and employment assumptions summary

COLUMN 1 DESCRIPTION	COLUMN 2 ASSUMPTIONS					
	BASE DATE (2016)	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Population	39,811	43,835	48,218	52,732	57,225	90,068
Employment	11,481	12,555	13,698	14,903	16,169	19,922

2. Detailed assumptions about growth for each projection area and LGIP development type category are identified in the following tables in schedule 3 Local government infrastructure plan maps and tables:
 a. for population, Table SC3.1-1: Existing and projected population;

b. for employment, Table SC3.1-2: Existing and projected employees.

4.2.2 Development

1. The developable area is identified on Local government infrastructure plan map LGIP Priority infrastructure area PIA-1:7 in schedule 3 Local government infrastructure plan maps and tables.
2. The planned density for future development is stated in Table SC3.1-3 in schedule 3 Local government infrastructure plan maps and tables.
3. A summary of the assumptions about future residential and non-residential development for the planning scheme area is stated in Table 4.2-3: Residential dwellings and non-residential floor space assumptions summary.

Table 4.2-3: Residential dwellings and non-residential floor space assumptions summary

COLUMN 1 DESCRIPTION	COLUMN 2 ASSUMPTIONS					
	BASE DATE (2016)	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Residential dwellings	14,891	16,456	18,165	19,935	21,713	34,175
Non-residential floor space (m ² GFA)	562,732	623,519	688,274	756,449	827,870	1,322,712

4. Detailed assumptions about future development for each projection area and LGIP development type are identified in the following tables in schedule 3 Local government infrastructure plan maps and tables:
 - a. for residential development, Table SC3.1-4: Existing and projected residential dwellings;
 - b. for non-residential development, Table SC3.1-5: Existing and projected non-residential floor space.

4.2.3 Infrastructure demand

1. The demand generation rate for a trunk infrastructure network is stated in column 4 of Table SC3.1-3 in schedule 3 Local government infrastructure plan maps and tables.
2. A summary of the projected infrastructure demand for each service catchment is stated in:
 - a. for the stormwater network, Table SC3.1-6: Existing and projected demand for the stormwater network;
 - b. for the transport network, Table SC3.1-7: Existing and projected demand for the transport network;
 - c. for the parks and land for community facilities network, Table SC3.1-8: Existing and projected demand for the parks and land for community facilities network.

4.3 Priority infrastructure area

1. The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2031.
2. The priority infrastructure area is identified on Local government infrastructure plan map LGIP Priority infrastructure area PIA-1:7

4.4 Desired standards of service (DSS)

1. This section states the key standards of performance for a trunk infrastructure network.
2. Design standards for trunk infrastructure networks are identified in the following sub-sections, which include references to planning scheme policies or other controlled documents.

4.4.1 Stormwater network

1. The desired standard of service for the Stormwater network is as follows:

Table 4.4-1: Stormwater network desired standard of service

COLUMN 1 MEASURE	COLUMN 2 PLANNING CRITERIA (QUALITATIVE STANDARDS)	COLUMN 3 DESIGN CRITERIA (QUANTITATIVE STANDARDS)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	Queensland Urban Drainage Manual Local government standards in planning scheme and planning scheme policies DTMR - Road Drainage Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	National Water Quality Management Strategy <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve <i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> water quality objectives for Lockyer Creek and its sub-catchments.	<i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> Local government standards in planning scheme and planning scheme policies
Infrastructure design standards or planning standards	Design of the stormwater network will comply with established codes and standards.	Queensland Urban Drainage Manual Local government standards in planning scheme and planning scheme policies Natural Channel Design Guidelines DTMR - Road Drainage Manual

4.4.2 Transport network

1. The desired standard of service for the transport network is as follows:

Table 4.4-2: Transport network desired standard of service

COLUMN 1 MEASURE	COLUMN 2 PLANNING CRITERIA (QUALITATIVE STANDARDS)	COLUMN 3 DESIGN CRITERIA (QUANTITATIVE STANDARDS)
Road network design or planning standards	The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.	Local government road design and development manual, standards or codes in planning scheme and planning scheme policy.

	Design of the road system will comply with established codes and standards.	Interim Guide to Road Planning and Design developed by the Department of Transport and Main Roads Australian Standards AUSTROADS guides
Public transport design or planning standards	New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand- responsive public transport routes.	Local government design and development manual, standards or codes in planning scheme and planning scheme policy. Design accords with the performance criteria set by Department of Transport and Main Roads AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design or planning standards	Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives. Design of the network will comply with established codes and standards.	Local government road design and development manual, standards or codes in planning scheme and planning scheme policy. Australian Standards AUSTROADS Guide to Road Design — Part 6A: Pedestrian and Cycle Paths. Complete Streets

4.4.3 Parks and land for community facilities network

1. The desired standard of service for the parks and land for community facilities network is as follows:

Table 4.4-3: Parks and land for community facilities network desired standard of service

COLUMN 1 MEASURE	COLUMN 2 PLANNING CRITERIA (QUALITATIVE STANDARDS)	COLUMN 3 DESIGN CRITERIA (QUANTITATIVE STANDARDS)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	Parks and land for community facilities is provided at a local, district and LGA-wide level. Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities.
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	Accessibility standards are identified in Table 4.4-4
Land quality or suitability Area for each 1,000 persons; minimum size; maximum grade; flood immunity.	Parks and land for community facilities will be provided to a standard that supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	The rate of public park and land for community facilities is identified in Table 4.4-5. The size of park and land for community facilities is identified in Table 4.4-6. The maximum desired gradient for public park and land for community facilities provision is identified in Table 4.4-7. Road frontage requirements are identified in Table 4.4-8. The minimum desired flood immunity for public park and land for community facilities is identified in Table 4.4-9
Facilities or embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	Standard embellishments for each type of park are identified in Table 4.4-10 and Table 4.4-11.
Infrastructure design or performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs	Local government standards in planning scheme and planning scheme policies

and valued environmental and cultural assets. Australian Standards

Table 4.4-4: Accessibility standard

INFRASTRUCTURE TYPE	ACCESSIBILITY STANDARD (KM)		
	LOCAL	DISTRICT	REGIONAL
Recreation park	0.4km in urban areas	1km in urban areas	20 minute drive (40km)
Sport park	N/A	15 minute drive	15 minute drive
Land for community facilities	LVRC Standard	LVRC Standard	LVRC Standard

Table 4.4-5: Rate of land provision

INFRASTRUCTURE TYPE	RATE OF PROVISION (HA FOR EACH 1,000 PEOPLE)		
	LOCAL	DISTRICT	REGIONAL
Recreation park	0.3 — Where not serviced by higher level recreation park, or recreation node	0.8	0.8
Sport park	N/A	0.6	0.6
Land for community facilities	N/A	N/A	0.1

Table 4.4-6: Size of parks and land for community facilities

INFRASTRUCTURE TYPE	MINIMUM SIZE (HA) — USABLE SPACE		
	LOCAL	DISTRICT	REGIONAL
Recreation park	0.5	2.0	6.0
Sport park	N/A	3.0	6.0
Land for community facilities	N/A	N/A	N/A

Table 4.4-7: Maximum desired grade

INFRASTRUCTURE TYPE	MAXIMUM GRADIENT		
	LOCAL	DISTRICT	REGIONAL
Recreation park	1:10 for 80% area	1:10 for 80% area	1:20 in Main Use Area 1:50 in Kick About
Sport park	N/A	1:80 Play Surface	1:100 Play Surface
Land for community facilities	LVRC Standard	LVRC Standard	LVRC Standard

Table 4.4-8: Road frontage

INFRASTRUCTURE TYPE	ROAD FRONTAGE REQUIREMENT (% OF PARK PERIMETER)		
	LOCAL	DISTRICT	REGIONAL
Recreation park	50% local road frontage where possible	50% to have direct road frontage, preferably to a collector road	
Sport park	N/A	25% to have direct road frontage	
Land for community facilities	LVRC Standard	LVRC Standard	LVRC Standard

Table 4.4-9: Minimum desired flood immunity

INFRASTRUCTURE TYPE	MINIMUM FLOOD IMMUNITY (%)								
	LOCAL			DISTRICT			REGIONAL		
Flood immunity	>Q5	>Q50	>Q100	>Q5	>Q50	>Q100	>Q5	>Q50	>Q100

Recreation park	<i>Currently under review by LVRC — to be determined on completion of the LVRC Flood Study</i>
Sport Park	
Land for community facilities	

Table 4.4-10: Embellishment standards for recreation parks

EMBELLISHMENT TYPE	LOCAL	DISTRICT	REGIONAL
Recreation activity areas - elements selected to be sensitive to the setting of the park and provide a mix of opportunities	Mix of 4 activity options	Mix of 6 to 10, activity options clustered in two or more nodes	Mix of 12 or more, as required, dispersed across well-defined nodes of activity focus
Fencing, bollards and locking rails	Yes	Yes	Yes
Landscaping	Yes, minimal	Yes	Yes, significant landscaping
Irrigation	No	Yes, in high use areas	Yes, in high use areas
Lighting	No	Yes, picnic nodes	Yes, picnic nodes and pathways
Pedestrian pathway access network	Minimal	Access paths. May contain walking or cycle network within park. Minimum 1.8m width.	Entrance and access paths, walking or cycling network within park. Minimum 1.8m width, but up to 3.5 to 4m in high use areas
Bike racks	No	Ideally	Yes
Signage	Park name sign, located at main entrance. Generic 'Local Park' street signage where entrances are on cul-de-sacs	As required, located at key entrances	As required, located at key entrances. Interpretive signage and/or trail signage (e.g. distance markers on recreation corridors)
Shade structures (playgrounds)	No	Yes	Yes
Tap and bubblers	Yes	Yes	Yes, one at each activity node and servicing picnic areas
Bench seating	1 to 2 (if no other seating is provided), positioned for supervision of any play area, or for views or appreciation of the surrounding park or area.	3 to 4 depending on need. Located for supervision of any play area and/or along recreational corridors to provide rest stops.	Yes, located for supervision of any play area; along recreation corridors to provide rest stops; and/or enjoyment of views or amenity.
Barbeques	No	Minimum of one, with potential to expand if demand increases	Yes, multiple double barbecues located to service picnic nodes for individuals, families and large groups
Shelters or gazebo with tables and seats	No	1 to 3	4 to 8
Rubbish bins	Yes, located near activity area, or at key access points.	2 or more as required to service activity area or picnic nodes.	Several, as required to service activity areas, picnic nodes, key access and egress areas and pathways.
Toilet	No	Yes	Yes
Public artwork	No	No	No
Internal roads	No	No	As required to service car

			parking, and access requirements
Car parking	On-road only	Yes, 10 to 20 spaces with additional on-road parking	Yes, minimum of 50 spaces, with additional provision available within close proximity
Bus pull-through and parking	No	On-road parking	Yes

Table 4.4-11: Embellishment standards for sports parks

EMBELLISHMENT TYPE	DISTRICT SPORT	REGIONAL SPORT
Courts and fields	2 rectangular fields minimum, with capacity for additional facilities or courts as required.	6 rectangular fields minimum, with capacity for additional facilities or courts as required.
Goal posts and line marking	Yes	
Irrigation	Main field as a minimum	
Field and court lighting	Ensure lighting is possible if demand emerges	
Spectator seating	Earth mounds, or as required	
Tap and bubbler	Yes, located near activity areas and canteen or clubhouse area	
Clubhouse facilities	Yes, minimum of toilet or change room, canteen, storage and administrative or office space	
Landscaping	Trees and shade provision for spectators, landscaping of boundaries to buffer noise and light spill	
Feature paving or concrete stencilling	Possibly at key entry areas or high use zones	
Internal roads	Yes	
Bus pull-through	Yes	
Bus parking	Yes	
Car parking	Yes, minimum of 100 spaces for a 2 field complex or 12 per court	Yes, minimum of 200 spaces for a 4 field complex or 12 per court
Bike racks	Yes	
Fencing, bollards and lock rails	Yes	
Lighting	Yes	
Pedestrian pathway access network	Yes	
Public artwork	No	
Signage	Yes, including internal directional signage	
Recreation activity areas (e.g. play spaces, fitness circuits, hit up walls)	Depending on the size of the park and proximity to adjacent residents. Minimum level of provision equivalent to that of a local recreation park	

4.5 Plans for trunk infrastructure

1. The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service.

4.5.1 Trunk infrastructure maps

1. The existing and future trunk infrastructure networks are identified on the following maps in schedule 3 Local government infrastructure plan maps and tables:
 - a. Local government infrastructure plan map LGIP Stormwater network SW-1:10;
 - b. Local government infrastructure plan map LGIP Transport network - Plans for trunk infrastructure TR-1:13;
 - c. Local government infrastructure plan map LGIP Parks and land for community facilities network PPCL-1:20.
2. The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.5.2 Schedules of works

1. Details relating to the existing and future trunk infrastructure networks are identified in the electronic Excel schedule of works (SOW) model, which can be viewed here: <https://www.lockyervalley.qld.gov.au/our-services/strategic-planning/infrastructure-charges-update>
2. The future trunk infrastructure, derived from the SOW model, is summarised in the following tables in schedule 3 Local government infrastructure plan maps and tables:
 - a. for the stormwater network, Table SC3.2-1: Stormwater network schedule of works;
 - b. for the transport network, Table SC3.2-2: Transport network schedule of works;
 - c. for the parks and land for community facilities network, Table SC3.2-3: Parks and land for community facilities schedule of works.

4.5.3 Extrinsic material

1. The table below identifies the documents that assist in the interpretation of the local government infrastructure plan and are extrinsic material under the *Statutory Instruments Act 1992*.

Table 4.5-1: List of extrinsic material

COLUMN 1 TITLE OF DOCUMENT	COLUMN 2 DATE	COLUMN 3 AUTHOR
Extrinsic Material to the Local Government Infrastructure Plan — Lockyer Valley Regional Council	September 2023	Integran Pty Ltd

Part 5 Tables of assessment

5.1 Preliminary

1. The tables in this part identify the category of development, the category of assessment (where assessable development) and assessment benchmarks for development in the planning scheme area.

5.2 Reading the tables

1. The tables identify the following:
 - a. the category of development, that is accepted or assessable, and the category of assessment for assessable development, being code or impact assessment;
 - b. the category of assessment for assessable development in:
 - i. a zone and, where used, a precinct of a zone;
 - ii. a local plan where used and, where used, a precinct of a local plan;
 - iii. an overlay where used;
 - c. the assessment benchmarks for development, including:
 - i. whether a zone code or specific outcomes in the zone code apply;
 - ii. if there is a local plan, whether a local plan code or specific outcomes in the local plan code apply;
 - iii. if there is an overlay:
 - A. whether an overlay code applies (shown in section 5.10 Categories of development and assessment — Overlays); or
 - B. whether the assessment benchmarks of the overlay code apply.
 - iv. any other applicable code/s (shown in the 'assessment benchmarks' column);
 - v. any variation to a category of assessment (shown as an 'if' in the 'category of assessment' column) that applies to the development.

Note—Development is to be taken to be prohibited development under the planning scheme if it is identified as prohibited in schedule 10 of the Planning Regulation.

Editor's note—Examples of matters that can vary the category of assessment include gross floor area, lot size and precinct.

5.3 Categories of development and assessment

5.3.1 Process for determining the category of development and the category for assessable development

1. The process for determining a category of development and category of assessment is:
 - a. for a Material change of use, establish the use by reference to the use definitions in schedule 1;
 - b. for all development, identify the following:
 - i. the zone or zone precinct that applies to the premises, by reference to the zone map in schedule 2;
 - ii. if a local plan or local plan precinct applies to the premises, by reference to the local plan map in schedule 2;
 - iii. if an overlay applies to the premises, by reference to overlay map in schedule 2;
 - c. determine if the development is accepted development under schedule 6 of the *Planning Regulation*;

Editor's note—Schedule 6 of the *Planning Regulation* prescribes development that a planning scheme cannot state is assessable development where the matters identified in the schedule are met.

- d. determine if the development is assessable development under schedule 10 of the *Planning Regulation*, by reference to section 5.4 Regulated categories of development and categories of assessment prescribed by the *Planning Regulation*;
- e. if the development is not listed in the tables in section 5.4 Regulated categories of development and categories of assessment prescribed by the *Planning Regulation*, determine the initial category of assessment by reference to the tables in:
 - i. section 5.5 Categories of development and assessment - Material change of use
 - ii. section 5.6 Categories of development and assessment - Reconfiguring a lot
 - iii. section 5.7 Categories of development and assessment - Operational work
 - iv. section 5.8 Categories of development and assessment - Building work
- f. a precinct of a zone may change the categories of development or assessment and this will be shown in the 'categories of development and assessment' column of tables in sections 5.5 and 5.6;
- g. a local plan, may change the categories of development or assessment and this will be shown in the 'categories of development and assessment' column of tables in section 5.9 Categories of development and assessment — Local plans;
- h. if an overlay applies, refer to section 5.10 Categories of development and assessment - Overlays, to determine if the overlay further changes the category of development or assessment.

5.3.2 Determining the category of development and category of assessment

1. A Material change of use is assessable development requiring impact assessment:
 - a. unless the table of assessment states otherwise; or
 - b. if a use is not listed or defined; or
 - c. unless otherwise prescribed in the *Planning Act* or the *Planning Regulation*.
2. Reconfiguring a lot is assessable development requiring impact assessment, unless:
 - a. the tables of assessment state otherwise; or
 - b. otherwise prescribed in the *Planning Act* or the *Planning Regulation*.
3. Building work and Operational work are accepted development, unless:
 - a. the tables of assessment state otherwise; or
 - b. otherwise prescribed in the *Planning Act* or the *Planning Regulation*.
4. Where an aspect of development is proposed on a site included in more than one zone or overlay, the category of assessment (where assessable development) for that aspect is the highest category under each of the applicable zones and overlays.
5. Where development is proposed on a lot partly affected by an overlay, the category of development and category of assessment (where assessable development) for the overlay only relates to the part of the lot affected by the overlay.
6. For the purposes of schedule 6, part 2 Material change of use, section 2 of the *Planning Regulation*, an overlay does not apply to the premises if the development meets the acceptable outcomes for accepted development in the relevant overlay code.

Note—For bushfire prone areas and flood hazard areas designated for the purposes of the *Building Regulation*, the provisions of the *BCA* or *QDC* that apply to those areas apply to any building assessment works carried out within those areas.

7. If development is identified as having a different category of development or category of assessment under a zone than under an overlay, the highest category of assessment applies as follows:
 - a. accepted development subject to requirements prevails over accepted development;

- b. code assessment prevails over accepted development subject to requirements and accepted development;
- c. impact assessment prevails over code assessment, accepted development subject to requirements and accepted development.

Note—Where development comprises of more than one defined use, the highest category of assessment applies.

- 8. Provisions of Part 10 Other plans may override any of the above.
- 9. The category of development prescribed under schedule 6 of the *Planning Regulation* overrides all other categories of development or assessment for that development under the planning scheme to the extent of any inconsistency.

Note—Schedule 7 of the Planning Regulation also identifies development that the State categorises as Accepted development. Some development in the schedule may still be made assessable under the planning scheme.

- 10. Despite all of the above, if development is listed as prohibited development under schedule 10 of the *Planning Regulation*, a development application cannot be made.

Note—Development is to be only taken to be prohibited development under the planning scheme as prohibited in schedule 10 of the Planning Regulation.

5.3.3 Determining the assessment benchmarks

- 1. Accepted development does not require a development approval and is not subject to assessment benchmarks. However, certain requirements may apply to some types of development for it to be accepted development. Where nominated in the tables of assessment, accepted development must comply with the requirements identified as acceptable outcomes in the relevant parts of the applicable code/s as identified in the relevant column.
- 2. Accepted development that does not comply with one or more of the nominated acceptable outcomes in the relevant parts of the applicable code/s becomes code assessable unless otherwise specified.
- 3. Code assessable development:
 - a. is to be assessed against all the assessment benchmarks identified in the assessment benchmarks column;
 - b. that occurs under sub-section 5.3.3(2), must:
 - i. be assessed against the assessment benchmarks for the development application, limited to the subject matter of the required acceptable outcomes that were not complied with or were not capable of being complied with under sub-section 5.3.3(2);
 - ii. comply with all required acceptable outcomes identified in sub-section 5.3.3(1), other than those mentioned in sub-section 5.3.3(2);
 - c. that complies with:
 - i. the purpose and overall outcomes of a code, complies with the code;
 - ii. the performance outcomes or acceptable outcomes of the code, complies with the purpose and overall outcomes of the code;
 - d. is to be assessed against any assessment benchmarks for the development identified in Section 26 of the *Planning Regulation*.

Note—Section 27 of the Planning Regulation identifies the matters code assessment must have regard to.

- 4. Impact assessable development:
 - a. is to be assessed against the identified assessment benchmarks in the assessment benchmarks column (where relevant);
 - b. assessment is to have regard to the whole of the planning scheme, to the extent relevant;
 - c. is to be assessed against any assessment benchmarks for the development identified in section 30 of the *Planning Regulation*.

Note—Section 31 of the Planning Regulation identifies the matters that must be considered for impact assessable development.

Editor's note—Uses may be subject to requirements, standards and approvals specified in other laws. Compliance with the requirements of the planning scheme does not, on its own, provide authorisation for a use to be conducted. Potential operators should conduct a due diligence assessment before commencing a use.

5.4 Regulated categories of development and categories of assessment prescribed by the *Planning Regulation*

1. The regulated categories of development and assessment prescribed by the *Planning Regulation* have not been included in the planning scheme. Please check the relevant schedules of the *Planning Regulation* for this information.

5.5 Categories of development and assessment - Material change of use

1. The following tables identify the categories of development and the categories of assessment for making a material change of use in a zone.

5.5.1 Community facilities zone

Table 5.5-1: Community facilities zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All uses	Accepted development	
	Where a Ministerial infrastructure designation has been approved for infrastructure defined under schedule 5 of the <i>Planning Regulation</i> .	
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Community facilities zone code Renewable energy facilities code Works codes
Caretaker's accommodation	Code assessment	
	In all circumstances.	Community facilities zone code Workers accommodation code Works codes
Cemetery	Accepted development	
	If for Local government purposes.	
	Code assessment	
	In all other circumstances.	Community facilities zone code Works codes
Childcare centre	Code assessment	
	In all circumstances.	Community facilities zone code Community and recreation activities code Works codes
Club	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Community care	Accepted development	

centre	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Dwelling house code
Community residence	Accepted development	
	If meeting the requirements prescribed in Schedule 6, Part 2, Section 6 of the <i>Planning Regulation</i> .	Schedule 6, Part 2, Section 6 of the <i>Planning Regulation</i> .
Community use	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Crematorium	Accepted development	
	If for Local government purposes and located within an existing Cemetery.	Building design code
Educational establishment	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Environment facility	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	

	If— a. using an existing building; b. involves Minor building work or involves no Building work; c. less than 50m ² GFA.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Commercial activities code Works codes
Function facility	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work; c. less than 50m ² GFA.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Commercial activities code Works codes
Funeral parlour	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Works codes
Health care service	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Commercial activities code Works codes
Hospital	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code

		Community and recreation activities code Works codes
Market	Accepted development	
	In all circumstances.	Market code
Major electricity infrastructure	Accepted development	
	If— a. identified on OM9A Infrastructure — Energy and water supply overlay; or b. identified in schedule 5 Land designated for infrastructure.	
Outdoor sport and recreation	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	If— a. not Accepted development; b. not a shooting range.	Community facilities zone code Community and recreation activities code Works codes
Park	Accepted development	
Permanent plantation	Accepted development	
Place of worship	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Community and recreation activities code Works codes
Renewable energy facility <i>Editor's note—Small scale Renewable energy facilities (e.g. roof top solar) that supply energy primarily for an existing use are excluded from this definition.</i>	Code assessment	
	In all circumstances.	Community facilities zone code Renewable energy facilities code Works codes
Residential care facility	Code assessment	
	In all circumstances.	Community facilities zone code Retirement and Residential care facility code Works codes
Substation	Accepted development	
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act (Cth)</i> ; or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	

	In all other circumstances.	Community facilities zone code Telecommunications facility code Works codes
Theatre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Community facilities zone code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, or a waste management facility.	
	Code assessment	
	In all other circumstances.	Community facilities zone code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.2 Conservation zone

Table 5.5-2: Conservation zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All uses	Accepted development	
	If on State Land (State forest, National Park, Conservation Park) or Council owned land and consistent with the <i>Forestry Act, Nature Conservation Act</i> , under which the land is administered.	
Environment facility	Accepted development	
	If— a. using an existing building; or b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Conservation zone code Community and recreation activities code Works codes
Nature based tourism	Accepted development	
	If— a. not involving accommodation; b. involves Minor building work or involves no Building work.	
Outdoor sport and recreation	Accepted development	
	If— a. for Local or State government purpose.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range.	Conservation zone code Community and recreation activities code Works codes
Outstation	Accepted development	
Park	Accepted development	
Permanent plantation	Accepted development	
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.	The planning scheme	

5.5.3 Emerging community zone

Table 5.5-3: Emerging community zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Animal husbandry	Accepted development	
Animal keeping <i>Editor's note—The keeping of protected wildlife is regulated through the Nature Conservation Act. Council's local laws also establish requirements regarding the keeping of animals.</i>	Accepted development	
	If keeping of animals at the rate consistent with Council's local law.	
	Accepted development	
	If involving a kennel or cattery— a. with no more than 10 animals; b. on a lot of 2 hectares or more.	Rural uses code Building design code
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. pole mounted Substations, transformers or voltage regulators; or b. pad mounted Substations or transformers.	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Emerging community zone code Renewable energy facilities code Works codes
Caretaker's accommodation	Code assessment	
	In all circumstances.	Emerging community zone code Workers' accommodation code Works codes
Community residence	Code assessment	
	In all circumstances.	Emerging community zone code Dwelling house code Works codes
Cropping	Accepted development	
Dwelling house	Accepted development	
	In all circumstances.	Dwelling house code
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Outdoor sport and recreation	Accepted development	
	If for a Local government purpose.	
	Code assessment	
	If—	Emerging community zone code

	a. not accepted development; b. not a shooting range, golf course or driving range.	Community and recreation activities code Works codes
Park	Accepted development	
Roadside stall	Accepted development	
	In all circumstances.	Roadside stall code
Sales office	Accepted development	
	In all circumstances.	Sales office code
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Emerging community zone code Telecommunications facility code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	
	Code assessment	
	In all other circumstances.	Emerging community zone code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.4 Industry zone

Table 5.5-4: Industry zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Agricultural supplies store	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Commercial activities code Works codes
Aquaculture	Code assessment	
	In all circumstances.	Industry zone code Rural uses code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Industry zone code Renewable energy facilities code Works codes
Bulk landscape supplies	Code assessment	
	In all circumstances.	Industry zone code Industry activities code Works codes
Caretaker's accommodation	Code assessment	
	In all circumstances.	Industry zone code Workers' accommodation code Works codes
Car wash	Code assessment	
	In all circumstances.	Industry zone code Service station and Car wash code Works codes
Crematorium	Code assessment	
	In all circumstances.	Industry zone code Works codes

Emergency services	Code assessment	
	In all circumstances.	Industry zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work; c. less than 50m ² GFA.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	If— a. not Accepted development; b. less than 100m ² GFA.	Industry zone code Commercial activities code Works codes
Garden centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Commercial activities code Works codes
High impact industry	Code assessment	
	In all circumstances.	Industry zone code Industry activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Community and recreation activities code Works codes
Low impact industry	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Industry activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code

		Industry activities code Works codes
Major electricity infrastructure	Accepted development	
	If identified in schedule 5 Land designated for infrastructure.	
	Code assessment	
	In all other circumstances.	Industry zone code Works codes
Medium impact industry	Code assessment	
	In all circumstances.	Industry zone code Industry activities code Works codes
Outdoor sales	Code assessment	
	In all circumstances.	Industry zone code Commercial activities code Works codes
Park	Accepted development	
Parking station	Accepted development	
	If for a Local government purposes.	Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Commercial activities code Works codes
Renewable energy facility	Code assessment	
	In all circumstances.	Industry zone code Renewable energy facility code Works codes
<i>Editor's note—Small scale Renewable energy facilities (e.g. roof top solar) that supply energy primarily for an existing use are excluded from this definition.</i>		
Research and technology industry	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Industry activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Industry activities code Works codes
Service industry	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Works codes
Service station	Code assessment	

	In all circumstances.	Industry zone code Service station and Car wash code Works codes
Showroom	Code assessment	
	In all circumstances.	Industry zone code Commercial activities code Works codes
Substation	Code assessment	
	In all circumstances.	Industry zone code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Industry zone code Telecommunications facility code Works codes
Transport depot	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Industry activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Industry activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, or a waste management facility.	
	Code assessment	
	In all other circumstances.	Industry zone code Works codes
Veterinary service	Code assessment	
	In all circumstances.	Industry zone code

		Commercial activities code Works codes
Warehouse	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Industry activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Industry activities code Works codes
Wholesale nursery	Code assessment	
	In all circumstances.	Industry zone code Works codes
Winery	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Industry zone code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.5 Limited development zone

Table 5.5-5: Limited development zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Animal husbandry	Accepted development	
Cropping	Accepted development	
Outdoor sport and recreation	Accepted development	
	If— a. for Local government purpose; or b. not involving any Building work; and c. not involving any Operational work.	
Park	Accepted development	
Permanent plantation	Accepted development	
<p>Utility installation</p> <p><i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p> <p><i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i></p>	<p>Accepted development</p> <p>If— a. undertaken by a public sector entity; b. involves stormwater drainage infrastructure or water cycle management infrastructure.</p>	
Impact assessment		
<p>1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.</p>		The planning scheme

5.5.6 Local centre zone

Table 5.5-6: Local centre zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Adult store	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Agricultural supplies store	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Bar	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development	Local centre zone code Renewable energy facilities code Works codes
Car wash	Code assessment	

	In all circumstances.	Local centre zone code Service station and Car wash code Works codes
Caretaker's accommodation	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Workers' accommodation code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	If not accepted development	Local centre zone code Workers' accommodation code Works codes
Childcare centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Club	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Community care centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Local centre zone code Dwelling house code
Community use	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	

	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Dual occupancy	Code assessment	
	If located above the ground storey or at the rear of a commercial building.	Local centre zone code Medium density residential uses code Works codes
Dwelling unit	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Dwelling house code
	Code assessment	
	In all other circumstances.	Dwelling house code Local centre zone code Works codes
Educational establishment	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Local centre zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Function facility	Code assessment	
	In all circumstances.	Local centre zone code Commercial activities code Works codes
Funeral Parlour	Code assessment	

	In all circumstances.	Local centre zone code Commercial activities code Works codes
Garden centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Health care service	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Hotel	Code assessment	
	If less than 100m ² GFA.	Local centre zone code Commercial activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Market	Accepted development	
	In all circumstances.	Market code
Multiple dwelling	Code assessment	
	If located above the ground storey or at the rear of a commercial building.	Local centre zone code Medium density residential uses code Works codes
Office	Accepted development	
	If—	Building design code

	<p>a. using an existing building; b. involves Minor building work or involves no Building work.</p>	Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Outdoor sales	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purpose.	
	Code assessment	
	If— a. not accepted development; and b. not a shooting range, golf course or driving range.	Local centre zone code Community and recreation activities code Works codes
Park	Accepted development	
Parking station	Accepted development	
	If for Local government purposes.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Place of worship	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Community and recreation activities code Works codes
Rooming accommodation	Accepted development	
	If— a. using an existing building; b. no increase in GFA; c. for 5 people or less; d. located above the ground storey or at the rear of a commercial building.	Medium density residential uses code
	Code assessment	
	If— a. not accepted development; and b. located above the ground storey or at the rear of a commercial building.	Local centre zone code Medium density residential uses code Works codes
Service industry	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no	Building design code Transport, access and parking code

	Building Work.	
	Code assessment	
	In all other circumstances.	Local centre zone code Works codes
Service station	Code assessment	
	In all circumstances.	Local centre zone code Service station and Car wash code Works codes
Shop	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Commercial activities code Works codes
Shopping Centre	Code assessment	
	If less than 1,000m ² GFA.	Local centre zone code Commercial activities code Works codes
Short-term accommodation	Accepted development	
	If— a. using an existing Dwelling house; b. accommodation is provided for 5 guests or less.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Local centre zone code Tourism uses code Works codes
Showroom	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Building design code Transport, access and parking code
	Code assessment	
	If— a. not accepted development; b. less than 500m ² GFA.	Local centre zone code Commercial activities code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Local centre zone code Telecommunications facility code Works codes
Theatre	Code assessment	
	In all circumstances.	Local centre zone code

		Commercial activities code Works codes
<p>Utility installation</p> <p><i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p> <p><i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i></p>	Accepted development	
	<p>If—</p> <p>a. undertaken by a public sector entity;</p> <p>b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.</p>	<p>Building design code</p> <p>Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Local centre zone code</p> <p>Works codes</p>
Veterinary service	Code assessment	
	In all circumstances.	<p>Local centre zone code</p> <p>Commercial activities code</p> <p>Works codes</p>
Impact assessment		
<p>1. Any other use not listed in this table; or</p> <p>2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or</p> <p>3. Any other undefined use.</p>		The planning scheme

5.5.7 Low density residential zone

Table 5.5-7: Low density residential zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Low density residential zone code Renewable energy facilities code Works codes
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Low density residential zone code Dwelling house code
Dual occupancy	Accepted development	
	If on a lot that is sewerred and: a. 800m ² or greater; or b. 700m ² or greater if on a lot with two frontages to a constructed road.	Medium density residential uses code
	Code assessment	
	In all other circumstances.	Low density residential zone code Medium density residential uses code Works codes
Dwelling house	Accepted development	
	If not meeting the requirements in schedule 6, part 2, section 2 of the <i>Planning Regulation</i> .	Dwelling house code
Food and drink outlet	Code assessment	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Low density residential zone code Commercial activities code Works codes
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Outdoor sport and	Accepted development	

recreation	If for Local government purposes.	
Park	Accepted development	
Rooming accommodation	Accepted development	
	If meeting the requirements in Schedule 6 Part 2, Section 2 of the <i>Planning Regulation</i> .	Schedule 6 Part 2, Section 2 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Dwelling house code Medium density residential uses code
Sales office	Accepted development	
	In all circumstances.	Sales office code
Shop	Code assessment	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Low density residential zone code Commercial activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Low density residential zone code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.8 Low-medium density residential zone

Table 5.5-8: Low-medium density residential zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Low-medium density residential zone code Renewable energy facilities code Works codes
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Low-medium density residential zone code Dwelling house code
Dual occupancy	Accepted development	
	If on a lot that is: a. 700m ² or greater; or b. 600m ² or greater with constructed road frontage along two frontages.	Low-medium density residential zone code
	Code assessment	
	In all other circumstances.	Low-medium density residential zone code Medium density residential uses code Works codes
Dwelling house	Accepted development	
	If not meeting the requirements in schedule 6, part 2, section 2 of the <i>Planning Regulation</i> .	Dwelling house code
Food and drink outlet	Code assessment	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Low-medium density residential zone code Commercial activities code Works codes
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Multiple dwelling	Code assessment	

	In all circumstances.	Low-medium density residential zone code Medium density residential uses code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
Park	Accepted development	
Residential care facility	Code assessment	
	In all circumstances.	Low-medium density residential zone code Retirement and Residential care facility code Works codes
Retirement facility	Code assessment	
	In all circumstances.	Low-medium density residential zone code Retirement and Residential care facility code Works codes
Rooming accommodation	Accepted development	
	If meeting the requirements in schedule 6, part 2, section 2 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 2 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Dwelling house code Medium density residential uses code
Sales office	Accepted development	
	In all circumstances.	Sales office code
Shop	Code assessment	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building Work.	Low-medium density residential zone code Commercial activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Low-medium density residential zone code Works codes
Impact assessment		
1. Any other use not listed in this table; or		The planning scheme

- | | |
|---|--|
| <ol style="list-style-type: none">2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or3. Any other undefined use. | |
|---|--|

5.5.9 Major centre zone

Table 5.5-9: Major centre zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ACCEPTED AND ASSESSABLE DEVELOPMENT
Adult store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Agricultural supplies store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Bar	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. pole mounted Substations, transformers or voltage regulators; or b. pad mounted Substations or transformers.	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
If not accepted development.	Major centre zone code Renewable energy facilities code Works codes	
Caretaker's accommodation	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Workers' accommodation code Building design code

		Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Workers accommodation code Works codes
Car wash	Code assessment	
	In all circumstances.	Major centre zone code Service station and Car wash code Works codes
Childcare centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Club	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Community care centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Major centre zone code Dwelling house code
Community use	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code

		Community and recreation activities code Works codes
Dual occupancy	Code assessment	
	If located above the ground storey or at the rear of a commercial building.	Major centre zone code Medium density residential uses code Works codes
Dwelling unit	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Dwelling house code
	Code assessment	
	In all other circumstances.	Dwelling house code Major centre zone code Works codes
Educational establishment	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Major centre zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Function facility	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code Works codes
Funeral Parlour	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code

	Works codes	
Garden centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Health care service	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Hospital	Code assessment	
	In all circumstances.	Major centre zone code Community and recreation activities code Works codes
Hotel	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Low impact industry	Code assessment	
	If the following threshold uses as described in SC1.1.2 Industry Thresholds: a. 1. Alcohol (excluding wine) processing including brewing or bottling; or b. 8. Printing advertising material, magazines, newspapers, packaging or stationery; or	Major centre zone code Industry activities code Works codes

	c. 10. Repairing or servicing lawn mowers or outboard engines; or d. 11. Repairing or servicing motor vehicles.	
Market	Accepted development	
	In all circumstances.	Market code
Multiple dwelling	Code assessment	
	If located above the ground storey or at the rear of a commercial building.	Major centre zone code Medium density residential uses code Works codes
Office	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Outdoor sales	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not Accepted development; and b. not a shooting range, golf course or driving range.	Major centre zone code Community and recreation activities code Works codes
Park	Accepted development	
Parking station	Accepted development	
	If for Local government purposes.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Place of worship	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Community and recreation activities code Works codes
Rooming accommodation	Accepted development	
	If— a. using an existing building; b. no increase in GFA;	Medium density residential uses code

	c. for 5 people or less; d. located above the ground storey or at the rear of a commercial building.	
	Code assessment	
	In all other circumstances.	Major centre zone code Medium density residential uses code Works codes
Service industry	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Works codes
Service station	Code assessment	
	In all circumstances.	Major centre zone code Service station and Car wash code Works codes
Shop	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Shopping Centre	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code Works codes
Short-term accommodation	Accepted development	
	If— a. using an existing building; b. accommodation is provided for no more than 5 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Tourism uses code Works codes
Showroom	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Telecommunications	Accepted development	

facility	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Major centre zone code Telecommunications facility code Works codes
Theatre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Works codes
Veterinary service	Code assessment	
	In all circumstances.	Major centre zone code Commercial activities code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.10 Mixed use zone

Table 5.5-10: Mixed use zone (excluding the Highway precinct)

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Agricultural supplies store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Mixed use zone code Renewable energy facilities code Works codes
Caretaker's accommodation	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Workers' accommodation code Building design code Infrastructure services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Workers accommodation code Works codes
Car wash	Code assessment	
	In all circumstances.	Mixed use zone code Service station and Car wash code Works codes
Childcare centre	Code assessment	
	In all circumstances.	Mixed use zone code Community and recreation activities code Works codes
Club	Accepted development	
	If—	Community and recreation activities code

	<p>a. using an existing building; b. involves Minor building work or involves no Building work.</p>	<p>Building design code Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Mixed use zone code Community and recreation activities code Works codes</p>
Community care centre	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	<p>Community and recreation activities code Building design code Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Mixed use zone code Community and recreation activities code Works codes</p>
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	<p>Mixed use zone code Dwelling house code Works codes</p>
Community use	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	<p>Community and recreation activities code Building design code Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Mixed use zone code Community and recreation activities code Works codes</p>
Dual occupancy	Code assessment	
	In all circumstances.	<p>Mixed use zone code Medium density residential uses code Works codes</p>
Dwelling house	Accepted Development	
	In all circumstances.	Dwelling house code
Dwelling unit	Accepted development	
	In all circumstances.	Dwelling house code
Educational establishment	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	<p>Community and recreation activities code Building design code Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Mixed use zone code Community and recreation activities code Works codes</p>

Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Mixed use zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Function facility	Code assessment	
	In all circumstances.	Mixed use zone code Commercial activities code Works codes
Garden centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Health care service	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code

		Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Community and recreation activities code Works codes
Market	Accepted development	
	If complying with the acceptable outcomes.	Market code
Multiple dwelling	Code assessment	
	In all circumstances.	Mixed use zone code Medium density residential uses code Works codes
Office	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Outdoor sales	Code assessment	
	If having a display area of less than 500m ² .	Mixed use zone code Commercial activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Mixed use zone code Community and recreation activities code Works codes
Park	Accepted development	
Parking Station	Accepted development	
	If for Local government purposes.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Place of worship	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	

	In all other circumstances.	Mixed use zone code Community and recreation activities code Works codes
Rooming accommodation	Accepted development	
	If— a. using an existing building; b. no increase in GFA; c. for 5 people or less; d. located above the ground storey or at the rear of a commercial building.	Medium density residential uses code
	Code assessment	
	In all other circumstances.	Mixed use zone code Medium density residential uses code Works codes
Service industry	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Works codes
Service station	Code assessment	
	In all circumstances.	Mixed use zone code Service station and Car wash code Works codes
Shop	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Shopping Centre	Code assessment	
	If less than 1,000m ² GFA.	Mixed use zone code Commercial activities code Works codes
Short-term accommodation	Accepted development	
	If— a. using an existing building; b. accommodation is provided for no more than 5 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Tourism uses code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act (Cth)</i> ; or	

	b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Mixed use zone code Telecommunications facility code Works codes
Theatre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Works codes
Veterinary service	Code assessment	
	In all circumstances.	Mixed use zone code Commercial activities code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

Table 5.5-11: Mixed use zone - Highway precinct

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED
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		DEVELOPMENT
Agricultural supplies store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Mixed use zone code Renewable energy facilities code Works codes
Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Garden centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If—	Building design code

	<p>a. using an existing commercial building; b. involves Minor building work or involves no Building work.</p>	Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Community and recreation activities code Works codes
Outdoor sales	Code assessment	
	If having a display area of less than 500m ² .	Mixed use zone code Commercial activities code Works codes
Service industry	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Works codes
Shop	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Mixed use zone code Commercial activities code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act (Cth)</i> ; or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Mixed use zone code Telecommunications facility code Works codes
Utility installation	Accepted development	

<p><i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p> <p><i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i></p>	<p>If—</p> <p>a. undertaken by a public sector entity;</p> <p>b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.</p>	<p>Building design code</p> <p>Transport, access and parking code</p>
	Code assessment	
	<p>In all other circumstances.</p>	<p>Mixed use zone code</p> <p>Works codes</p>
Impact assessment		
	<p>1. Any other use not listed in this table; or</p> <p>2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or</p> <p>3. Any other undefined use.</p>	<p>The planning scheme</p>

5.5.11 Open space zone

Table 5.5-12: Open space zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Community use	Code assessment	
	In all circumstances.	Open space zone code Community and recreation activities code Works codes
Emergency services	Code assessment	
	In all circumstances.	Open space zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Open space zone code Community and recreation activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
If— a. not accepted development; b. not a shooting range, golf course or driving range.	Open space zone code Community and recreation activities code Works codes	
Park	Accepted development	
Permanent plantation	Accepted development	
Telecommunications facility	Accepted development	
	If— a. a Low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
In all other circumstances.	Open space zone code Telecommunications facility code Works codes	
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	
	Code assessment	
In all other circumstances.	Open space zone code Works codes	

<p>Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</p> <p>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</p>	
<p>Impact assessment</p>	
<p>1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.</p>	<p>The planning scheme</p>

5.5.12 Principal centre zone

Table 5.5-13: Principal centre zone

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Adult store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Agricultural supplies store	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Bar	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	If not accepted development.	Principal centre zone code Renewable energy facilities code Works codes
Caretaker's accommodation	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Workers' accommodation code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Workers' accommodation code Works codes

Car wash	Code assessment	
	In all circumstances.	Principal centre zone code Service station and Car wash code Works codes
Childcare centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Club	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Community care centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
	In all other circumstances.	Principal centre zone code Dwelling house code
Community use	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Dual occupancy	Code assessment	
	If located above the ground storey or at the rear of a commercial building.	Principal centre zone code Medium density residential uses code Works codes

Dwelling unit	Accepted development	
	If located above the ground storey or at the rear of a commercial building.	Dwelling house code
	Code assessment	
	In all other circumstances.	Dwelling house code Principal centre zone code Works codes
Educational establishment	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Emergency services	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Principal centre zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Function facility	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Funeral Parlour	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Garden centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code

	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Health care service	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Hospital	Code assessment	
	In all circumstances.	Principal centre zone code Community and recreation activities code Works codes
Hotel	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Indoor sport and recreation	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Low impact industry	Code assessment	
	If the following threshold uses as described in SC1.1.2 Industry Thresholds: a. 1. Alcohol (excluding wine) processing including brewing or bottling; or b. 8. Printing advertising material, magazines, newspapers, packaging or stationery; or c. 10. Repairing or servicing lawn mowers or outboard engines; or d. 11. Repairing or servicing motor vehicles.	Principal centre zone code Industry activities code Works codes
Market	Accepted development	
	In all circumstances.	Market code
Multiple dwelling	Code assessment	

	If located above the ground storey or at the rear of a commercial building.	Principal centre zone code Medium density residential uses code Works codes
Nightclub entertainment facility	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Office	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Outdoor sales	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Principal centre zone code Community and recreation activities code Works codes
Park	Accepted development	
Parking Station	Accepted development	
	If for Local government purposes.	Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Place of worship	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building Work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Community and recreation activities code Works codes
Rooming accommodation	Accepted development	
	If— a. using an existing building; b. no increase in GFA; c. for 5 people or less; d. located above the ground storey or at the rear of a commercial building.	Medium density residential uses code
	Code assessment	

	If— a. not accepted development; or b. located above the ground storey or at the rear of a commercial building.	Principal centre zone code Medium density residential uses code Works codes
Service industry	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Works codes
Shop	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Shopping Centre	Code assessment	
	In all circumstances.	Principal centre zone code Commercial activities code Works codes
Short-term accommodation	Accepted development	
	If— a. using an existing Dwelling house; b. accommodation is provided for no more than 5 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Tourism uses code Works codes
Showroom	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Principal centre zone code Telecommunications facility code

	Works codes	
Theatre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Commercial activities code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Principal centre zone code Works codes
Veterinary service	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Major centre zone code Commercial activities code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.13 Rural zone

Table 5.5-14: Rural zone - no precinct

Editor's note—The categories of development and assessment apply unless otherwise prescribed within the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT	
Animal husbandry	Accepted development		
Animal keeping <i>Editor's note—The keeping of protected wildlife is regulated through the Nature Conservation Act. Council's local laws also establish requirements regarding the keeping of animals.</i>	Accepted development		
	If keeping of animals at the rate consistent with Council's local law.	Rural uses code Building design code	
	Code assessment		
If involving a kennel or cattery— a. with no more than 10 animals; b. on a lot of 2 hectares or more.	Rural zone code Rural uses code Works codes		
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. pole mounted Substations, transformers or voltage regulators; or b. pad mounted Substations or transformers.	Accepted development		
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .		
	Code assessment		
If not accepted development.	Rural zone code Renewable energy facilities code Works codes		
Caretaker's accommodation	Accepted development		
	In all circumstances.	Workers' accommodation code Building design code Infrastructure and services code Transport, access and parking code	
Community residence	Accepted development		
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	
	Code assessment		
In all other circumstances.	Rural zone code Dwelling house code		
Cropping	Accepted development		
Dwelling house	Accepted development		
	In all circumstances.	Dwelling house code	
Emergency services	Code assessment		
	In all circumstances.	Rural zone code Community and recreation activities code	

		Works codes
Environment facility	Accepted development	
	If— a. using an existing building; b. involves Minor building work or involves no Building work.	Transport, access and parking code
	Code assessment	
	If GFA is no more than 250m ² .	Rural zone code Community and recreation activities code Works codes
Extractive industry	Code assessment	
	If extracting less than 5,000 tonnes of material a year.	Rural zone code Extractive industry code Works codes
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Intensive animal industry	Accepted development	
	If— a. 1,000 birds or less on 10 hectares or more.	Rural uses code
	Code assessment	
	If on a lot of at least 50 hectares and— a. 10,000 birds or less; or b. 400 SPU (pigs) or less; or c. 150 SCU (cattle) or less; or d. 1,000 SSU (sheep) or less.	Rural zone code Rural uses code Works codes
Intensive horticulture	Accepted development	
	If— a. on a lot of more than 5 hectares; b. less than 2,500m ² TUA; c. not a mushroom farm.	Rural uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Rural zone code Rural uses code Works codes
Low impact industry	Code assessment	
	If— a. storing, processing or packaging of products from a rural use; or b. one of the following SC1.1.2 Industry Thresholds uses and less than 2,500m ² TUA: i. 1. Alcohol (excluding wine) processing including brewing or bottling; or ii. 10. Repairing or servicing lawn mowers or outboard engines.	Rural zone code Industry activities code Works codes
Major electricity infrastructure	Accepted development	
	If— a. identified on OM9A Infrastructure — Energy and water supply overlay; or b. identified in Schedule 5 Land designated for infrastructure.	
Nature-based tourism	Accepted development	

	<p>If—</p> <p>a. no more than 5 caravan or tent sites on a lot more than 10 hectares;</p> <p>b. no more than 20 people at any given time.</p>	<p>Tourism uses code</p> <p>Building design code</p> <p>Transport, access and parking code</p>
	Code assessment	
	<p>If—</p> <p>a. not accepted development;</p> <p>b. no more than 15 caravan or tent sites on a lot more than 10 hectares;</p> <p>c. no more than 50 people at any given time.</p>	<p>Rural zone code</p> <p>Tourism uses code</p> <p>Works codes</p>
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	<p>If—</p> <p>a. not accepted development;</p> <p>b. not a shooting range, golf course or driving range.</p>	<p>Rural zone code</p> <p>Community and recreation activities code</p> <p>Works codes</p>
Outstation	Accepted development	
Park	Accepted development	
Permanent plantation	Accepted development	
Renewable energy facility	Code assessment	
	<p>If located 500m or more from:</p> <p>a. Conservation zone;</p> <p>b. a sensitive land use not on the same lot.</p>	<p>Rural zone code</p> <p>Renewable energy facility code</p> <p>Works codes</p>
Roadside stall	Accepted development	
	In all circumstances.	Roadside stall code
Rural industry	Accepted development	
	<p>If—</p> <p>a. on a lot of 5 hectares or more;</p> <p>b. less than 2,500m² GFA.</p>	<p>Rural uses code</p> <p>Building design code</p> <p>Infrastructure and services code</p> <p>Transport, access and parking code</p>
	Code assessment	
	In all other circumstances.	<p>Rural zone code</p> <p>Rural uses code</p> <p>Works codes</p>
Rural workers' accommodation	Accepted development	
	<p>If—</p> <p>a. on a lot 25 hectares and more;</p> <p>b. the number of workers is no more than 20 people;</p> <p>c. the existing vehicle access is used and no new vehicle access is created.</p>	<p>Building design code</p> <p>Workers' accommodation code</p>
	Code assessment	
	In all other circumstances.	<p>Rural zone code</p> <p>Workers' accommodation code</p> <p>Works codes</p>

Short-term accommodation	Accepted development	
	If— a. using an existing Dwelling house; b. accommodation is provided for no more than 5 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
Substation	Code assessment	
	In all circumstances.	Rural zone code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
Tourist park	Accepted development	
	If— a. no more than 5 caravan or tent sites; b. on a lot more than 10 hectares; c. no more than 20 people at any given time.	Tourism uses code Building design code Transport, access and parking code
	Code assessment	
Transport depot	Accepted development	
	If— a. not more than 4 heavy vehicles; b. on a lot more than 2 hectares.	Infrastructure and services code Transport, access and parking code
	Code assessment	
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, or a waste management facility.	
	Code assessment	
	In all other circumstances.	Rural zone code Works codes

<p><i>Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p> <p><i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i></p>		
<p>Wholesale nursery</p>	<p>Accepted development</p>	
	<p>If— a. on a lot of more than 5 hectares; b. less than 2,500m² TUA.</p>	<p>Building design code Infrastructure and services code Transport, access and parking code</p>
	<p>Code assessment</p>	
	<p>If— a. not accepted development; b. on a lot of more than 5 hectares; c. less than 5,000m² TUA.</p>	<p>Rural zone code Works codes</p>
<p>Winery</p>	<p>Accepted development</p>	
	<p>If less than 500m² GFA.</p>	<p>Rural uses code Building design code Infrastructure and services code Transport, access and parking code</p>
	<p>Code assessment</p>	
	<p>If less than 1,000m² GFA.</p>	<p>Rural zone code Rural uses code Works codes</p>
<p>Impact assessment</p>		
<p>1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.</p>	<p>The planning scheme</p>	

Table 5.5-15: Rural zone — Tenthill Creek precinct

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

<p>USE</p>	<p>CATEGORIES OF DEVELOPMENT AND ASSESSMENT</p>	<p>ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT</p>
<p>Animal husbandry</p>	<p>Accepted development</p>	
<p><i>Editor's note—The keeping of protected wildlife is regulated through the Nature Conservation Act. Council's local laws also establish requirements regarding the keeping of animals.</i></p>	<p>Accepted development</p>	
	<p>If keeping of animals at the rate consistent with Council's local law.</p>	<p>Rural uses code Building design code</p>
	<p>Code assessment</p>	
<p>If involving a kennel or cattery— a. 10 animals or less; b. on a lot of 2 hectares or more.</p>	<p>Rural zone code Rural uses code Works codes</p>	

Cropping	Accepted development	
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Rural zone code Community and recreation activities code Works codes
Park	Accepted development	
Permanent plantation	Accepted development	
Roadside stall	Accepted development	
	In all circumstances.	Roadside stall code
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.14 Rural residential zone

Table 5.5-16: Rural residential zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed within the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Animal husbandry <i>Editor's note— Council's local laws establish requirements regarding the keeping of animals.</i>	Accepted development	
	If keeping of animals at the rate consistent with Council's local law.	
Animal keeping <i>Editor's note—The keeping of protected wildlife is regulated through the Nature Conservation Act. Council's local laws also establish requirements regarding the keeping of animals.</i>	Accepted development	
	If keeping of animals at the rate consistent with Council's local law.	
	Code assessment	
If involving a kennel or cattery— a. with no more than 10 animals; b. on a lot of 2 hectares or more.	Rural uses code Building design code	
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
If not accepted development.	Rural residential zone code Renewable energy facilities code Works codes	
Community residence	Accepted development	
	If meeting the requirements prescribed in schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .	Schedule 6, part 2, section 6 of the <i>Planning Regulation</i> .
	Code assessment	
In all other circumstances.	Rural residential zone code Dwelling house code	
Dwelling house	Accepted development	
	If complying with the acceptable outcomes.	Dwelling house code
Emergency services	Code assessment	
	In all circumstances.	Rural residential zone code Community and recreation activities code Works codes
Food and drink outlet	Code assessment	

	If— a. less than 50m ² GFA; b. not involving a drive through facility.	Rural residential zone code Commercial activities code Works codes
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Market	Accepted development	
	In all circumstances.	Home-based business code Market code
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Rural residential zone code Community and recreation activities code Works codes
Park	Accepted development	
Permanent plantation	Accepted development	
Roadside stall	Accepted development	
	In all circumstances.	Roadside stall code
Sales office	Accepted development	
	If complying with the acceptable outcomes.	Sales office code
Short-term accommodation	Accepted development	
	If— a. using an existing Dwelling house; b. accommodation is provided for no more than 5 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Rural residential zone code Tourism uses code Works codes
Substation	Code assessment	
	In all circumstances.	Rural residential zone code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Rural residential zone code Works codes

<i>development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>		
Impact Assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.	The planning scheme	

5.5.15 Special industry zone

Table 5.5-17: Special industry zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Animal husbandry	Accepted development	
Cropping	Accepted development	
High impact industry	Code assessment	
	If for the manufacturing, assembly, storage, distribution, disposal or testing of explosives.	Special industry zone code Industry activities code Works codes
Low impact industry	Code assessment	
	If for the manufacturing, assembly, storage, distribution, disposal or testing of explosives.	Special industry zone code Industry activities code Works codes
Medium impact industry	Code assessment	
	If for the manufacturing, assembly, storage, distribution, disposal or testing of explosives.	Special industry zone code Industry activities code Works codes
Permanent plantation	Accepted development	
Research and technology industry	Code assessment	
	If associated with designing, researching or testing of explosives.	Special industry zone code Industry activities code Works codes
Special industry	Code assessment	
	If for the manufacturing, assembly, storage, distribution, disposal or testing of explosives.	Special industry zone code Industry activities code Works codes
Transport depot	Code assessment	
	If for the transporting or distribution of explosives.	Special industry zone code Industry activities code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.5.16 Sport and recreation zone

Table 5.5-18: Sport and recreation zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Animal keeping	Accepted development	
	If— a. the keeping of animals at the rate consistent with Council's local law; or b. the keeping and training of horses located at the Gatton horse racing facility, Spencer Street, Gatton.	
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
In all other circumstances.	Sport and recreation zone code Renewable energy facilities code Works codes	
Club	Accepted development	
	If— a. using an existing commercial or community building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
In all other circumstances.	Sport and recreation zone code Community and recreation activities code Works codes	
Community use	Accepted development	
	If— a. using an existing commercial or community building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
In all other circumstances.	Sport and recreation zone code Community and recreation activities code Works codes	
Emergency services	Code assessment	
	In all circumstances.	Sport and recreation zone code Community and recreation activities code

	Works codes	
Environment facility	Accepted development	
	If— a. using an existing commercial building; or b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Sport and recreation zone code Community and recreation activities code Works codes
Health care service	Accepted development	
	If— a. associated with sports medicine; b. located within an existing indoor sports facility.	Building design code Transport, access and parking code
	Code assessment	
Indoor sport and recreation	Accepted development	
	If for Local government purposes.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Sport and recreation zone code Community and recreation activities code Works codes
Market	Accepted development	
	In all circumstances.	Market code
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	
	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Sport and recreation zone code Community and recreation activities code Works codes
Park	Accepted development	
Permanent plantation	Accepted development	
Substation	Code assessment	
	In all circumstances.	Sport and recreation zone code Works codes
Telecommunications facility	Accepted development	
	If— a. a low impact facility under the <i>Telecommunications Act</i> (Cth); or b. under the <i>Fire and Emergency Services Act</i> or <i>Electricity Act</i> .	
	Code assessment	
	In all other circumstances.	Sport and recreation zone code Telecommunications facility code Works codes
Utility installation	Accepted development	

<p><i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p> <p><i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i></p>	<p>If—</p> <p>a. undertaken by a public sector entity;</p> <p>b. supplying underground services; or</p> <p>c. a transport service.</p>	<p>Building design code</p> <p>Transport, access and parking code</p>
	Code assessment	
	<p>In all circumstances.</p>	<p>Sport and recreation zone code</p> <p>Works codes</p>
Impact assessment		
	<p>1. Any other use not listed in this table; or</p> <p>2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or</p> <p>3. Any other undefined use.</p>	<p>The planning scheme</p>

5.5.17 Township zone

Table 5.5-19: Township zone

Editor's note—The categories of development and assessment apply unless otherwise prescribed within the Planning Act or the Planning Regulation.

USE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Agricultural supplies store	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Animal keeping	Accepted development	
	If keeping of animals at the rate consistent with Council's local law.	
Battery storage facility <i>Editor's note—Substation excludes works that are less than 66kV and used for:</i> a. <i>pole mounted Substations, transformers or voltage regulators; or</i> b. <i>pad mounted Substations or transformers.</i>	Accepted development	
	If— a. the facility is for a pad mounted battery storage device only and the total area of the premises covered by the facility is no more than 15m ² ; or b. the facility is for a pole mounted battery storage device only and the total volume of the device is no more than 2m ³ .	
	Code assessment	
	In all other circumstances.	Township zone code Renewable energy facilities code Works codes
Caretaker's accommodation	Code assessment	
	In all circumstances.	Township zone code Workers accommodation code Works codes
Childcare centre	Code assessment	
	In all circumstances.	Township zone code Community and recreation activities code Works codes
Club	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Works codes

Community care centre	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Community and recreation activities code Works codes
Community residence	Code assessment	
	In all circumstances.	Township zone code Dwelling house code Works codes
Community use	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Community and recreation activities code Works codes
Dwelling house	Accepted development	
	In all circumstances.	Dwelling house code
Educational establishment	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Community and recreation activities code Works codes
Emergency services	Code assessment	
	In all circumstances.	Township zone code Community and recreation activities code Works codes
Environment facility	Code assessment	
	In all circumstances.	Township zone code Community and recreation activities code Works codes
Food and drink outlet	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Advertising devices code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Commercial activities code Township zone code Works codes
Garden centre	Accepted development	

	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Hardware and trade supplies	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Health care service	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Home-based business	Accepted development	
	In all circumstances.	Home-based business code
Indoor sport and recreation	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Community and recreation activities code Works codes
Market	Accepted development	
	In all circumstances.	Market code
Office	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Outdoor sport and recreation	Accepted development	
	If for Local government purposes.	

	Code assessment	
	If— a. not accepted development; b. not a shooting range, golf course or driving range.	Township zone code Community and recreation activities code Works codes
Park	Accepted development	
Parking station	Accepted development	
	If for Local government purposes.	Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Place of worship	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Community and recreation activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Community and recreation activities code Works codes
Roadside stall	Accepted development	
	In all circumstances.	Roadside stall code
Service industry	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Shop	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Commercial activities code Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Short-term accommodation	Accepted development	
	If— a. using an existing Dwelling house; b. accommodation is provided for less than 6 guests.	Tourism uses code Building design code Infrastructure and services code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Tourism uses code Works codes

Substation	Code assessment	
	In all circumstances.	Township zone code Works codes
Utility installation <i>Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i> <i>Editor's note—Where development proposes works within a waterway or wetland, an application to State government for waterway barrier works; or taking or interfering with water may be required.</i>	Accepted development	
	If— a. undertaken by a public sector entity; b. does not involve a sewage treatment plant, a maintenance depot, a storage depot or a waste management facility.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Works codes
Veterinary service	Accepted development	
	If— a. using an existing commercial building; b. involves Minor building work or involves no Building work.	Building design code Transport, access and parking code
	Code assessment	
	In all other circumstances.	Township zone code Commercial activities code Works codes
Wholesale Nursery	Code assessment	
	In all circumstances.	Township zone code Works codes
Winery	Code assessment	
	In all circumstances.	Township zone code Rural uses code Works codes
Impact assessment		
1. Any other use not listed in this table; or 2. Any use listed in this table and not meeting the description listed in the categories of development and assessment column; or 3. Any other undefined use.		The planning scheme

5.6 Categories of development and assessment — Reconfiguring a lot

1. The following table identifies the categories of development and the categories of assessment for Reconfiguring a lot.

Table 5.6-1: Reconfiguring a Lot

Editor's note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

ZONE	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All zones except the Limited development zone	Accepted development	Reconfiguring a lot code
	If— a. the realignment of boundaries is undertaken to the extent required to resolve the encroachment only; b. a copy of a surveyor's certificate and identification plan is provided confirming the existence, nature and extent of the encroachment.	
All zones except the Limited development zone	Code assessment	The relevant Zone code/s Reconfiguring a lot code Earthworks, filling and excavation code Infrastructure and services code Landscaping code Stormwater management code Transport, access and parking code
	Where the reconfiguration is for: a. a subdivision in an urban area and 75% of all the new lots comply with the minimum lot size in Table 9.5.1-4: Minimum lot size and dimensions of the Reconfiguring a lot code; or b. a subdivision in the Rural residential zone and consistent with the minimum lot size in Table 9.5.1-4: Minimum lot size and dimensions of the Reconfiguring a lot code; or c. an exempt subdivision under the <i>Planning Regulation</i> and in a Rural zone, Conservation zone or Community facilities zone; or d. a subdivision of land by Community Title Scheme where there is a residential, commercial or industrial building on each new lot (excluding common property); or e. the rearranging of boundaries and the number of lots is not increased; or f. dividing land into parts by agreement being a lease for a term exceeding 10 years, including renewal options; or g. the creation of an access easement.	
Impact assessment		
1. Any other reconfiguring a lot not listed in this table. 2. Any reconfiguring a lot listed in this table and not meeting the description listed in the categories of development and assessment column.	The planning scheme	

5.7 Categories of development and assessment — Operational work

1. The following table identifies the categories of development and the categories of assessment for Operational work.

Table 5.7-1: Operational work

Editor's note—

- a. *The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.*
- b. *Overlays may prescribe a higher level of assessment and must be considered when determining the appropriate categories of development and assessment for Operational work.*

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Advertising device	Accepted development	
	If— a. advertising goods or services offered by a lawfully operating business or service provider on the same lot; b. not a Home-based business or Roadside stall.	Advertising devices code <i>Editor's note—Compliance with Council's Local Laws will be required for Advertising devices that are ancillary to and associated with a lawful use on the same land unless a Home-based business.</i>
	If for a Home-based business or Roadside stall operating on the same lot as the Advertising devices.	Home-based business code; or Roadside stall code <i>Editor's note—Advertising devices must comply with the AO2.5 of the Home-based business code or AO1.5 of the Roadside stall code (as relevant). Non-compliance with the Acceptable outcome will result in the Home-based business or Roadside stall being code assessable development.</i>
	Impact assessment	
	In all other circumstances.	The planning scheme including but not limited to: a. Advertising devices code b. Building design code
Filling or excavation, not associated with a: a. Material change of use; or b. Reconfiguring a lot. <i>Editor's note—If the earthworks have an off-property impact it may be a levee under the Planning Regulation. And further consideration should be given to the State governments 'Guidelines for the construction or modification of category 2 and 3 levees' and 'Guideline for failure impact assessment of water dams' should be consulted to determine the Impact category, failure</i>	Accepted development	
	If for Minor filling or excavation.	
	Code Assessment	
	In all other circumstances.	Earthworks, filling and excavation code Environment and amenity code Landscaping code Stormwater management code

<i>impact threshold and rating.</i>		
Clearing of vegetation, not associated with a: a. Material change of use; or b. Reconfiguring a lot.	Accepted development	
	If exempt clearing work.	
	Code assessment	
	In all other circumstances.	Earthworks, filling and excavation code Environment and amenity code Landscaping code Stormwater management code
Works as a consequence of an approval for: a. Material change of use; or b. Reconfiguring a lot	Code assessment	
	In all circumstances.	Earthworks, filling and excavation code Environment and amenity code Landscaping code Stormwater management code Transport, access and parking code
Works associated with: a. the construction of a local road; or b. the modification of a local road to redirect or intensify stormwater from a premises to a pipe or culvert with a cross section of 625cm² or more	Accepted	
	If— a. undertaken by or on behalf of Council; or b. involving a driveway crossover.	<i>Editor's note—Approval subject to Council's Local Laws is required for a driveway crossover unless approved by a development permit for Operational work for roadworks.</i>
	Code assessment	
	In all other circumstances.	Earthworks, filling and excavation code Environment and amenity code Landscaping code Stormwater management code Transport, access and parking code
Accepted development		
1. Any other operational work not listed in this table. 2. Any operational work listed in the table and not complying with the description listed in the categories of development and assessment column.		

5.8 Categories of development and assessment — Building work

1. The following table identifies the categories of development and the categories of assessment for Building work regulated under the planning scheme.

Note—For domestic outbuildings the QDC requirements apply.

Table 5.8-1: Building work

Editor’s note—The categories of development and assessment apply unless otherwise prescribed in the Planning Act or the Planning Regulation.

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Building work in the Limited development zone	Impact assessment	
	All Building work except the demolition of a building or structure.	The planning scheme
Building work for a Secondary dwelling	Accepted development	
	In the Emerging community zone, Low density residential zone, Low-medium density residential zone, Rural zone, Rural residential zone or Township zone	Dwelling house code
	Code assessment	
	In all other zones.	Dwelling house code The relevant Zone code/s
Building work on a Local heritage place	Code assessment	
	If— a. raising or lowering a Local heritage place by more than 1m; or b. relocating a Local heritage place within the same site.	Cultural heritage overlay code
	Impact assessable	
	If involving relocation off the site or the total demolition of a Local heritage place.	The planning scheme including: Cultural heritage overlay code
Accepted development		
1. Replacement or refurbishment of stairs on a Local heritage place. 2. Any other Building work not listed in this table. 3. Any Building work listed in this table and not meeting the description listed in the categories of development and assessment column.		

5.9 Categories of development and assessment — Local plans

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5.10 Categories of development and assessment — Overlays

1. The following tables identify where an Overlay changes the category of development or the category of assessment from that stated for the zone or local plan and the relevant assessment benchmarks.

Note—Where development is proposed on a site that is included in more than one overlay, or in more than one sub-category within an overlay, that changes the category of development or category of assessment, the highest category applies.

Note—Some overlays are for information purposes. Overlays included for information purposes do not change the category of assessment or assessment benchmarks in the planning scheme but may need to be consulted to demonstrate consistency with Codes.

Table 5.10-1: Agricultural land overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Material change of use within an area of ALC Class A & B soils and involving: a. Low impact industry; or b. Rural workers' accommodation; or c. Short-term accommodation; or d. Substation; or e. Transport depot; or f. Utility installation; or g. Wholesale nursery.	Code assessment	Agricultural land overlay code
Material Change of use for a sensitive land use within an area of ALC Class A & B soils or ALC Class A & B — Separation area excluding Caretaker's accommodation and Dwelling houses.	Code assessment	Agricultural land overlay code
Renewable energy facility	Impact assessment	Agricultural land overlay code
All other development not listed above for this overlay.	No change	Agricultural land overlay code

Table 5.10-2: Biodiversity overlay

Editor's note—Where development is proposed within a Matter of State Environmental Significance, the Applicant should consider if the work may be prohibited development for vegetation clearing and/or involve referral to the State Assessment and Referral Agency (e.g. Koala Priority Areas).

Editor's note—OM3A Biodiversity — Ecological areas overlay — Protected areas and Legally Secured Offsets layer is provided for information purposes.

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Operational work for Minor filling or excavation OR exempt clearing work.	Accepted development	Not applicable
Operational work not associated with a Material change of use or Reconfiguring a lot and not otherwise specified.	Code assessment	Biodiversity overlay code
Material change of use, in an existing building where no Building work or Minor building work only is proposed.	Accepted development	Not applicable
Material change of use for Dwelling house.	Accepted development	Biodiversity overlay code
Material change of use (if not a Dwelling house, or reuse of an existing building).	Code assessment	Biodiversity overlay code
All other development not listed above for this overlay.	No change	Biodiversity overlay code

Table 5.10-3: Bushfire hazard overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All development within a development envelope area approved under the Lockyer Valley Planning Scheme for the purpose of providing an asset protection zone to achieve a tolerable or acceptable level of bushfire risk.	Accepted development	Not applicable
Dwelling house on a lot more than 2,000m ² and not within an approved development envelope area.	Accepted development	Bushfire hazard overlay code
Material change of use involving Building work or Operational work within the medium, high and very high potential bushfire intensity area and not listed above for this overlay.	Code assessment	Bushfire hazard overlay code
All other development not listed above for this overlay.	No change	Bushfire hazard overlay code

Table 5.10-4: Cultural heritage overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Material change of use involving a Local heritage place.	No change	Cultural heritage overlay code
Building work that includes the relocation off the site or demolition of a heritage place, unless the place is a State heritage place. <i>Note—Council is a concurrence agency for an application for Building work on a Local heritage place, unless:</i> <ol style="list-style-type: none"> a. the place is also a State heritage place; or b. Council has issued an exemption certificate under the Queensland Heritage Act. <i>Note—The State government is the Assessment manager or Referral agency for applications involving State heritage places under schedule 10, part 8, division 2 of the Planning Regulation.</i>	Impact assessment	The planning scheme including: Cultural heritage overlay code
Operational work where involving: <ol style="list-style-type: none"> a. vegetation clearing, or earthworks that involves items listed with a Local heritage place in Planning Scheme Policy 3 Cultural heritage; or b. Advertising device. 	Code assessment	Cultural heritage overlay code
All other development not listed above for this overlay.	No change	Cultural heritage overlay code

Table 5.10-5: Extractive resources overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Material change of use for: a. Environment facility; b. Nature based tourism; c. Outdoor sport and recreation; d. Park; e. Rural industry; f. sensitive land use; g. Utility installation; h. Wholesale nursery; i. Winery.	Code assessment	Extractive resources overlay code
All other development not listed above for this overlay.	No change	Extractive resources overlay code

Table 5.10-6: Flood hazard overlay

Refer to the Temporary Local Planning Instrument for Flood Regulation.

Table 5.10-7: Helidon management area overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
Material change of use for: a. a vulnerable use; or b. critical infrastructure; or c. difficult to evacuate uses.	Impact assessment	Helidon management area overlay code
Building work not associated with a Material change of use or Reconfiguring a lot	Code assessment	Helidon management area overlay code
All other development not listed above for this overlay.	No change	Helidon management area overlay code

Table 5.10-8: Infrastructure overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All development within a development envelope area approved under the Lockyer Valley Planning Scheme.	No change	Not applicable
Material change of use for a Dwelling house within: a. 20m of an existing or planned substation; or b. 50m of an Electricity infrastructure corridor; or c. a buffer for an Emitting activity; or d. a buffer for a Waste facility; or e. a buffer for a Pump station for bulk water supply, water supply, or sewer and not within the Open space zone or Community facilities zone; or f. a High pressure gas pipeline buffer and the pipeline is not within the Open space zone, Community facilities zone or a road reserve.	Accepted development	Infrastructure overlay code
Material change of use for Dwelling house including an on-site domestic wastewater treatment system within a buffer for: a. Raw water intake; or b. Weir; or c. Water bore.	Code development	Infrastructure overlay code
Material change of use for difficult to evacuate uses (but not a Dwelling house) within the High pressure gas pipeline buffer and the pipeline is not within the Open space zone, Community facilities zone or a road reserve.	Code assessment	Infrastructure overlay code
Material change of use for a difficult to evacuate use within a chemical facilities buffer.	Code assessment	Infrastructure overlay code
Material change of use (other than as above) or Reconfiguring a lot or Operational work within: a. 10m of an existing or planned substation; or b. an Electricity infrastructure corridor.	Code development	Infrastructure overlay code
Material change of use for a sensitive land use within a buffer for: a. Emitting activity; or b. Waste facility; or c. Pump station for bulk water supply, water supply, or sewer and is not within the Open space zone or Community facilities zone.	Code assessment	Infrastructure overlay code
Operational work or Building work, not associated with the Material change of use or Reconfiguring a lot, within a High pressure gas pipeline buffer and the pipeline is not within the Open space zone, Community facilities zone or a road reserve.	Code assessment	Infrastructure overlay code
All other development not listed above for this overlay.	No change	Infrastructure overlay code

Table 5.10-9: Scenic landscape overlay

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All development within a development envelope area approved under the Lockyer Valley Planning Scheme.	Accepted development	Not applicable
Material change of use, in an existing building where no Building work or Minor building work only is proposed.	Accepted development	Not applicable
Material change of use for a dwelling house.	Accepted development	Not applicable
Material change of use for: a. Animal husbandry; or b. Animal keeping; or c. Cropping; or d. Outdoor sport and recreation; or e. Outstation; or f. Park; or g. Roadside stall; or h. using an existing building.	Accepted development	Not applicable
All other development not listed above for this overlay.	No change	Scenic landscape overlay

Table 5.10-10: Steep land overlay

Editor's note—For the Steep land overlay, this table applies to areas of slopes of 15% and more. Slopes less than 15% are mapped for information purposes only.

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All development within a development envelope area approved under the Lockyer Valley Planning Scheme for the purpose of achieving a tolerable or acceptable level of landslide risk.	Accepted development	Not applicable
Material change of use for: a. Animal husbandry; or b. Cropping; or c. Park; or d. Permanent plantation; or e. Telecommunication facility where a low impact facility under the <i>Telecommunications Act (Cth)</i> .	Accepted development	Not applicable
Material change of use for: a. Community residence; or b. Dwelling house; or c. Environment facility; or d. Home-based business; or e. Nature based tourism not involving accommodation; or f. Outdoor sport and recreation not involving Building work or operational work; or g. Outstation; or h. Roadside stall; or i. Utility installation.	Accepted development	Steep land overlay code
Operational work not associated with a Material change of use or Reconfiguring a lot for: a. filling or excavation, if not Minor filling or excavation; or b. vegetation clearing, if not exempt vegetation clearing; or c. ground disturbance in a high risk soils area.	Code assessment	Steep land overlay code
Operational work associated with a Reconfiguring a lot or Material change of use	Code assessment	Steep land overlay code
Building work (excluding Minor building work) not associated with a Material change of use.	Code assessment	Steep land overlay code
All other development not listed above for this overlay.	No change	Steep land overlay code

Table 5.10-11: Waterways and water resources overlay

Editor’s note—Where development proposes to undertake development within a mapped waterway or wetland, the Applicant should consider if the work may involve waterway barrier works under the Fisheries Act, or taking or interfering with water under the Water Act. The State’s watercourse identification map shows the relevant features under the Water Act.

Editor’s note—OM12 Waterways and Water resource catchment overlay — Lockyer Creek sub catchments layer is provided for information purposes.

Editor’s note—The State government is the assessment manager or referral agency for applications involving high impact earthwork under schedule 10, part 20, division 2 of the Planning Regulation.

DEVELOPMENT	CATEGORIES OF DEVELOPMENT AND ASSESSMENT	ASSESSMENT BENCHMARKS FOR ASSESSABLE DEVELOPMENT AND REQUIREMENTS FOR ACCEPTED DEVELOPMENT
All development within a development envelope area approved under the Lockyer Valley Planning Scheme.	Accepted development	Not applicable
Material change of use for a Dwelling house or Home-based business.	Accepted development	Not applicable
Material change of use not otherwise specified for this overlay: <ul style="list-style-type: none"> a. within the Lockyer Creek water resource catchment: <ul style="list-style-type: none"> i. involving an on-site wastewater treatment system that directly discharges to an overland flow path, waterway or wetland; or ii. with a site area of 2,500m² or greater; or iii. creating 6 or more dwellings; or iv. for an urban purpose with an impervious area greater than 25% of the net developable area; or b. within or partly within a waterway, or wetland and associated wetland separation area; or c. within 400m of a water supply storage; or d. within or partly within a wetland separation area excluding: <ul style="list-style-type: none"> i. government supported transport infrastructure; or ii. government supported electricity operating works. e. within or partly within the water supply buffer area and for: <ul style="list-style-type: none"> i. Extractive industry; or ii. High impact industry; or iii. Intensive animal industry; or iv. Low impact industry; or v. Medium impact industry; or vi. Motor sport facility; or vii. Rural industry; or viii. Special industry; or ix. Transport depot; or x. Utility installation that involves wastewater treatment, drainage or stormwater services, a maintenance depot or storage depot; or xi. Waste management facilities; or xii. another urban purpose not listed above that has a site area of 2,500m² or greater. 	Code assessment	Water resource overlay code

<p>Reconfiguring a lot:</p> <ul style="list-style-type: none"> a. within the Lockyer Creek water resource catchment involving on-site wastewater treatment systems that discharges to an overland flow path, waterway, wetland or separation area; or b. within or partly within the water supply buffer; and <ul style="list-style-type: none"> i. creating 6 or more lots connected to reticulated sewerage; or ii. for an urban purpose and with a site area of 2,500m² or greater; or c. within or partly within 400m of a water supply storage; or d. within or partly within a waterway, overland flow path, wetland, wetland separation area or spring separation area. 	Code assessment	Water resource overlay code
Operational work for Minor filling or excavation or exempt clearing work.	Accepted development	Not applicable
<p>Operational work not associated with a Material change of use or Reconfiguring a lot and for vegetation clearing, filling or excavation or other ground disturbance:</p> <ul style="list-style-type: none"> a. within a wetland separation area or within 200m of a bulk water supply storage or drinking water bore; or b. within or partly within a waterway, overland flow path, or spring separation area; or c. the works are 2,500m² or greater. 	Code assessment	Water resource overlay code
All other development not listed above for this overlay.	No change	Water resource overlay code

Part 6 Zones

6.1 Preliminary

1. Zones organise the planning scheme area in a way that facilitates the location of preferred or acceptable land uses.
2. Zones are mapped and included in schedule 2.
3. The categories of development and assessment for development in a zone are in Part 5 Tables of Assessment.
4. Assessment benchmarks for zones are contained in a zone code.
5. A precinct may be identified for part of a zone.
6. Precinct provisions are contained in the zone code.
7. Each zone code identifies the following:
 - a. the purpose of the zone;
 - b. the overall outcomes that achieve the purpose of the zone.
8. The following are the zone codes for the planning scheme:
 - a. Community facilities zone code;
 - b. Conservation zone code;
 - c. Emerging community zone code;
 - d. Industry zone code;
 - e. Limited development zone code;
 - f. Local centre zone code;
 - g. Low density residential zone code;
 - h. Low-medium density residential zone code;
 - i. Major centre zone code;
 - j. Mixed use zone code;
 - i. Highway precinct;
 - k. Open space zone code;
 - l. Principal centre zone code;
 - m. Rural residential zone code;
 - n. Rural zone code;
 - i. Tenthill Creek subdivision precinct;
 - o. Special industry zone code;
 - p. Sport and recreation zone code; and
 - q. Township zone code.

6.2 Community facilities zone code

6.2.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Community facilities zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to section 5.3.2 and where applicable section 5.3.3 of this scheme.

6.2.2 Purpose and overall outcomes

1. The purpose of the Community facilities zone is to provide for community-related uses, activities and facilities, whether publicly or privately owned, including, for example:
 - a. Educational establishments; and
 - b. Hospitals; and
 - c. transport and telecommunication networks; and
 - d. Utility installations.
2. The purpose of the Community facilities zone is achieved through the following overall outcomes:
 - a. The Community facilities zone accommodates community related facilities that are owned and operated by private enterprise or Government entities and their agencies.
 - b. Development facilitates community services, activities and infrastructure that meet the social, educational, spiritual, cultural and health needs of the community. The continuing operation of community facilities and services within the zone is protected and provision is made for redevelopment and expansion of facilities in keeping with their purpose and community needs.
 - c. The Gatton campus of the University of Queensland and the Southern Queensland Correctional Centre are important community facilities. Development near these facilities will only be permitted where it will not prejudice, restrict or limit their operation and expansion.
 - d. Development of allied and compatible uses for community activities and services is supported where they are low scale and protect the role and function of adjacent centres.
 - e. The built form of community facilities reflects the existing built form of the surrounding area. Where development is of a greater scale, height and bulk in relation to surrounding development, the visual effects are addressed by setbacks, building form, landscaping and other means.
 - f. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - g. Places, buildings or features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - h. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - i. Development is designed and located in response to the physical characteristics and constraints of the land including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - j. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - k. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. When located within an urban area, development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - l. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks (such as the existing road network, active transport networks) and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - m. Development maximises connectivity, permeability and ease of transport movements within the activity centre including improving active and public transport networks.
 - n. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - o. Subdivision layouts are designed to prevent the creation of new rear access lots (or battle-axe lots). Subdivision ensures created lots are wide enough for their future use.

- p. Development that is **not** consistent with the purpose and outcomes of the Community facilities zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- q. Uses not listed in Table 6.2-1 are inconsistent uses in the Community facilities zone. Inconsistent uses are not established in the zone.

Table 6.2-1: Consistent uses in the Community facilities zone

CONSISTENT USES		
Battery storage facility	Environment facility	Parking station
Caretaker's accommodation	Food and drink outlet (where associated with community activities)	Permanent plantation
Cemetery	Function facility	Place of worship
Childcare centre	Funeral parlour	Renewable energy facility
Club	Health care service	Residential care facility
Community care centre	Hospital	Retirement facility (where associated with a Residential care facility)
Community residence	Indoor sport and recreation	Substation
Community use	Market	Telecommunications facility
Crematorium	Major electricity infrastructure	Theatre
Detention facility	Outdoor sport and recreation	Utility Installation
Educational establishment	Park	
Emergency services		

6.3 Conservation zone code

6.3.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Conservation zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to section 5.3.2 and where applicable section 5.3.3 of this scheme.

6.3.2 Purpose and overall outcomes

1. The purpose of the Conservation zone is to provide for the management, protection and restoration of areas that support one or more of the following:
 - a. biological diversity;
 - b. ecological integrity;
 - c. naturally occurring landforms.
2. The purpose of the Conservation zone is achieved through the following overall outcomes:
 - a. The Conservation zone includes areas within the region with the most significant ecological and landscape values including World Heritage Areas, National Parks, State Forests, Nature Refuges and significant habitat and wildlife corridors. The biological diversity, ecological processes, ecological connectivity, ecosystem resilience, scenic landscape areas and scenic amenity of these areas are protected from development.
 - b. Biological diversity, ecological processes, ecological connectivity and ecosystem resilience is retained through the protection, improvement and management of the land within this zone.
 - c. Land in this zone retains its natural state with minimal intrusion of built form. All uses are compatible with the environmental significance and protected status of land included in the zone.
 - d. The zone provides for a limited range of activities where environmental values, ecological processes, scenic landscape areas and scenic amenity are maintained.
 - e. No additional lots are created within the Conservation zone. Amalgamation of lots is encouraged to maximise the potential use of the land for recreational or conservation purposes.
 - f. New development is only for the use, enjoyment, appreciation, viewing, study and conservation of land within the zone. Recreational uses involve very low impact activities such as walking and nature appreciation.
 - g. Buildings or features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - h. New development is designed and located in response to the physical characteristics and constraints of the land including flooding, steep slopes and bushfire hazard. New development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - i. Development that is **not** consistent with the purpose and outcomes of the Conservation zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - j. Uses not listed in Table 6.3-1 are inconsistent uses in the Conservation zone. Inconsistent uses are not established in the zone.

Table 6.3-1: Consistent uses in the Conservation zone

CONSISTENT USES
All uses consistent with the <i>Forestry Act</i> or the <i>Nature Conservation Act</i> Environment facility Nature-based tourism Outdoor sport and recreation Outstation Park Permanent plantation

6.4 Emerging community zone code

6.4.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Emerging community zone Part 5 Tables of Assessment.
2. When using this code, reference should be made to section 5.3.2 and where applicable section 5.3.3 of this scheme.

6.4.2 Purpose and overall outcomes

1. The purpose of the Emerging community zone is to:
 - a. identify land that is intended for an urban purpose in the future; and
 - b. protect land that is identified for an urban purpose in the future from incompatible uses; and
 - c. provide for the timely conversion of non-urban land to land for urban purposes.
2. The purpose of the Emerging community zone is achieved through the following overall outcomes:
 - a. Land within this zone has been identified to be protected for urban purposes beyond the life of this planning scheme and to facilitate logical, orderly, efficient and sequential provision of growth.
 - b. Low intensity activities (such as a Dwelling house on an existing lot or Home-based business) that are compatible with the existing character of the area, are supported where the scale, layout, nature and impacts on future development of an integrated and compact urban form are not compromised.
 - c. Detailed structure planning and an assessment of existing residential land supply within the region is required to support new more intensive forms of urban development within this zone to ensure that development can be cost efficiently serviced and does not create a development front outside the priority infrastructure area.
 - d. Development that creates lots and does not support efficient sequential growth, is considered premature and not supported.
 - e. Development in the Emerging community zone with an approved structure plan creates new sustainable and liveable communities that are well planned and integrated with surrounding land uses to:
 - i. contribute to a logical and sequential pattern of development and infrastructure to create an integrated and compact urban form;
 - ii. facilitate efficient use of land and infrastructure;
 - iii. facilitate integration with existing and future urban development, having regard to movement and open space networks;
 - iv. provide for a diversity of housing choice and convenient community services;
 - v. manage stormwater on a catchment-wide basis; and
 - vi. respond to constraints and natural values on the site and mitigate any impacts on environmental values.
 - f. Emerging communities are developed in accordance with an approved structure plan:
 - i. are attractive, connected, functional and resilient communities that are supported by an accessible and connected public and active transport network, employment, Shops and essential community infrastructure and services;
 - ii. provide a variety of lot sizes and configurations that encourage diverse housing options;
 - iii. have a mix of residential types, including affordable housing types and achieves a net residential density of 15 to 20 dwellings a hectare;
 - iv. have higher densities in well-serviced locations (such as those located near town centres and high frequency public transport nodes).
 - g. Development does not compromise the operation or intended use of adjoining or adjacent land, including agricultural areas and Industry activities and provides a transition area, buffer or setback to non-urban or incompatible uses.
 - h. Development provides a high level of integration of built form, movement networks, open space and recreational facilities and community infrastructure.
 - i. Buildings or features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - j. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - k. Development is designed and located in response to the physical characteristics and constraints of the land including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - l. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - m. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Infrastructure is provided in a logical, orderly and efficient manner and is integrated

with and connected to existing infrastructure.

- n. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks (such as the existing road network, active transport networks) and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
- o. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
- p. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
- q. Subdivision layouts of new master planned estates are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough for future uses and dwellings have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
- r. Development that is **not** consistent with the purpose and outcomes of the Emerging community zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.

Editor's note—A table of consistent uses has not been provided for the Emerging community zone as development in this zone is intended to occur under a Structure Plan.

Editor's note—Before undertaking development a search of the Aboriginal Cultural Heritage register should be undertaken in accordance with the Aboriginal Cultural Heritage Act duty of care guidelines.

6.5 Industry zone code

6.5.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Industry zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.5.2 Purpose and overall outcomes

1. The purpose of the Industry zone is to provide for:
 - a. a variety of industry activities; and
 - b. other uses and activities that:
 - i. support industry activities; and
 - ii. do not compromise the future use of premises for industry activities.
2. The purpose of the Industry zone is achieved through the following overall outcomes:
 - a. The Industry zone facilitates the provision of industry activities that:
 - i. contribute positively to the economic prosperity of the Lockyer Valley;
 - ii. service the needs of local communities and businesses;
 - iii. avoid harming matters of environmental significance, ecological processes and ecological connectivity; and
 - iv. protect and maintain the scenic landscape areas and residential amenity in the locality.
 - b. The Industry zone contains high quality, fully serviced, accessible land accommodating a wide range of industrial and supporting activities.
 - c. The viability of both existing and future industry uses, particularly industry activities that are difficult to accommodate in other zones due to their potential impacts, are protected from the intrusion of incompatible land uses.
 - d. Special industry and High impact industry are not located where it will cause adverse effects on residential amenity.
 - e. The scale, character and built form of development contributes to a high standard of amenity and are in keeping with the expectations of a modern, safe and attractive industrial environment. Development is sympathetic to the existing and planned scale and character of the streetscape and surrounding development.
 - f. Non-industrial uses may be included in the zone, but only where these uses support industry activities and will not compromise the continuing operation and viability of industry activities or the integrity of the zone.
 - g. Non-industrial uses are limited to commercial and residential activities that support industry activities and provide direct services to people employed in the area, e.g. small scale Food and drink outlets and Caretaker's accommodation.
 - h. Residential activities and sensitive land uses avoid locating in or near this zone to minimise reverse amenity impacts.
 - i. Development minimises potential external impacts such as loss of amenity for surrounding sites, including impacts from air, light, noise, odours, dust, waste, vibration, overlooking, public health and safety.
 - j. Development that is incompatible with existing and approved industrial uses is located to avoid adverse effects and, where this is not possible, development is designed to minimise the effects.
 - k. Development provides effective screening and buffering from industry activities to adjacent residential activities, or sensitive land uses, to protect residential amenity and environmental values of the surrounding land.
 - l. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - m. Development is designed and located in response to the physical characteristics and constraints of the land including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impede impeding the flood conveyance function of land.
 - n. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - o. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - p. Industry activities are located to have the most direct, safe and efficient access to the transport network.
 - q. Development is serviced with a road and transport network and hierarchy suitable for the intended use. For example, freight traffic is directed on to roads and transport corridors that can support the function of freight movements.
 - r. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough for future uses have a front entrance visible from the street to the building and active street frontages. Created lots facilitate climate-responsive building design.
 - s. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and

- does not compromise the future provision of planned infrastructure.
- t. Development provides a range of lot sizes and adaptable building configurations that cater for varying industry needs.
 - u. Development that is **not** consistent with the purpose and outcomes of the Industry zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - v. Uses not listed in Table 6.5-1 are inconsistent uses in the Industry zone. Inconsistent uses are not established in the zone.

Editor's note—Major hazard facilities and hazardous chemical facilities are State assessable development. Applicants of these developments should seek advice from Office of Industrial Relations, Major Hazardous Facilities Unit before applying to Council.

Table 6.5-1: Consistent uses in the Industry zone

CONSISTENT USES		
Agricultural supplies store	Hardware and trade supplies	Service industry
Aquaculture	High impact industry	Service station
Battery storage facility	Indoor sport and recreation	Showroom
Brothel	Low impact industry	Special industry
Bulk landscape supplies	Major electricity infrastructure	Substation
Caretaker's accommodation	Medium impact industry	Telecommunications facility
Car wash	Outdoor sales	Transport depot
Crematorium	Park	Utility installation
Emergency services	Parking station	Veterinary service
Food and drink outlet (where less than 50m ² GFA)	Renewable energy facility	Warehouse
Funeral parlour	Research and technology industry	Wholesale nursery
Garden centre		Winery

6.6 Limited development zone

6.6.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Limited development zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.6.2 Purpose and overall outcomes

1. The purpose of the Limited development zone is to identify land that is significantly affected by one or more development constraints, including, for example, constraints relating to defence requirements, flooding, historical subdivisions, land contamination, past or future mining activities or topography.

Editor's note—Land included in the Limited development zone is not an urban area for the purpose of the Planning Regulation.

2. The purpose of the Limited development zone is achieved through the following overall outcomes:
 - a. Land impacted by extreme flood risk is unsuitable for development due to intolerable risk from flooding and an inability to mitigate the risk to people and property to an acceptable level.
 - b. Development provides for an extremely limited range of non-urban uses. Activities have a very low intensity, or have no built form or a built form that is comprised of resilient or readily replaceable materials that allow operators to resume trading shortly after a flood event.
 - c. No residential activities are to be established within the zone.
 - d. No buildings are constructed, including outbuildings associated with an existing Dwelling house.
 - e. No additional lots are created within the Limited development zone.
 - f. Development is designed and located in response to the flood constraints. Where other hazards also occur, they consider the cumulative impact of the flood hazard and the other hazard together on people and property.
 - g. The number of people or structures at risk of flood hazards is not increased.
 - h. Development does not change the flood capacity or impede the flood conveyance function of land.
 - i. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - j. Development provides infrastructure that is commensurate with the nature and scale of the development.
 - k. Uses not listed in Table 6.6-1 are inconsistent uses in the Limited development zone. Inconsistent uses are not established in the zone.

Table 6.6-1: Consistent uses in the Limited development zone

CONSISTENT USES		
Animal husbandry Cropping	Outdoor sport and recreation not involving supporting facilities or buildings Park	Permanent plantation Utility installation for stormwater drainage purposes

6.7 Local centre zone code

6.7.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Local centre zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.7.2 Purpose and overall outcomes

1. The purpose of the Local centre zone is to provide for:
 - a. a limited variety of commercial, community and retail activities to service local residents; and
 - b. other uses and activities that integrate with, and enhance, the local centre, including, for example, entertainment, shopping or residential uses.
2. The purpose of the Local centre zone is achieved through the following overall outcomes:
 - a. The town centres of Helidon, Laidley and Withcott are vibrant, readily accessible, integrated and well designed community focal points that provide a range of services and facilities that service their respective catchments.
 - b. This zone provides for a range of commercial, community, residential and tourist activities that support the local convenience needs of the community and visitors and promote an active, mixed activity environment.
 - c. Development does not compromise the viability of the centre hierarchy by proposing higher order or larger scale uses that are better located in the Major centre zone or Principal centre zone. The Local centre zone does not contain commercial or retail activities designed to service the whole of the region or beyond.
 - d. Development provides for a small range of residential activities in a mixed-use configuration, where such activities support the predominant business functions of the zone. For example, residential activities are located above ground level or at the rear of the commercial use to maintain the vitality of the centre and active street frontages.
 - e. Development provides shared access and shared facilities for the different uses located within the development.
 - f. Development provides an integrated development outcome with residential, retail and commercial land uses.
 - g. Industry uses are limited to Service industries and Low impact industries that serve the needs of the community and have a similar built form and amenity to Shops and Offices in the zone.
 - h. Tourist uses are compatible with the commercial use and heritage values of the centre.
 - i. Development provides a high level of amenity and is reflective of the surrounding character of the area and is sited and designed to maximise activity along primary street frontages with buildings maintaining a human scale at street level. New development is compatible with and improves the local streetscape character and is built to a high standard of urban and landscape design that creates attractive and functional buildings, streets and places. Development creates areas that are safe, convenient, comfortable and attractive.
 - j. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - k. Buildings that are Local heritage places are intended to be used for centre purposes provided the development is undertaken in a manner that protects heritage values. Buildings or features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - l. Development in proximity to Local heritage places protects the streetscape and traditional commercial character by designing new buildings that reflect the existing building materials and respect vertical and horizontal rhythms of the existing streetscape without replicating or mimicking heritage detailing.
 - m. Development in Helidon and Laidley reinforces and supports the traditional main street character through built form that:
 - i. contributes to a vibrant local centre identity;
 - ii. maintains the traditional and character elements of the streetscape and sensitively integrates historical places in context; and
 - iii. maintains a mix of land uses with small-scale building footprints.
 - n. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - o. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - p. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - q. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost

- effective extension of infrastructure networks.
- r. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks (such as the existing road network, active transport networks) and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - s. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
 - t. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough to have a front entrance visible from the street to the building.
 - u. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - v. Development that is **not** consistent with the purpose and outcomes of the Local centre zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - w. Uses not listed in Table 6.7-1 are inconsistent uses in the Local centre zone. Inconsistent uses are not established in the zone.

Table 6.7-1: Consistent uses in the Local centre zone

CONSISTENT USES		
Adult store	Function facility	Outdoor sport and recreation
Agricultural supplies store	Funeral parlour	Park
Bar	Health care service	Parking station
Battery storage facility	Garden centre	Place of worship
Car wash	Hardware and trade supplies	Rooming accommodation (where located above the ground storey or at the rear of a commercial building)
Caretaker's accommodation	Health care service	Service industry
Childcare centre	Home-based business	Service station
Club	Hotel	Shop
Community care centre	Indoor sport and recreation	Shopping centre (where less than 1,000m ² GFA)
Community residence	Low impact industry	Short-term accommodation
Community use	Major electricity infrastructure (where located underground)	Showroom
Dual occupancy (where located above the ground storey or at the rear of a commercial building)	Market	Substation
Dwelling unit (where located above the ground storey or at the rear of a commercial building)	Multiple dwelling (where located above the ground storey or at the rear of a commercial building)	Telecommunications facility
Educational establishment	Office	Theatre
Emergency services	Outdoor sales	Utility installation
Environment facility		Veterinary service
Food and drink outlet		

6.8 Low density residential zone code

6.8.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Low density residential zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.8.2 Purpose and overall outcomes

1. The purpose of the Low density residential zone is to provide for:
 - a. a variety of low density dwelling types; and
 - b. community uses, and small-scale services, facilities and infrastructure, to support local residents.
2. The purpose of the Low density residential zone is achieved through the following overall outcomes:
 - a. The Low density residential zone incorporates low-rise residential development predominantly 1 or 2 storeys in a variety of housing styles and designs to meet the needs of the community.
 - b. Development maintains a low density detached housing character in which tourist activities, other than small scale Short-term accommodation, are not accommodated.
 - c. Development achieves a density commensurate with the low-density nature of the area and between 3 to 5 dwellings (where unsewered) and 15 to 25 dwellings (where connected to sewer) to a hectare while always remaining compatible with the existing character.
 - d. Development provides a high level of amenity through compatible mixing of land uses, access to services and facilities, cohesive streetscapes and quality urban design.
 - e. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety. New residential activities are located and buffered to minimise impacts from existing incompatible uses such as transport corridors, agriculture, industry and major community facilities.
 - f. Some housing choice is provided in this zone to allow people to remain within their local community throughout their life. Dwelling houses, Dual occupancies, Rooming accommodation and small-lot housing, are expected to be the dominant forms of housing. Other forms of housing, including Residential care facilities and Retirement facilities establish in locations with good access to infrastructure and facilities and where their design and density is consistent with the existing residential character. Affordable housing is provided where it is consistent with the existing character, building bulk and scale of the locality without reducing residential amenity.
 - g. Dual occupancy occurs in a form that is consistent with the density and character of the local area.
 - h. Development minimises the extent of shadows on useable private open space or public space and provides adequate sunlight to habitable rooms on the site or adjoining land.
 - i. Home-based businesses protect and improve the character and amenity of the location.
 - j. An open space network is established, improved and protected throughout the residential area to encourage active transport and community connectivity, to provide visual relief and protect environmental values.
 - k. Small scale non-residential uses are provided where they can be clustered together, provide a local function and primarily serve the residents of the immediate area (such as convenience stores and Childcare centres). Small scale non-residential uses protect and maintain residential character and amenity and do not compromise the vitality, role and function of the centre zones and hierarchy.
 - l. Non-residential uses that do not fill a local function may be accepted where they locate in existing non-residential buildings, or reuse a Local heritage place.
 - m. Buildings (including non-residential uses) incorporate design elements that:
 - i. provide visual interest through form and design;
 - ii. respond to the character and amenity of neighbouring premises;
 - iii. incorporate design principles to contribute to an attractive streetscape of buildings and respond to the local climate;
 - iv. are consistent with the surrounding residential development, including roofline and architectural treatments that reflect residential building design.
 - n. Heritage places are protected and improved by development to preserve the historical character, amenity and identity of the locality.
 - o. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - p. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.

- q. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
- r. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
- s. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks (such as the existing road network, active transport networks) and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
- t. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
- u. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
- v. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
- w. Development that is **not** consistent with the purpose and outcomes of the Low density residential zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- x. Uses not listed in Table 6.8-1 are inconsistent uses in the Low density residential zone. Inconsistent uses are not established in the zone.

Table 6.8-1: Consistent uses in the Low density residential zone

CONSISTENT USES		
Animal keeping (where consistent with the local law)	Food and drink outlet (where less than 100m ² TUA)	Retirement facility
Battery storage facility	Home-based business	Rooming accommodation (for 5 people or less)
Childcare centre	Major electricity infrastructure (where located underground)	Sales office
Community care centre	Multiple dwelling	Shop (where less than 100m ² TUA)
Community residence	Outdoor sport and recreation	Short-term accommodation
Community use	Park	Substation
Dual occupancy	Residential care facility	Telecommunications facility
Dwelling house		Utility installation
Emergency services		

6.9 Low-medium density residential zone code

6.9.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Low-medium density residential zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.9.2 Purpose and overall outcomes

1. The purpose of the Low-medium density residential zone is to provide for:
 - a. a variety of low to medium density dwelling types; and
 - b. community uses, and small-scale services, facilities and infrastructure, to support local residents.
2. The purpose of the Low-medium density residential zone is achieved through the following overall outcomes:
 - a. The Low-medium density residential zone provides for housing diversity including Dwelling houses, Dual occupancies, Rooming accommodation, Multiple dwellings and small-lot housing, close to the commercial centres of Gatton and Plainland. Housing diversity is provided to ensure that housing choice is provided to respond to the needs of the community.
 - b. Development achieves a residential density commensurate with the low-density nature of the area of 25 dwellings to a hectare where:
 - i. buildings are low-scale (i.e. no more than three storeys);
 - ii. buildings improve the existing streetscape;
 - iii. dwellings have a smaller building footprint to retain front and backyards.
 - c. A residential density above 25 dwellings to a hectare (and not greater than 80 dwellings to a hectare) may be supported in limited circumstances and only where the site:
 - i. is within easy walking distance (200m-400m) to an existing or proposed commercial area, or school or public transport network; and
 - ii. has frontage to or is near an urban collector road.
 - d. Development includes a mix of apartments and row-houses that are of a scale and bulk that are consistent with the scale of existing Dwelling houses and Dual occupancies.
 - e. In limited instances, superior urban design and built form is required to address the streetscape, mitigate amenity impacts on adjoining uses and ensure compatibility with the existing neighbourhood character.
 - f. Development provides a high level of amenity through a compatible mix of land uses, access to services and facilities, cohesive streetscapes and quality urban design.
 - g. Development provides for alternative housing types such as Residential care facilities and Retirement facilities which provide housing diversity and allow people to find suitable accommodation throughout their life.
 - h. Rooming accommodation for 6 persons or more, Residential care facilities and Retirement facilities meets the building height requirements.
 - i. Affordable housing is provided where it is consistent with the existing character, building bulk and scale of the locality without reducing residential amenity. Affordable housing and social housing are provided in a range of housing types (e.g. Dual occupancies, Multiple dwellings, Rooming accommodation) and styles (e.g. 2 to 3 storey buildings).
 - j. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety. New residential activities are located and buffered to minimise impacts from existing incompatible uses such as transport corridors, agriculture, industry and major community facilities.
 - k. New residential developments establish in locations where they are integrated with existing neighbourhoods and in proximity to existing community facilities such as schools.
 - l. An open space network is established, improved and protected throughout the residential area to encourage active transport and community connectivity, to provide visual relief and protect environmental values.
 - m. Non-residential uses are provided where they can be clustered together, provide a local function and primarily serve the residents of the immediate area (such as convenience stores and Childcare centres). Non-residential uses protect and maintain residential character and amenity and do not compromise the vitality, role and function of the centre zones and hierarchy.
 - n. Heritage places are protected and improved by development to preserve the historical character, amenity and identity of the locality.
 - o. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - p. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood

- conveyance function of land.
- q. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - r. Non-residential uses that do not fill a local function may be accepted where they locate in existing non-residential buildings, or reuse a Local heritage place.
 - s. Non-residential uses incorporate design elements that are consistent with the surrounding residential development, including roofline and architectural treatments that reflect residential building design.
 - t. Home-based businesses protect and improve the character and amenity of the location.
 - u. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - v. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - w. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
 - x. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
 - y. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - z. Development that is **not** consistent with the purpose and outcomes of the Low-medium residential zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - aa. Uses not listed in Table 6.9-1 are inconsistent uses in the Low-medium residential zone. Inconsistent uses are not established in the zone.

Table 6.9-1: Consistent uses in the Low-medium density residential zone

CONSISTENT USES		
Animal keeping (where consistent with the local law)	Food and drink outlet (where less than 100m ² GFA)	Rooming accommodation
Battery storage facility	Home-based business	Sales office
Childcare centre	Major electricity infrastructure (where located underground)	Shop (where less than 100m ² GFA)
Community care centre	Multiple dwelling	Short-term accommodation
Community residence	Outdoor sport and recreation	Substation
Community use	Park	Telecommunications facility
Dual occupancy	Relocatable home park	Tourist park
Dwelling house	Residential care facility	Utility installation
Emergency services		

6.10 Major centre zone code

6.10.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Major centre zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.10.2 Purpose and overall outcomes

1. The purpose of the Major centre zone is to provide for a large variety of uses and activities to service a part of the local government area, including, for example, administrative, business, community, cultural, entertainment, professional, residential or retail uses or activities.
2. The purpose of the Major centre zone is achieved through the following overall outcomes:
 - a. Plainland provides for a wide range of administrative, commercial and community activities which provide for the travelling public, the current and future economic and social needs of the local community and a sub-regional catchment.
 - b. Development does not compromise the viability of the centre hierarchy by proposing higher order or larger scale uses that are more appropriately located in the Principal centre zone.
 - c. Development provides active uses located at the ground level and compatible supporting uses located above ground level providing an integrated development outcome with residential, retail and commercial land uses.
 - d. Residential uses support the centre for commercial purposes. Residential uses are located above ground level or at the rear of commercial uses to maintain the vitality of the centre and active street frontages. Residents in the zone should expect a reasonable level of ambient noise associated with the benefits of living in a centre.
 - e. Industry uses are limited to Service industries and Low impact industries that serve the needs of the community and have a similar built form and amenity to Shops and Offices in the zone.
 - f. Tourist accommodation is provided where it is compatible with the commercial use of the centre.
 - g. Development contributes to the creation of an active, safe and legible public realm, incorporating high quality public open spaces including town squares, civic plazas and forecourts, where appropriate.
 - h. New development is compatible with and improves the local streetscape character and creates areas that are safe, convenient, comfortable and attractive. Development incorporates a high standard of urban and landscape design that creates attractive and functional buildings, streets and places in keeping with the role of the zone as a major hub of economic and community activity. Development provides a high level of amenity and is reflective of the surrounding character of the area and is sited and designed to maximise activity along primary street frontages with buildings maintaining a human scale at street level.
 - i. Development in Plainland establishes a contemporary subtropical style through built form and landscaping that:
 - i. establishes a contemporary streetscape with a mix of architectural styles;
 - ii. establishes active building frontages to primary road frontages and corners;
 - iii. provides continuous shade and shelter to building entries and shopfronts; and
 - iv. where appropriate incorporates public open spaces and parks.
 - j. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - k. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - l. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - m. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunications infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - n. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities.
 - o. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - p. Development maximises connectivity, permeability and ease of transport movement including improving active and public transport networks.
 - q. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision

- ensures that created lots are wide enough to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
- r. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - s. Development that is **not** consistent with the purpose and outcomes of the Major centre zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - t. Uses not listed in Table 6.10-1 are inconsistent uses in the Major centre zone. Inconsistent uses are not established in the zone.

Table 6.10-1: Consistent uses in the Major centre zone

CONSISTENT USES		
Adult store	Function facility	Party house
Agricultural supplies store	Funeral parlour	Place of worship
Battery storage facility	Garden centre	Renewable energy facility
Bar	Hardware and trade supplies	Residential care facility
Car wash	Health care service	Resort complex
Caretaker's accommodation	Hospital	Retirement facility
Child care centre	Hotel	Rooming accommodation (where located above the ground storey or at the rear of a commercial building)
Club	Indoor sport and recreation	Service industry
Community care centre	Low impact industry	Service station
Community residence	Major electricity infrastructure (where located underground)	Shop
Community use	Market	Shopping centre
Dual occupancy (where located above the ground storey or at the rear of a commercial building)	Multiple dwelling (where located above the ground storey or at the rear of a commercial building)	Short-term accommodation
Dwelling unit (where located above the ground storey or at the rear of a commercial building)	Nightclub entertainment facility	Showroom
Educational establishment	Office	Substation
Emergency services	Outdoor sales	Telecommunications facility
Environment facility	Outdoor sport and recreation	Theatre
Food and drink outlet	Park	Tourist attraction
	Parking station	Utility installation
		Veterinary service

6.11 Mixed use zone code

6.11.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Mixed use zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.11.2 Purpose and overall outcomes

1. The purpose of the Mixed use zone is to provide for a variety of uses and activities, including, for example, business, residential, retail, service industry, tourist accommodation or low impact industrial uses or activities.
2. The purpose of the Mixed use zone (excluding the Highway precinct) is achieved through the following overall outcomes:
 - a. The zone supports a mix of commercial, residential and community activities which provide a convenience function for the local community.
 - b. Development does not compromise the viability of the centre hierarchy by proposing higher order or larger scale uses that are more appropriately located in the Major centre zone or Principal centre zone.
 - c. Non-residential uses:
 - i. service the convenience needs of the local community, travellers and tourists; or
 - ii. support the establishment of businesses that support the surrounding local community.
 - d. Residents in the zone should expect a reasonable level of ambient noise associated with the benefits of living in a Mixed use zone.
 - e. Development achieves a residential density commensurate with the low-density nature of the area of 25 dwellings to a hectare where connected to sewer and:
 - i. buildings are low-scale (i.e. no more than three storeys);
 - ii. buildings are consistent with the existing streetscape;
 - iii. houses have a smaller building footprint to retain front and backyards.
 - f. A residential density above 25 dwellings to a hectare (and not greater than 80 dwellings to a hectare) may be supported in limited circumstances and only where the site:
 - i. where connected to sewer;
 - ii. is within easy walking distance (200m-400m) to an existing or proposed commercial area, or school or public transport network; and
 - iii. has frontage to or is near to an urban collector road.
 - g. Rooming accommodation, Residential care facilities and Retirement facilities meet the building height requirements.
 - h. Superior urban design and built form is required to address the streetscape, mitigate amenity impacts on adjoining residential uses and ensure compatibility with the existing neighbourhood character.
 - i. Industry uses are limited to Service industries and Low impact industries that serve the needs of the community and have a similar built form and amenity to Shops and Offices in the zone.
 - j. Tourist activities are compatible with the adjacent uses and provide services for the travelling public.
 - k. Development contributes to the creation of an active, safe and legible public realm, incorporating public open spaces.
 - l. New development is compatible with and improves the local streetscape character and creates areas that are safe, convenient, comfortable and attractive. Development incorporates a high standard of urban and landscape design that creates attractive and functional buildings, streets and places in keeping with the role of the zone. Development provides a high level of amenity and is reflective of the surrounding character of the area and is sited and designed to maximise activity along primary street frontages with buildings maintaining a human scale at street level.
 - m. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - n. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - o. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - p. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - q. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunication infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - r. Development provides for an efficient pattern of development that creates walkable, permeable and legible

- communities that are integrated with active transport networks and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities.
- s. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - t. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
 - u. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
 - v. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - w. Development that is **not** consistent with the purpose and outcomes of the Mixed use zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - x. Uses not listed in Table 6.11-1 are inconsistent uses in the Mixed use zone (excluding the Highway precinct). Inconsistent uses are not established in the zone.

Table 6.11-1: Consistent uses in the Mixed use zone (excluding Highway precinct)

CONSISTENT USES		
Adult store	Emergency services	Parking station
Agricultural supplies store	Environment facility	Place of worship
Battery storage facility	Food and drink outlet	Residential care facility
Bar	Function facility	Retirement facility
Car wash	Garden centre	Rooming accommodation
Caretaker's accommodation	Hardware and trade supplies	Service industry
Child care centre	Health care service	Service station
Club	Home-based business	Shop
Community care centre	Hotel	Shopping centre (where less than 1,000m ² GFA)
Community residence	Indoor sport and recreation	Short-term accommodation
Community use	Low impact industry	Showroom
Dual occupancy (where located above the ground storey or at the rear of a commercial building))	Major electricity infrastructure (where located underground)	Substation
Dwelling unit (where located above the ground storey or at the rear of a commercial building)	Market	Telecommunications facility
Educational establishment	Multiple dwelling	Theatre
	Office	Utility installation
	Outdoor sport and recreation	Veterinary service
	Park	

6.11.2.1 Highway precinct

1. The purpose of the Mixed use zone - Highway precinct is achieved through the following overall outcomes:
 - a. New development within the Highway precinct is limited to development that benefits from highway exposure or caters to local residents, without compromising the centre hierarchy.
 - b. Development does not compromise the viability of the centre hierarchy by proposing higher order or larger scale uses that are more appropriately located in the Major centre zone or Principal centre zone.
 - c. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - d. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - e. Development is designed and located in response to the physical characteristics and constraints of land. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - f. Development provides infrastructure and services that are commensurate with the nature and scale of development.
 - g. Development that is **not** consistent with the purpose and overall outcomes of the Mixed use zone - Highway precinct, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - h. Uses not listed in Table 6.11-2 are inconsistent uses in the Mixed use zone - Highway precinct. Inconsistent uses are not established in the precinct.

Table 6.11-2: Consistent uses in the Mixed use zone - Highway precinct

CONSISTENT USES

Adult store Agricultural supplies store Battery storage facility Emergency services Food and drink outlet	Garden centre Hardware and trade supplies Indoor sport and recreation Low impact industry Major electricity infrastructure (where located underground)	Service industry Shop Showroom Substation Telecommunications facility Utility installation
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6.12 Open space zone

6.12.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Open space zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.12.2 Purpose and overall outcomes

1. The purpose of the Open space zone is to provide for:
 - a. local, district and regional parks for the use of residents and visitors; and
 - b. facilities and infrastructure that support, and are required by, users of the parks.
2. The purpose of the Open space zone is achieved through the following overall outcomes:
 - a. Development within the zone provides for informal cultural, educational and recreational uses and activities on public or private land that support the needs of the local community.
 - b. Areas available for passive recreation are provided in locations where they contribute to the community's wellbeing, health and safety.
 - c. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety. Sensitive design and siting of facilities and infrastructure and buffering minimises the effect of the use on adjacent areas.
 - d. Land in this zone remains undeveloped and is used for community activities that are non-permanent, short-term and periodic uses such as an environment facilities and passive recreation.
 - e. Additional lots in the Open space zone are discouraged and are created only where necessary to service community activities and passive recreation. Amalgamation of lots is encouraged to maximise the potential use of the land for recreational purposes.
 - f. Development ensures there is sufficient land available to minimise conflict between various open space activities and functions.
 - g. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - h. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - i. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - j. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - k. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - l. Development that is **not** consistent with the purpose and outcomes of the Open space zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
 - m. Uses not listed in Table 6.12-1 are inconsistent uses in the Open space zone. Inconsistent uses are not established in the zone.

Table 6.12-1: Consistent uses in the Open space zone

CONSISTENT USES		
Community use Emergency services Environment facility	Outdoor sport and recreation Park Permanent plantation	Telecommunications facility Utility installation

6.13 Principal centre zone code

6.13.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Principal centre zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.13.2 Purpose and overall outcomes

1. The purpose of the Principal centre zone is to provide for a large variety of uses and activities (including, for example, administrative, business, community, cultural, entertainment, professional, residential or retail activities) to:
 - a. form the core of an urban area; and
 - b. service the local government area.
2. The purpose of the Principal centre zone is achieved through the following overall outcomes:
 - a. The commercial centre of Gatton is the preferred location for commercial activities, government administration offices and community services. Development reinforces the role of Gatton as the principal centre of the Lockyer Valley and serves the current and future economic and social needs of the community and business in the Region.
 - b. A wide range of commercial, administrative, community, cultural, tourist, entertainment and residential activities are provided which support the wider community and provide for the travelling public.
 - c. Development provides active uses located at the ground level and compatible supporting uses located above ground level, providing an integrated development outcome with residential, retail and commercial land uses.
 - d. Residential uses support the centre for commercial purposes. Residential uses are located above ground level or at the rear of commercial uses to maintain the vitality of the centre and active street frontages. Residents in the zone should expect a reasonable level of ambient noise associated with the benefits of living in a centre.
 - e. Industry uses are limited to Service industries and Low impact industries that serve the needs of the community and have a similar built form and amenity to Shops and Offices in the zone.
 - f. Tourist uses are compatible with the commercial use of the centre.
 - g. Development contributes to the creation of an active, safe and legible public realm, incorporating high quality public open spaces including town squares, civic plazas and forecourts, where appropriate.
 - h. New development is compatible with and improves the local streetscape character and creates a centre that is safe, convenient, comfortable and attractive. Development incorporates a high standard of urban and landscape design that creates attractive and functional buildings, streets and places in keeping with the role of the zone as a major hub of economic and community activity. Development provides a high level of amenity and is reflective of the surrounding character of the area and is sited and designed to maximise activity along primary street frontages with buildings maintaining a human scale at street level.
 - i. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - j. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the locality.
 - k. Development in proximity to Local heritage places protects the streetscape and traditional commercial character by designing new buildings that reflect the existing building materials and respect vertical and horizontal rhythms of the existing streetscape without replicating or mimicking heritage detailing.
 - l. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - m. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - n. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - o. Development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunication infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - p. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks (such as the existing road network) and are well connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides a high level of amenity that reflects the building typology, vernacular and streetscape character intended for the zone.

- q. Development maximises connectivity, permeability and ease of transport movements within the activity centre including improving active and public transport networks.
- r. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
- s. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
- t. Development that is **not** consistent with the purpose and outcomes of the Principal centre zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- u. Uses not listed in Table 6.13-1 are inconsistent uses in the Principal centre zone. Inconsistent uses are not established in the zone.

Table 6.13-1: Consistent uses in the Principal centre zone

CONSISTENT USES		
Adult store	Function facility	Party house
Agricultural supplies store	Funeral parlour	Place of worship
Bar	Garden centre	Residential care facility
Battery storage facility	Hardware and trade supplies	Resort complex
Caretaker's accommodation	Health care service	Retirement facility
Car wash	Hospital	Rooming accommodation (where located above the ground storey or at the rear of a commercial building)
Child care centre	Hotel	Service industry
Club	Indoor sport and recreation	Service station
Community care centre	Low impact industry	Shop
Community residence	Major electricity infrastructure (where located underground)	Shopping centre
Community use	Market	Short-term accommodation
Dual occupancy (where located above the ground storey or at the rear of a commercial building)	Multiple dwelling (where located above the ground storey or at the rear of a commercial building)	Showroom
Dwelling unit (where located above the ground storey or at the rear of a commercial building)	Nightclub entertainment facility	Substation
Educational establishment	Office	Telecommunications facility
Emergency services	Outdoor sales	Theatre
Environment facility	Outdoor sport and recreation	Tourist attraction
Food and drink outlet	Park	Utility installation
	Parking station	Veterinary service

6.14 Rural zone code

6.14.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Rural zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.14.2 Purpose and overall outcomes

1. The purpose of the Rural zone is to:
 - a. provide for rural uses and activities; and
 - b. provide for other uses and activities that are compatible with:
 - i. existing and future rural uses and activities; and
 - ii. the character and environmental features of the zone; and
 - c. maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes.
2. The purpose of the Rural zone is achieved through the following overall outcomes:
 - a. The zone primarily provides for Rural activities such as Cropping, Intensive horticulture, Animal husbandry and Animal keeping.
 - b. Rural landscapes and associated visual and scenic amenity are protected including agricultural and grazing land as well as natural areas and scenic landscapes.
 - c. Development is sensitive and responsive to the rural character, scenic landscape areas and scenic amenity. Vegetation is retained in scenic landscape areas and signage is controlled.
 - d. Non-rural activities and sensitive land uses are located where they will not prejudice rural activities, extractive industries, environmental values, scenic landscape areas and rural amenity.
 - e. Residential development is in the form of Dwelling houses, Caretaker's accommodation and Rural workers' accommodation.
 - f. Rural scenic landscape areas and scenic amenity are maintained through co-location and clustering of buildings to ensure that the scale, bulk and form are sympathetic to the character of the site and locality.
 - g. Tourism uses and activities that diversify or value-add to existing rural activities are encouraged where they protect environmental values, scenic landscape areas and rural amenity and do not conflict with adjacent existing rural activities.
 - h. Rural industry and Low impact industry uses are supported where:
 - i. associated with processing, storage and other value chain activities required for agricultural produce;
 - ii. produce is sourced primarily from the Lockyer Valley;
 - iii. located close to transport networks;
 - iv. they do not increase Council's disaster management burden; and
 - v. located outside areas of ALC Class A & B soils or, where they cannot be location outside areas of ALC Class A & B soils, industry impacts are minimised and soil resources are rehabilitated at the end of use.
 - i. Development for commercial activities is supported only where it supports Tourist activities (e.g. Food and drink outlets), are small in scale and where they will not compete with and does not compromise the viability of centres or townships.
 - j. Renewable energy facilities are supported where:
 - i. they protect environmental values, scenic landscape areas and rural amenity;
 - ii. do not conflict with adjacent existing rural activities; and
 - iii. located outside areas of ALC Class A & B soils.
 - k. Extractive industries are supported where they:
 - i. avoid or, if avoidance is not possible, minimise and mitigate impacts on environmental values, scenic landscape areas and rural amenity;
 - ii. ensure transport routes are constructed to a standard that accommodates the anticipated number of haulage vehicles, having regard to the safety of road users and the impact on the life of the roads.
 - l. Intensive animal industries may establish where potential impacts can be managed. Intensive animal industries are not located in areas of ALC Class A & B soils, high scenic and environmental values, or in areas where there is a cluster of small rural lots.
 - m. Advertising devices are not erected in locations where they detract from the scenic landscape areas and rural amenity.
 - n. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - o. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).

- p. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, overland flow, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
- q. Development avoids and protects matters of environmental significance and where avoidance is not practicable, minimises and otherwise mitigates harm to ecological processes, ecological connectivity and maintains ecosystem resilience.
- r. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
- s. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure. Development does not introduce excessive traffic volumes onto rural roads.
- t. Emerging community areas are protected and conserved to accommodate future growth beyond the life of the planning scheme. Investigation is undertaken through a growth management study, before detailed structure planning and development is established.
- u. Subdivision in the Rural zone does not occur. New lots are created only where they improve the rural economic viability of the land. Amalgamation of lots is encouraged to maximise the potential for the land for rural purposes. Where realignment occurs the layout minimises the creation of rear access lots (or battle-axe lots).
- v. Development protects and improves the function of the stock route network to ensure the sustainable use by travelling stock, and secondary uses such as recreation and conservation of environmental and heritage values are protected and maintained. Development protects and improves access to water reserves that are part of the stock route network.
- w. Development that is not consistent with the purpose and outcomes of the Rural zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- x. Uses not listed in Table 6.14-1 are inconsistent uses in the Rural zone. Inconsistent uses are not established in the zone.

Editor's note—Major hazard facilities and hazardous chemical facilities are State assessable development. Applicants of these developments should seek advice from Office of Industrial Relations, Major Hazard Facilities Unit before applying to Council. Enquiries can be made to: hcfplanning@oir.qld.gov.au

Editor's note—Before undertaking development a Soil Conservation Plan search under the Soil Conservation Act is recommended before a development application is made, as failure to understand the presence and meaning of plans can cause significant issues (e.g. erosion, impacts on infrastructure and legal conflicts). Consideration should also be given to Soil conservation guidelines for Queensland.

Table 6.14-1: Consistent uses in the Rural zone

CONSISTENT USES		
Air services	Home-based business	Roadside stall
Animal husbandry	Intensive animal industry	Resort complex
Animal keeping	Intensive horticulture	Rural industry
Aquaculture	Low impact industry (where small scale or associated with a rural use)	Rural workers' accommodation
Battery storage facility	Major electricity infrastructure	Service station
Bulk landscape supplies	Market	Shop (where associated with a tourist activity)
Caretaker's accommodation	Motor sport facility	Short-term accommodation
Community residence	Nature-based tourism	Substation
Cropping	Non-resident workforce accommodation	Telecommunications facility
Dwelling house	Outdoor sport and recreation	Transport depot
Emergency services	Outstation	Tourist attraction
Environment facility	Park	Tourist park
Extractive industry	Permanent plantation	Utility installation
Garden centre (where associated with a Wholesale nursery)	Renewable energy facility	Wholesale nursery
		Winery
		Workforce accommodation

6.14.2.1 Tenthill Creek precinct

1. The purpose of the Rural zone — Tenthill Creek precinct is achieved through the following overall outcomes:
 - a. Undeveloped land in the Rural zone — Tenthill Creek precinct remains undeveloped to conserve ALC Class A & B soils for cropping, and protect the Lockyer Creek drinking water catchment and environmental values of the land.
 - b. Developed land in the Rural zone — Tenthill Creek precinct does not intensify and further development does not occur.
 - c. Rural uses are low intensity and have minimal built form that is compatible with the site constraints.

- d. New development does not occur within the precinct.
- e. No buildings are constructed unless associated with consistent rural activities such as Cropping.
- f. No additional lots are created within the Rural zone — Tenthill Creek precinct.
- g. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
- h. Development provides for infrastructure and services that are commensurate with the nature and scale of the development.
- i. Uses not listed in Table 6.14-2 are inconsistent uses in the Rural zone — Tenthill Creek precinct. Inconsistent uses are not established in the zone and precinct.

Table 6.14-2: Consistent uses in the Rural zone — Tenthill Creek precinct

CONSISTENT USES		
Animal husbandry Animal keeping Cropping	Outdoor sport and recreation Park	Permanent plantation Roadside stall

6.15 Rural residential zone code

6.15.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Rural residential zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.15.2 Purpose and overall outcomes

1. The purpose of the Rural residential zone is to provide for residential uses and activities on large lots, including lots for which the local government has not provided infrastructure and services.
2. The purpose of the Rural residential zone is achieved through the following overall outcomes:
 - a. Residential uses of a very low density and a semi-rural character prevail in the zone. Dwelling houses are the dominant form of housing.
 - b. Dual occupancies may also be provided on larger lots where design and density are consistent with the existing character of the area.
 - c. Small scale non-residential uses provide a local function and primarily serve the residents of the immediate area (such as convenience stores). Small scale non-residential uses are maintain the residential amenity. Non-residential uses do not compromise the centre hierarchy.
 - d. Non-residential uses incorporate design elements that are consistent with the surrounding residential development, including roofline and architectural treatments that reflect residential building design. Residential character, privacy and amenity are maintained and there are no adverse impacts on surrounding sites.
 - e. Home-based businesses provide for small scale and emerging activities and protect the character and amenity of the location.
 - f. Natural features and environmental corridors, such as creeks, gullies, waterways, wetlands, habitats and vegetation, are protected, improved and rehabilitated through buffers that provide for fauna movement and minimise the impact of existing and future land uses.
 - g. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety. New residential uses are located and buffered to minimise impacts from existing incompatible uses such as transport corridors, agriculture, industry and major community facilities.
 - h. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - i. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - j. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - k. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - l. Development is connected to all services that are available in the locality to support the needs of the community. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - m. Development maximises connectivity, permeability and ease of transport movements, including improving active transport networks.
 - n. Urban investigate areas are protected and conserved to accommodate future growth beyond the life of the planning scheme. Investigation is undertaken through a growth management study, before detailed structure planning and development is established.
 - o. Subdivision layouts are designed to minimise the creation of new rear access lots (or battle-axe lots). Subdivision ensures that created lots are wide enough for future dwellings to have a front entrance visible from the street to the building. Created lots facilitate climate-responsive building design.
 - p. Subdivision does not occur in the No further subdivision precinct so as to conserve the land for future urban growth. Realignment of boundaries in the No further subdivision precinct minimises the creation of new rear access lots (or battle-axe lots).
 - q. Development does not reduce operational capacity, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
 - r. Development that is **not** consistent with the purpose and outcomes of the Rural residential zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more

suitable zone.

- s. Uses not listed in Table 6.15-1 are inconsistent uses in the Rural residential zone. Inconsistent uses are not established in the zone.

Table 6.15-1: Consistent uses in the Rural residential zone

CONSISTENT USES		
Animal keeping Battery storage facility Community residence Dual occupancy Dwelling house Emergency services Food and drink outlet (where less than 100m ² GFA)	Home-based business Major electricity infrastructure (where located underground) Outdoor sport and recreation Park Permanent plantation	Sales office Shop (where a convenience store) Short-term accommodation Substation Telecommunications facility Utility installation

6.16 Special industry zone code

6.16.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Special industry zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.16.2 Purpose and overall outcomes

1. The purpose of the Special industry zone is to provide for:
 - a. special industry; and
 - b. other uses and activities that:
 - i. support industry activities; and
 - ii. do not compromise the future use of premises for industry activities.
2. The purpose of the Special industry zone is achieved through the following overall outcomes:
 - a. The Special industry zone provides for industrial uses that are subservient to and directly involved with the manufacturing, assembly, storage, distribution, disposal and testing of explosives. Development unrelated to, or incompatible with, the manufacturing, assembly, storage, distribution and testing of explosives is not supported in this zone.
 - b. The Helidon Explosives Magazine is included in this this zone. Some expansion of this facility may be undertaken and new related industries may establish where compatible with the facility. Development will only be permitted where it will not prejudice, restrict or limit this facility.
 - c. Utility installations may be established where such activities are unable to be practicably located elsewhere and:
 - i. are low scale;
 - ii. compatible with the primary use of the zone for the manufacturing, assembly, storage, distribution, disposal and testing of explosives.
 - d. Development that involves the storage of hazardous chemicals or hazardous materials is inconsistent with the zone.
 - e. No additional lots are created within the Special industry zone. Amalgamation of lots is encouraged to maximise the potential use and effective management of explosive industries.
 - f. Built form maintains a very low-density character that balances the needs of specialised industry activities with the rural characteristics of the locality.
 - g. Building design and scale reflects the role of the Special industry zone.
 - h. Land use activities, building design and construction protect against potential hazards arising from proximity to explosives manufacturing, assembly, storage, distribution, disposal, testing and transportation.

Note—This may require a risk assessment approved by the Chief Inspector of the Explosives Inspectorate, Resources Safety and Health that demonstrates a satisfactory management risk to the Helidon Explosives Reserve, associated explosives facilities and public safety.

- i. Development does not reduce the safety and efficient operation of vehicles transporting explosive materials along Airforce Road, Borjensons Way, Cattos Road, Lockyer Siding Road and Warrigal Road to the Warrego Highway.
- j. Development achieves effective separation or buffering from uses unrelated to the manufacture, assembly, storage, distribution, disposal or testing of explosives.
- k. Development maintains dense landscaping along boundaries, consistent with restricting the public's view of operations occurring on site.
- l. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
- m. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impede impeding the flood conveyance function of land.
- n. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
- o. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
- p. Development does not reduce operational capacity, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
- q. Development that is **not** consistent with the purpose and outcomes of the Special industry zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more

suitable zone.

- r. Uses not listed in Table 6.16-1 are inconsistent uses in the Special industry zone. Inconsistent uses are not established in the zone.

Editor's note—Development that involves a major chemical facility or hazardous chemical facility should seek advice from Office of Industrial Relations, Major Hazardous Facilities Unit before applying to Council.

Table 6.16-1: Consistent uses in the Special industry zone

CONSISTENT USES	
Animal husbandry Cropping Extractive industry Permanent plantation Utility installation	Consistent uses if directly involved with the manufacturing, assembly, storage, distribution, disposal or testing of explosives: <ul style="list-style-type: none">● High impact industry● Low impact industry● Medium impact industry● Research and technology industry● Special industry● Transport depot● Warehouse

6.17 Sport and recreation zone code

6.17.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Sport and recreation zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.17.2 Purpose and overall outcomes

1. The purpose of the Sport and recreation zone is to provide for:
 - a. a variety of cultural, educational, recreation and sporting uses and activities that require built infrastructure, including, for example, clubhouses, gymnasiums, swimming pools or tennis courts; and
 - b. facilities and infrastructure to support the uses and activities stated in paragraph a.
2. The purpose of the Sport and recreation zone is achieved through the following overall outcomes:
 - a. Development within the zone provides for a wide range of formal and informal cultural, educational, recreational and active sporting uses and activities on public or private land that support the needs of the local community.
 - b. Areas available for sport and recreational pursuits such as playing fields, outdoor cultural facilities, public swimming pools and outdoor courts, are available for passive recreation and provided in locations where they make an important contribution to the community's wellbeing, public health and safety.
 - c. A range of functional open spaces, including local and regional parks and open space links are available for the use and enjoyment of residents and visitors.
 - d. Opportunities for sporting Clubs using playing fields to establish Club facilities are facilitated in appropriate locations and the co-location and multiple use of sport and recreation fields and facilities are encouraged.
 - e. The form of development is specific to the facility in recognition of the operational, functional and locational requirement of the sport and recreation facility.
 - f. Development ensures there is sufficient land available to minimise conflict between various sport and recreation activities and functions.
 - g. Development ensures there is no unreasonable loss of amenity for adjacent sites that has regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety. Sensitive design and siting of facilities and infrastructure and buffering minimises the effect of the use on adjacent areas.
 - h. Land within the zone may be used for temporary uses that are non-permanent, short-term and periodic uses such as Markets, fairs, festivals and other organised community events.
 - i. Additional lots in the Sport and recreation zone are discouraged and are created only where necessary to service community activities and passive recreation. Amalgamation of lots is encouraged to maximise the potential use of the land for recreational purposes.
 - j. Residential development is limited to that necessary to manage or supervise on-site facilities.
 - k. Commercial uses are small scale and support the sporting and recreational activities.
 - l. The viability of the community purpose is protected by excluding development that could limit the continuing operation of existing community facilities or prejudice appropriate new activities.
 - m. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - n. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - o. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - p. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - q. Development maximises connectivity, permeability and ease of transport movements, including improving active and public transport networks.
 - r. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. When located within an urban area, development is provided with the full range of urban services to support the needs of the community, including parks, transport network (for all transport modes), reticulated water, sewerage, stormwater drainage, electricity and telecommunication infrastructure. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - s. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.

- t. Development that is **not** consistent with the purpose and outcomes of the Sport and recreation zone must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- u. Uses not listed in Table 6.17-1 are inconsistent uses in the Sport and recreation zone. Inconsistent uses are not established in the zone.

Table 6.17-1: Consistent uses in the Sport and recreation zone

CONSISTENT USES		
Animal keeping (if stables associated with the Gatton horse racing facility)	Function facility	Outdoor sport and recreation Park
Battery storage facility	Health care service (if associated with sports medicine and located within an indoor sport facility)	Permanent plantation
Caretaker's accommodation	Indoor sport and recreation	Short-term accommodation (if associated with the redevelopment of the Gatton horse racing facility)
Club	Major electricity infrastructure (where located underground)	Substation
Community use	Major sport, recreation and entertainment facility	Telecommunications facility
Emergency services	Market	Utility installation
Environment facility		
Food and drink outlet (if associated with a sport and recreation activity)		

6.18 Township zone code

6.18.1 Application

1. This code applies to development where it is identified as being the applicable code in the table of assessment for the Township zone in Part 5 Tables of Assessment.
2. When using this code, reference should be made to Section 5.3.2 and where applicable Section 5.3.3 of this scheme.

6.18.2 Purpose and overall outcomes

1. The purpose of the Township zone is to provide for:
 - a. small to medium urban areas in a rural area;
 - b. a variety of uses and activities to service local residents, including, for example, business, community, education, industrial, open space, recreation, residential or retail uses or activities; and
 - c. tourist attractions and short-term accommodation, if appropriate for the area.
2. The purpose of the Township zone is achieved through the following overall outcomes:
 - a. The zone supports a mix of low density residential and small-scale non-residential uses consistent with maintaining the viability and liveability of the townships while preserving the semi-rural character.
 - b. The dominant form of residential development is detached Dwelling houses.
 - c. Non-residential uses:
 - i. service the convenience needs of the local community, travellers and tourists; or
 - ii. support the establishment of small-scale businesses that support surrounding rural activities.
 - d. Non-residential uses are clustered and centrally located where they can be conveniently and safely accessed without having an adverse impact on residential amenity.
 - e. The individual character and amenity of the townships are maintained.
 - f. The reuse or redevelopment of existing buildings for either residential or non-residential uses is encouraged.
 - g. Development is cohesive and contained within a distinct boundary with the adjoining rural area. Extensions to the townships are limited to those areas where there is need demonstrated by lack of lots available for development and growth of population.
 - h. Development provides a high level of amenity and is reflective of the surrounding character of the area and is sited and designed to maximise activity along primary street frontages with buildings maintaining a human scale at street level. New development is compatible with and improves the local streetscape character, and is built to a high standard of urban and landscape design that creates attractive and functional buildings, streets and places.
 - i. The residential amenity is protected by sensitive design and siting of non-residential uses and buffering between potentially conflicting uses.
 - j. Development ensures there is no unreasonable loss of amenity for surrounding sites, having regard to matters such as noise, lighting, waste, fumes, odours, overlooking, public health and safety.
 - k. Buildings and features of a Local heritage place are protected and improved by development to preserve the historical character, amenity and identity of the place.
 - i. Development in proximity to a Local heritage place protects the streetscape and traditional township character by designing new buildings that reflect the existing building materials and respect vertical and horizontal rhythms of the existing streetscape without replicating or mimicking heritage detailing.
 - m. Development is located, designed and operated to achieve ecological sustainability by ensuring development incorporates the principles and objectives of sustainable design, energy efficiency, water conservation, water quality management, water sensitive urban design and Crime Prevention through Environmental Design (CPTED).
 - n. Development is designed and located in response to the physical characteristics and constraints of land, including flooding, steep slopes and bushfire hazard. Development is not located where it will increase the number of people or structures at risk of natural hazards including, but not limited to, changing the flood capacity or impeding the flood conveyance function of land.
 - o. Development avoids and protects matters of environmental significance. Where avoidance is not practicable, development minimises and mitigates harm to ecological processes and ecological connectivity and maintains ecosystem resilience.
 - p. Development provides for infrastructure and services that are commensurate with the nature and scale of development that is expected to occur in the area. Development is located and designed to maximise the safe operation and cost effective extension of infrastructure networks.
 - q. Development provides for an efficient pattern of development that creates walkable, permeable and legible communities that are integrated with active transport networks and are connected to activity centres, employment nodes, open space, recreation areas and community facilities. Development provides an amenity that reflects the building typology, vernacular and streetscape character intended for the zone.
 - r. Subdivision of land in the Township zone does not occur. Realignment of boundaries minimises the creation of new rear access lots (or battle-axe lots) and lots are wide enough to have a front entrance visible from the street to the building.

- s. Development protects and improves the continued operation, viability and maintenance of existing infrastructure and does not compromise the future provision of planned infrastructure.
- t. Development that is **not** consistent with the purpose and outcomes of the Township zone, must demonstrate overriding community need as well as a planning justification as to why the use cannot be established in a more suitable zone.
- u. Uses not listed in Table 6.18-1 are inconsistent uses in the Township zone. Inconsistent uses are not established in the zone.

Table 6.18-1: Consistent uses in the Township zone

CONSISTENT USES		
Agricultural supplies store (where less than 250m ² GFA)	Environment facility	Outdoor sport and recreation
Animal keeping	Food and drink outlet (where less than 250m ² GFA)	Park
Bar (where less than 250m ² GFA)	Health care service	Place of worship
Battery storage facility	Home-based business	Roadside stall
Car wash	Hotel (where less than 250m ² GFA)	Service industry (where less than 250m ² GFA)
Childcare centre	Indoor sport and recreation	Service station (where less than 250m ² GFA)
Club	Low impact industry (where less than 250m ² GFA)	Shop (where less than 250m ² GFA)
Community care centre	Major electricity infrastructure (where located underground)	Short-term accommodation
Community residence	Market	Showroom (where less than 250m ² GFA)
Community use	Nature-based tourism	Substation
Dwelling house	Office (where less than 100m ² GFA)	Telecommunications facility
Educational establishment	Outdoor sales (where less than 5,000m ² site area)	Utility installation
Emergency services		Veterinary service

Part 7 Local plans

7.1 Preliminary

1. There are no Local plans for the Lockyer Valley Planning Scheme.

Part 8 Overlays

8.1 Preliminary

1. Overlays identify areas in the planning scheme that reflect state, regional and local level interests and that have one or more of the following characteristics:
 - a. there is a particular sensitivity to the effects of development;
 - b. there is a constraint on land use or development outcomes;
 - c. there is a presence of valuable resources;
 - d. there are particular opportunities for development.
2. Overlays are mapped and included in schedule 2 Maps.
3. The changed categories of development or assessment, if applicable, for development affected by an overlay are in Part 5 Tables of Assessment.
4. Some overlays have been included for information purposes only. These do not result in a change to the category of development or assessment or any additional assessment benchmarks.
5. Assessment benchmarks for an overlay may be contained in one or more of the following:
 - a. a map for an overlay;
 - b. a code for an overlay;
 - c. a zone code;
 - d. a local plan code;
 - e. a development code.
6. Where development is proposed on premises partly affected by an overlay, the assessment benchmarks for the overlay only relate to the part of the premises affected by the overlay, except where on an overlay map for natural hazards including:
 - a. OM4 Bushfire hazard overlay;
 - b. OM7 Flood hazard overlay;
 - c. OM11 Steep land overlay.
7. The overlays for the planning scheme are:
 - a. Agricultural land overlay;
 - b. Biodiversity overlay;
 - c. Bushfire hazard overlay;
 - d. Cultural heritage overlay;
 - e. Extractive resources overlay;
 - f. Flood hazard overlay;
 - g. Helidon management area overlay;
 - h. Infrastructure overlay;
 - i. Scenic landscape overlay;
 - j. Steep land overlay;
 - k. Waterways and water resource overlay.
8. The following overlays for the planning scheme are without codes and are for information or administrative purposes only:
 - a. High risk soils — information overlay;
 - b. Transport noise corridor — information overlay;
 - c. Road hierarchy — information overlay.

8.2 Agricultural land overlay code

8.2.1 Application

1. This code applies to development:
 - a. within the Agricultural land overlay as shown on overlay map OM1 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Agricultural land overlay code in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

8.2.2 Purpose

1. The purpose of the Agricultural land overlay code is to:
 - a. protect ALC Class A & B soils in the Rural zone for sustainable agricultural use;
 - b. protect ALC Class A & B soils in the Rural zone from fragmentation, alienation or diminished agricultural production;
 - c. minimise the potential for land use conflicts and other uses on ALC Class A & B soils;
 - d. facilitate development for agricultural purposes on ALC Class A & B soils in the Rural zone.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. protect and improve the productivity and potential of ALC Class A & B soils for sustainable rural uses particularly Cropping.
 - b. ensure that development on, adjoining or near ALC Class A & B soils minimises the potential for land use conflict with other rural activities.
 - c. ensure that development for sensitive land uses includes a landscaped separation buffer to ALC Class A & B soils to minimise reverse amenity impacts.
 - d. provide opportunities for the continued growth of existing and new supporting agri-businesses and low impact Tourist activities in important agricultural areas, where the primacy of agricultural production is maintained.
 - e. minimise the development of Intensive animal industry or Aquaculture on ALC Class A & B soils and Stock route parcels.

Editor's note—Before undertaking development a Soil Conservation Plan search under the Soil Conservation Act is recommended before development application is made, as failure to understand the presence and meaning of plans can cause significant issues (e.g. erosion, adverse affects on infrastructure and legal conflicts). Consideration should also be given to Soil conservation guidelines for Queensland.

8.2.3 Assessment benchmarks

Table 8.2-1: Agricultural land overlay code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Protection of agricultural land	
<p>PO1 Rural activities avoid fragmentation, loss and diminished productivity and degradation of the continuing operational efficiency of ALC Class A & B soils.</p> <p>Any other development avoids locating in ALC Class A & B soils or ALC Class A & B - Separation area unless it is demonstrated by a technical report that:</p> <ol style="list-style-type: none"> a. an overriding need exists for the development in terms of public benefit; b. no suitable alternative site exists for the development; c. loss or fragmentation of ALC Class A & B soils is minimised to the greatest extent possible. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a report, prepared by a suitably qualified professional, that the site does not have ALC Class A & B soils as mapped on OM1 Agricultural land overlay.</i></p>	<p>AO1.1 Development, other than Cropping or Animal husbandry, is:</p> <ol style="list-style-type: none"> a. not located on ALC Class A & B soils; and b. not within the ALC Class A & B - Separation area.
Avoidance of conflicts	
<p>PO2 Development is designed and located to:</p> <ol style="list-style-type: none"> a. avoid creating land use conflicts; b. reduce the uses exposure to agricultural activities including chemical spray drift, odour, noise, dust, smoke 	<p>AO2.1 Where a sensitive land use cannot be located outside the ALC Class A & B - Separation area or ALC Class A & B soils, it is separated by:</p> <ol style="list-style-type: none"> a. 100m over open ground; or

<p>and ash;</p> <p>c. protect the existing and continuing viability of rural activities on ALC Class A & B soils.</p>	<p>b. a buffer of at least 50m wide that includes a 25m wide vegetated buffer for dust dispersion.</p> <p><i>Note—Existing areas external to the site may be used in calculating the necessary separation distances where the tenure ensures that the land will remain as a separation area or a vegetated separation (for example the land is used as a road or Park in public ownership or in the Conservation zone).</i></p>
<p>Reconfiguration of a Lot</p>	
<p>PO3 Reconfiguring a lot on or adjacent to ALC Class A & B soils:</p> <p>a. results in a more productive use and management of ALC Class A & B soils;</p> <p>b. does not lead to increased fragmentation of ALC Class A & B soils;</p> <p>c. does not increase the potential conflict between agricultural and non-Rural activities.</p> <p><i>Note—Minimum lot sizes for each lot must allow continued agricultural viability. Minimum lot sizes should ensure that resulting farm sizes are large enough to support for a range of agricultural options over the long-term.</i></p>	<p>AO3.1 Subdivision does not result in the creation of a lot with an area less than 100 hectares on ALC Class A & B soils.</p> <p>AO3.2 The mapped separation area is retained as screen landscaping when undertaking a subdivision to ensure that adverse effects from the rural activities are mitigated and managed.</p>

8.3 Biodiversity overlay code

8.3.1 Application

1. This code applies to development:
 - a. within the Biodiversity overlay as shown on the overlay maps OM3A to OM3C contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Biodiversity overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Editor's note—Further approvals from the State and Federal governments may be required where development affects:

- a. Protected plants and animals including koalas under the Nature Conservation Act; or
- b. Native vegetation regulated under the State vegetation management framework including the Vegetation Management Act; or
- c. A matter of national environmental significance under the Environment Protection and Biodiversity Conservation Act (Cth) (e.g. koalas and flying foxes).

Editor's note—

- a. Where further approvals may be required by State or Federal governments, a third party referral to the relevant department may be undertaken.
- b. Individual map layers that form the Matters of State Environmental Significance can be viewed through State governments Interactive Mapping System.
- c. All reasonable and practicable measures must be taken to prevent or minimise environmental impacts consistent with the Environmental Protection Act 1994 and the General environmental duty as such development must be designed to suit the soil type in the location it is sited. Consideration should therefore be given to Soil conservation guidelines for Queensland.
- d. Matters of State Environmental Significance such as Regulated vegetation may be offset subject to State government approval. Biodiversity areas can be offset however all other Matters of Local Environmental Significance and must be protected, retained and improved.
- e. It is recommended that a vegetation management report be obtained from State government to identify lot specific Matters of State Environmental Significance as it changes from time to time.

Table 8.3-1: Map summary

OVERLAY MAP	MAPPED AREA
OM3A Biodiversity Ecological areas overlay	<p>Matters of State Environmental Significance (MSES):</p> <ol style="list-style-type: none"> a. Protected Areas (Nature Refuges and Protected Areas) b. Regulated Vegetation (wetlands, essential habitat, Category B, C that are Of Concern and Endangered Regional Ecosystems, intersecting a watercourse) c. Legally Secured Offsets (offset vegetation, offset register) <p>Matters of Local Environmental Significance (MLES):</p> <ol style="list-style-type: none"> a. Biodiversity areas b. Ecological corridors
OM3B Biodiversity — Wildlife Habitat overlay	<p>Matters of State Environmental Significance (MSES):</p> <ol style="list-style-type: none"> a. Koala priority areas b. Koala habitat areas c. Wildlife habitat <p>Matters of Local Environmental Significance (MLES):</p> <ol style="list-style-type: none"> a. Flying fox roosts b. Flying fox roost separation areas
OM3C Biodiversity — Waterway and wetland habitat overlay	<p>Matters of State Environmental Significance (MSES):</p> <ol style="list-style-type: none"> a. High Ecological Significance (HES) Wetlands b. High Ecological Value Waters (HEV) Wetlands <p>Matters of Local Environmental Significance (MLES):</p> <ol style="list-style-type: none"> a. Waterways: <ol style="list-style-type: none"> i. Stream order 1 and 2 ii. Stream order 3 and 4 iii. Stream order 5 and greater b. Waterway and wetland separation areas c. Wetlands

8.3.2 Purpose

1. The purpose of the Biodiversity overlay code is to:
 - a. protect, retain and improve ecosystem resilience and ecosystem processes;

- b. improve ecological connectivity and ensure safe wildlife movement;
 - c. restore degraded areas to improve matters of environmental significance.
2. The purpose of the code will be achieved through the following overall outcomes:
- a. The matters of environmental significance, World Heritage Areas and National Parks in the Lockyer Valley are protected, retained and improved to assist ecosystem resilience.
 - b. Development is designed, located, constructed and operated in a way that avoids adversely impacting matters of environmental significance, ecological connectivity, ecological processes and environmental values.
 - c. Development is designed and operated to assist ecological connectivity across the landscape by protecting, restoring and improving the health and resilience of matters of environmental significance and identified ecological corridors.
 - d. Environmental values are protected and improved to assist ecological processes, urban amenity and quality of life.

8.3.3 Assessment benchmarks

1. Measures for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 8.3-2: Biodiversity overlay code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Protection and improvement of matters of environmental significance	
<p>PO1 Development firstly avoids, and then minimises adverse impacts to matters of environmental significance including:</p> <ul style="list-style-type: none"> a. OM3A Biodiversity Ecological areas overlay; b. OM3B Biodiversity — Wildlife habitat overlay; c. OM3C Biodiversity — Waterways and wetland overlay. 	<p>*AO1.1 Development (except a Dwelling house) is located outside of areas of matters of environmental significance.</p> <p>*AO1.2 Vegetation clearing for a Dwelling house only occurs where:</p> <ul style="list-style-type: none"> a. within matters of local environmental significance - Biodiversity area, only; b. 3,000m² or less, and in a single location.
<p>PO2 Environmental values are identified and development is designed and located to:</p> <ul style="list-style-type: none"> a. protect, retain and improve matters of environmental significance including World Heritage Areas; b. restore degraded areas; c. maximise ecological processes, ecosystem resilience and ecological connectivity; d. protect and support the unimpeded and safe movement of terrestrial and aquatic native wildlife across the landscape. <p><i>Note—Compliance with this Performance Outcome may be partially demonstrated by:</i></p> <ul style="list-style-type: none"> a. <i>providing a legal instrument that protects areas of matters environmental significance.</i> b. <i>providing an Ecological Assessment Report, Fauna Management Plan, Vegetation Management Plan and Restoration Plan, that is consistent with Planning Scheme Policy 1 Biodiversity.</i> c. <i>undertaking soil testing and a developing a soil management plan.</i> d. <i>providing a Salinity Investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i> 	<p>AO2.1 Development is designed and constructed to:</p> <ul style="list-style-type: none"> a. protect and retain matters of environmental significance in the greatest area possible with the smallest edge-to-area ratio; b. provide a legal mechanism to protect the retained matters of environmental significance; c. provide a development envelope within existing cleared areas or areas of lowest ecological value; d. ensure that infrastructure services are set back as far as practicable from matters of environmental significance; e. facilitate safe wildlife movement within the site and across the landscape; f. cluster structures, lots and earthworks as close as practicable, within a perimeter road provided as part of the development; g. avoid creating any additional exempt clearing rights within matters of environmental significance (i.e. development is setback from the matters of environmental significance a minimum of 30m or 1.5 times the height of the tallest adjacent tree, whichever is greater). <p>AO2.2 Development involving subdivision is also designed and constructed to:</p> <ul style="list-style-type: none"> a. ensure the largest extent of matters of environmental significance are included in a single lot; b. ensure structures, new lot boundaries and infrastructure (e.g. services, fences, roads, pedestrian access and instream structures) maintain, and do not transect or fragment matters of environmental significance or ecological connectivity; c. avoid locating lots that back onto public open space or conservation areas. <p>AO2.3 Where development in matters of environmental significance cannot be avoided, it is located in order of</p>

	<p>priority:</p> <ol style="list-style-type: none"> a. within cleared areas, then; b. within areas of lowest ecological value. <p><i>Note—Partial compliance with this Acceptable Outcome may be demonstrated by providing an Ecological Assessment Report, Vegetation Management Plan and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity.</i></p>
<p>PO3 Ongoing management, operation and tenure of matters of environmental significance ensures impacts on ecological processes, ecosystem resilience and ecological connectivity are avoided, minimised and mitigated.</p> <p><i>Note—Compliance with this Performance Outcome may be partially demonstrated by:</i></p> <ol style="list-style-type: none"> a. providing a legal instrument that protects matters of environmental significance. b. providing an Ecological Assessment Report, Fauna Management Plan, Vegetation Management Plan and Ecological Restoration Plan that is consistent with Planning Scheme Policy 1 Biodiversity. <p><i>Note—Planning Scheme Policy 1 Biodiversity specifies when Council may accept land for public open space.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO4 Where development cannot avoid negative impacts on matters of environmental significance, development is located, designed, constructed, operated and managed to increase and improve ecological connectivity and ecological processes to ensure ecosystem resilience of matters of environmental significance.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report, Fauna Management Plan and an Environmental Offset plan consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>AO4.1 Where development cannot be avoided in areas of matters of environmental significance, development and built infrastructure:</p> <ol style="list-style-type: none"> a. is located within cleared areas; or b. areas of lowest ecological value; and c. is sited to avoid creating any additional exempt clearing rights of matters of environmental significance (i.e. development is setback from the matters of environmental significance a minimum of 30m or 1.5 times the height of the tallest adjacent tree, whichever is the greater).
<p>PO5 Development avoids secondary or off-site impacts on matters of environmental significance mapped or otherwise.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity.</i></p> <p><i>Note—The Performance indicators for environmental flow objectives can be found in the Lockyer Creek environmental values and water quality objectives.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO6 Development avoids and protects areas that support critical life cycle stages such as feeding, nesting, breeding and roosting sites for threatened species, ecological communities or migratory species.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report, Vegetation Management Plan and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity that identifies any significant species or communities that may be adversely impacted by development.</i></p>	<p>No acceptable outcome is nominated.</p>
Waterway and wetland setbacks	
<p>PO7 Development is designed to protect and maintain setbacks from waterways and wetlands to minimise adverse effects:</p> <ol style="list-style-type: none"> a. on wildlife habitat and ecological corridors; b. on waterway integrity; 	<p>AO7.1 Development is not located within and does not adversely impact on matters of local environmental significance shown on OM3C Biodiversity — Waterway and wetland habitat overlay.</p>

<p>c. on restoration and revegetation areas; d. from edge effects; e. from public access to waterways and wetlands.</p>	<p>AO7.2 Development provides riparian buffers measured from the defining banks on either side of the waterway: a. 10m wide for stream orders 1-2; b. 25m wide for stream orders 3-4; c. 50m wide for stream orders 5 and greater.</p>
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Ecological connectivity

<p>PO8 Development protects, improves and restores habitat extent and quality and ecological connectivity and ecological processes between matters of environmental significance by: a. protecting World Heritage Areas and National Parks; b. protecting and maintaining ecological corridors; c. restoring and improving quality and functionality of ecological corridors; d. minimising fragmentation; e. reducing edge to area ratios; f. minimising adverse edge effects; g. restoring degraded areas; h. building new ecological corridors; i. protecting migration or normal movement of species between habitats or gene flow between populations.</p> <p><i>Note—Development should ensure that the ecological connectivity between habitats (whether it is the same or a different environmental value) does not inhibit migration or normal movement of all species between habitats or gene flow between populations. Maintaining vegetation in patches with the greatest possible size and minimum edge-to-area ratio can help to achieve this outcome.</i></p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report, Vegetation Management Plan and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity which incorporates fauna friendly movement solutions consistent with the Planning Scheme Policy 1 Biodiversity.</i></p> <p><i>Note—Planning Scheme Policy 1 Biodiversity specifies when Council will accept open space areas.</i></p> <p><i>Note—Edge effects are factors of development that negatively affect the composition and density of the natural population at the fringe of natural areas. Factors include weed invasion, pets, public and vehicle access, nutrient loads, noise, light, dust odour and vibration pollution, increased fire frequency and intensity and changes in the groundwater and surface water flow.</i></p>	<p>AO8.1 Development protects and improves ecological connectivity for all species by protecting and maintaining vegetation in patches of the greatest possible size and smallest edge-to-area ratio possible.</p> <p>AO8.2 Development protects and improves matters of environmental significance and ensures these areas are connected to other matters of environmental significance or ecological corridors by: a. protecting and retaining patches of native vegetation in the largest patches possible; b. restoring disturbed or cleared areas; c. restoring and increasing the area of existing patches of native vegetation to the greatest size and with smallest edge-to-area ratio possible; d. increasing ecological connectivity through restoring and reconstructing ecological corridors and widening existing ecological connections; e. providing restoration buffers to either side of the ecological corridor to minimise edge effects.</p>
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Restoration of matters of local environmental significance (MLES) ecological corridor

<p>PO9 Development restores and improves habitat condition, habitat extent and ecological connectivity within matters of local environmental significance (MLES) ecological corridors.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment, Vegetation Management Plan, Fauna Management Plan, Ecological Restoration Plan and Environmental Offset Management Plan that is consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>AO9.1 Where development is on a lot containing ecological corridors, development: a. restores or reconstructs cleared, disturbed, fragmented or degraded areas to promote connectivity; b. provides restoration buffers between matters of environmental significance and development, where not required for bushfire hazard mitigation purposes to reduce the adverse impacts of edge effects.</p> <p>AO9.2 Restoration: a. ensures restored areas require minimal human intervention and maintenance; b. replicates the natural floristic composition of the regional ecosystem including upper, middle and understorey species.</p> <p><i>Note—Restoration areas within a site are not environmental offsets. Offsets are provided on a separate site to the development and serve a different purpose.</i></p>
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Restoration of matters of environmental significance	
<p>PO10 Where development adversely impacts matters of environmental significance, disturbed, cleared, fragmented or degraded areas are restored to improve ecological processes, ecological connectivity and ecosystem resilience.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment, Vegetation Management Plan, Fauna Management Plan, Ecological Restoration Plan and Environmental Offset Management Plan that is consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>AO10.1 Development restores cleared, disturbed, fragmented or degraded areas (including riparian defined bank scour and erosion) by restoring degraded ecosystems to:</p> <ol style="list-style-type: none"> a. link patches of protected vegetation together by a corridor; b. increase ecological connectivity through restoring and reconstructing new corridors and widening existing ecological connections; c. improve the ecological value of existing ecological corridors; d. reduce fragmentation; e. reduce edge to area ratios and edge effects. <p>AO10.2 Restoration:</p> <ol style="list-style-type: none"> a. ensures restored areas require minimal human intervention and maintenance; b. replicates the natural floristic composition of the regional ecosystem including upper, middle and understorey species. <p><i>Note—Restoration areas within a site are not environmental offsets. A restoration area improves, restores and manages MES of degraded habitat on the same site as the development. Where an environmental offset compensates for unavoidable impacts on MES at one site, by securing land at another site, and managing that land over time to replace those significant environmental matters that were lost.</i></p>
Vegetation clearing and ground disturbance	
<p>PO11 Where adverse impacts to matters of environmental significance are unavoidable, mitigation measures are implemented to ensure the protection and safety of wildlife and the protection of adjacent matters of environmental significance.</p> <p><i>Note—Compliance with this requirement may be demonstrated by a Vegetation Management Plan, Fauna Management Plan and Restoration Plan that is consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO12 Vegetation clearing and ground disturbance prevents soil loss and sediment entering a matter of environmental significance wetland or waterway and does not result in:</p> <ol style="list-style-type: none"> a. soil loss caused by sheet, rill or gully erosion; or b. sedimentation; or c. water contamination or d. disturbing high risk soils; or e. the loss of soil chemical, physical or biological fertility. <p><i>Note—Compliance with this Performance Outcome, may be demonstrated by a Vegetation Management Plan consistent with Planning Scheme Policy 1 Biodiversity and an Erosion and sediment control plan consistent with the Planning Scheme Policy 8 Stormwater Management.</i></p>	<p>AO12.1 Vegetation clearing, ground disturbance, filling or excavation:</p> <ol style="list-style-type: none"> a. is minimised within a soil management area; b. does not occur within: <ol style="list-style-type: none"> i. 50m of a landslide or land with erosion; ii. on a steep or very steep slope area mapped on OM11 Steep land overlay without certification by an RPEQ in accordance with the section 8.11 Steep land code; iii. the MLES shown on OM3C Biodiversity — Waterways and wetlands overlay; iv. 100m of a salinity expression area mapped on OM13 High risk soils overlay. <p>AO12.2 Where the site is subject to salinity, landslip, landslide or erosion, it is effectively stabilised or treated before clearing or ground disturbance starts.</p>
Wildlife safety	
<p>PO13 Development located in matters of environmental significance minimises ongoing and potential risk of injury or death to wildlife:</p> <ol style="list-style-type: none"> a. before and after construction; 	<p>No acceptable outcome is nominated.</p>

<p>b. during the developments operation.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity which incorporates fauna friendly movement solutions consistent with the Planning Scheme Policy 1 Biodiversity.</i></p>	
<p>PO14 Development involving the clearing of native vegetation prevents and reduces the risk of injury or death to wildlife by:</p> <ol style="list-style-type: none"> clearing in a sequential or staged manner to allow fauna time to relocate; working under the supervision and direction of a licensed fauna spotter catcher. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report and Fauna Management Plan consistent with Planning Scheme Policy 1 Biodiversity which incorporates fauna friendly movement solutions consistent with the Planning Scheme Policy 1 Biodiversity.</i></p>	<p>AO14.1 A registered fauna spotter catcher is to supervise all work that will result in a negative effect upon fauna, including but not limited to:</p> <ol style="list-style-type: none"> vegetation clearing; dewatering of dams; topsoil removal or ground disturbance; mulching or moving of stockpiled vegetation.
<p>Environmental offsets</p>	
<p>PO15 Where all attempts have been made to avoid, minimise and mitigate adverse impacts on matters of local environmental significance (excluding flying fox roosts and flying fox roost separation areas), any significant residual impacts are offset consistent with the Environmental Offsets Act and the environmental offset requirements identified in Planning Scheme Policy 1 Biodiversity.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment, Vegetation Management Plan, Fauna Management Plan, Ecological Restoration Plan and Environmental Offset Management Plan that is consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Flying Fox Roosts</p>	
<p>PO16 Development:</p> <ol style="list-style-type: none"> minimises the adverse impacts to the flying fox roosts and the flying fox population; and minimises and mitigates the adverse impacts from flying fox populations on people where for a sensitive land use. 	<p>AO16.1 Development is not located within flying fox roosts and outside of the flying fox separation area mapped on OM3A Biodiversity overlay — Ecological areas overlay, (where practicable).</p> <p>AO16.2 Development is not located within 50m from the edge of the largest known extent of a flying fox roost.</p> <p><i>Note—Flying fox roosts are defined in Council's Regional Flying-fox Management Plan as a discrete spatial area where flying-foxes (50 individuals or more) congregate during the hours of 6am to 6pm, regardless of breeding or temporal status.</i></p>
<p>Bushfire hazard management</p>	
<p>PO17 Bushfire hazard management measures are adopted based on ecological principles.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Ecological Assessment Report, Vegetation Management Plan, Ecological Restoration Plan and consistent Bushfire Management Plan.</i></p> <p>Editor's note—This Performance Outcome applies to premises in bushfire prone area on OM4 Bushfire hazard overlay map and where restoration areas or vegetation clearing areas are proposed.</p>	<p>No acceptable outcome is nominated.</p>

8.4 Bushfire hazard overlay code

8.4.1 Application

1. This code applies to development:
 - a. within the Bushfire hazard overlay as shown on the overlay map OM4 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Bushfire hazard overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Note—Land mapped on OM4 Bushfire hazard overlay is designated as the Bushfire Prone Area for the purposes of section 7 of the Building Regulation. The Bushfire Prone Area includes land covered by the Medium, High and Very High Hazard Areas and Potential Bushfire Impact Buffer as identified in the SPP interactive mapping system (plan making) under the ‘Safety and Resilience to Hazards’ theme, subsection ‘Natural Hazards Risks and Resilience’.

Note—Building development applications in a ‘designated bushfire prone area’ are required to meet the mandatory bushfire provisions in the NCC series, BCA and in AS.3959 Construction of buildings in bushfire-prone areas. Bushfire protection provisions in the NCC apply to Class 1, 2 and 3 residential buildings and accommodation buildings and associated Class 10a structures such as garages, sheds and carports. From the commencement of NCC on 1 May 2023, certain class 9 building located in a designated bushfire prone area also need to meet the Performance requirements of the NCC, some of which may not be able to apply AS.3959 Construction of buildings in bushfire-prone areas or National Association of Steel-framed Housing (NASH) ‘Deemed to satisfy’ (DTS) solutions and therefore may require specific Performance solutions.

Note—The NCC performance requirement is that ‘a building that is constructed in a ‘designated bushfire prone area’, must, to the degree necessary, be designed and constructed to reduce the risk of ignition from a bushfire, appropriate to the potential for ignition caused by burning embers, radiant heat or flame generated by bushfire; and intensity of the bushfire attack on the building.’ The NCC performance requirement is deemed to be met where the building complies with AS.3959. AS.3959 Construction of buildings in bushfire-prone areas contains provisions which can be used in construction to resist bushfires, to reduce the risk to life and minimise the risk of property loss. These provisions include requirements for burning debris and ember protection, controls on the combustibility of exterior material, and the protection of openings, such as windows and doors.

Note—A local planning instrument cannot otherwise deal with building matters covered by AS.3959 Construction of buildings in bushfire-prone areas.

Editor’s note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from the Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.

8.4.2 Purpose

1. The purpose of the Bushfire hazard overlay code is to ensure that risk to life, property and the environment because of bushfire is avoided or mitigated to an acceptable or tolerable level, where development:
 - a. increases the number of people living or working in a bushfire hazard area;
 - b. involves premises visited or occupied by guests on a short-term basis; or
 - c. involves uses where evacuating people may be difficult; or
 - d. involves the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development that potentially increases the exposure of people and property to natural hazards:
 - i. avoids areas of bushfire hazard or intolerable risk; or
 - ii. where areas of bushfire hazard cannot be avoided, development is designed, located and managed to ensure risk to the safety of people and damage to property is mitigated to an acceptable or tolerable level before, during and after a natural hazard event.
 - b. Development avoids establishing or intensifying vulnerable uses, critical infrastructure and difficult to evacuate uses within or near areas that are subject to bushfire hazard;
 - c. Development involving rehabilitation, revegetation and landscaping does not increase the risk to people or property.
 - d. Bushfire risk mitigation treatments are accommodated in a manner that avoids or minimises harm on the natural environment and ecological processes and conserves biodiversity values.
 - e. Development involving the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals maintains and does not increase the risk to public safety or the environment in a bushfire event.
 - f. Development contributes to and does not unduly burden, effective and efficient disaster management response and recovery capabilities and ensures safe evacuation from bushfire can be facilitated.

8.4.3 Assessment benchmarks

1. The assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below tables.

Note—A bushfire hazard assessment may verify the extent of hazardous vegetation and extent and nature of the bushfire hazard area (bushfire prone area). Assessments should be undertaken by a suitably qualified person using the methodology set out in both the QFES (Queensland Fire and Emergency Services) Bushfire resilient communities document and Planning Scheme Policy 2 Bushfire hazard. Where acceptable outcomes are not met a risk assessment under AS/NZS 31000 Risk Management will be required to demonstrate the development achieves an acceptable or tolerable level of risk to life and property.

Note—Terms in this code are consistent with the Bushfire Resilient Communities Guide for the State planning policy State interest 'Natural Hazards, Risk and Resilience — Bushfire.'

Note—Terms used within the code are defined within Schedule 1.2 Administrative terms.

Table 8.4-1: Bushfire hazard overlay code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development position	
<p>PO1 Development achieves an acceptable or tolerable risk to people and property through:</p> <ul style="list-style-type: none"> a. providing asset protection zones; and b. providing a safe, convenient and accessible vehicle access for evacuation and firefighting vehicles. 	<p>*AO1.1 Development is:</p> <ul style="list-style-type: none"> a. located within 60m of the street frontage; and b. accessed by a sealed driveway with a gradient of 12.5% or less that is consistent with the design requirements set out at Table 8.4-5: Accepted driveway access requirements; c. positioned in the lowest hazard area of the site.
Water Supply	
<p>PO2 Development is provided with a water supply that:</p> <ul style="list-style-type: none"> a. always has flow and pressure characteristics for firefighting; or b. includes a dedicated static water supply that is available solely for firefighting purposes and can be immediately accessed by firefighting vehicles. <p><i>Note—Swimming pools, farm ponds and dams are not considered reliable sources of static water supply in Queensland due to regular drought events.</i></p>	<p>*AO2.1 A Dwelling house is connected to a pressurised reticulated water supply.</p> <p>OR</p> <p>*AO2.2 A Dwelling house, that is unable to connect to a pressurised reticulated water supply and is connected to a partially or fully static water supply, provides:</p> <ul style="list-style-type: none"> a. a tank that is underground or is of non-flammable construction and has minimum water supply dedicated for fire-fighting exclusive of domestic supply no less than 22,500 litres; and b. water supply on site within the firefighting asset protection zone, that provides a safe and clear access for 15 tonne fire appliances to manoeuvre to a hardstand area within 6m of the water supply; and c. water supply within 10m from each building (other than a Class 10 building); and d. signage at the access of the property to direct firefighting services to the firefighting water supply; and e. a metal firefighting standpipe connection above ground and fitted with a 50mm ball valve and camlock coupling; or f. if the water supply is underground an accessible opening a minimum of 200mm diameter to accommodate suction lines. <p>OR</p> <p>*AO2.3 Uses other than a Dwelling house including industrial, commercial and other buildings are:</p> <ul style="list-style-type: none"> a. connected to a reticulated water supply that includes a hydrant system that is consistent with the AS.2419.1 Fire hydrant installations for buildings; or b. supplied by a volume specified in AS.2304-2011 Water storage tanks for fire protection systems and:

	<ul style="list-style-type: none"> i. has water supply dedicated for firefighting that is specified by a suitably qualified consultant that ensures enough water supply will be provided for firefighting services; and ii. the water supply is made of or shielded by non-combustible materials; and iii. the water supply is in an area that is level and close to buildings and structures they are intended to service; and iv. the water supply allows a fire appliance clear access to a hardstand area within 6m of the water supply; and v. signage is provided at the access of the property to direct firefighting services to the firefighting water supply; and vi. a metal firefighting standpipe connection is provided above ground and fitted with a 50mm ball valve and camlock fitting; or vii. if the water supply is underground an accessible opening a minimum of 200mm diameter to accommodate suction lines. <p>*AO2.4 Water from an on-site domestic wastewater treatment system is irrigated within the nominated asset protection zone.</p>
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Table 8.4-2: Bushfire hazard overlay code — Additional assessment benchmarks for assessable Material change of use

Note—From the commencement of NCC on 1 May 2023, certain Class 9 buildings located in a designated bushfire prone area also need to meet the Performance Requirements of the NCC some of which may not be able to apply AS.3959 Construction of buildings in bushfire-prone areas or NASH as ‘Deemed to Satisfy’ (DTS) solutions and therefore may require specific Performance Solutions.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development layout	
<p>PO3 Development layout provides an asset protection zone between hazardous vegetation and the development to avoid creating additional bushfire prone areas.</p>	<p>AO3.1 Development layout places landscaped areas, carparks, internal roads, or private open space within the site between the development and adjacent mapped medium, high or very high potential bushfire intensity areas, at a distance that achieves a radiant heat flux of 29kW/m² or less based on the Forest Fire Danger Index (FFDI) of 65 as a minimum.</p> <p>AO3.2 Landscaping and separation areas between hazardous vegetation and development forms a protective landscape treatment that:</p> <ul style="list-style-type: none"> a. consist of low threat vegetation, including grassland managed in a minimal fuel condition, maintained lawns, golf courses and cultivated gardens; or b. are designed to ensure a potential available fuel load is maintained at less than 8t/ha in aggregate and that fuel structure remains discontinuous. <p><i>Note—Minimal fuel condition means there is insufficient fuel available to increase the severity of the bushfire attack, for example short-cropped grass to a nominal height of 10cm.</i></p> <p><i>Note—Achievement of a radiant heat flux of 29kW/m² will still require measures in accordance with AS.3959 Construction of buildings in bushfire-prone areas or NASH to make the risk tolerable. Failure to achieve a developable building envelope that achieves a radiant heat flux of 29kW/m² is considered intolerable.</i></p>
Evacuation routes	

<p>PO4 Development establishes evacuation areas, arrangements and procedures, to achieve an acceptable or tolerable risk to people and does not worsen evacuation capability of other premises or result in significant additional burden on Emergency services personnel.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a bushfire management plan that is consistent with both the QFES Bushfire Resilient Communities Guide and Planning Scheme Policy 2 Bushfire hazard.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Additional measures for Vulnerable uses, Difficult to evacuate uses and Critical infrastructure</p>	
<p>PO5 Vulnerable uses and difficult to evacuate uses are not established or intensified within a bushfire prone area unless:</p> <ol style="list-style-type: none"> there is an overriding need in the public interest for the new or expanded service the development provides; there are no other suitable alternative locations; site planning can appropriately mitigate the risk such that exposure to a radiant heat flux level of 10kW/m² or less is achieved, measured at the outmost projection of the building or structure (this can be achieved for example, by locating ovals for an Educational establishment between the hazardous vegetation and structures). <p><i>Note—The overall outcomes of this code identify the development outcomes which are intended to avoid intolerable or mitigate tolerable risk of the bushfire hazard applicable to vulnerable uses.</i></p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a bushfire management plan that is consistent with both the QFES Bushfire Resilient Communities Guide and Planning Scheme Policy 2 Bushfire hazard.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO6 Critical infrastructure is not established within a bushfire prone area unless:</p> <ol style="list-style-type: none"> there is an overriding need in the public interest for the new or expanded service the development provides (for example, there are no other suitable alternative locations that can deliver the required level of service or meet emergency service response times during and immediately after a bushfire event); the infrastructure can function effectively during and immediately after a bushfire event; it can be provided underground; or site planning can appropriately mitigate the risk such that exposure to a radiant heat flux level of 10kW/m² or less is achieved, measured at the outmost projection of the building or structure 	<p>No acceptable outcome is nominated.</p>
<p>Additional measures for hazardous chemicals</p>	
<p>PO7 Development avoids or mitigates the risks to public safety and the environment to an acceptable or tolerable level from the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals.</p> <p><i>Editor's note—Besides the requirements of this code, the Work Health and Safety Act and associated Regulation and Guidelines, the Environmental Protection Act and the relevant building assessment provisions under the Building Act contain requirements for the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals.</i></p>	<p>AO7.1 Facilities that manufacture, assemble, store, distribute or dispose of hazardous chemicals are not located within:</p> <ol style="list-style-type: none"> BH1 — Very High Potential Bushfire Intensity; BH2 — High Potential Bushfire Intensity; BH3 — Medium Potential Bushfire Intensity.

Table 8.4-3: Bushfire hazard overlay code — Additional assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Lot and development envelope area location	
<p>PO8 The subdivision layout avoids creating lots on slopes and landforms that expose people or property to an intolerable risk to life or property.</p> <p><i>Note—Compliance with this Performance Outcome may be assisted by site-level verification undertaken by a suitably qualified person as part of a bushfire hazard assessment under the methodology in the QFES Bushfire Resilient Communities Guide.</i></p>	<p>AO8.1 The subdivision layout does not create lots within bushfire prone areas and avoids ridgelines, saddles and crests on steep slopes and very steep slopes mapped on OM11 Steep land overlay (roads or open space may be in these areas).</p> <p><i>Note—The radiant heat flux levels can be confirmed by undertaking a bushfire hazard assessment by a suitably qualified person under the methodology in the QFES Bushfire Resilient Communities Guide.</i></p>
Asset protection zone location and design	
<p>PO9 The subdivision layout locates the asset protection zone between the lot boundary or development envelope area and hazardous vegetation, to reduce risk to an acceptable or tolerable level.</p> <p><i>Note—QFES Bushfire Resilient Communities Guide provides the methodology for demonstrating Landscape management planning.</i></p> <p><i>Note—For staged developments, temporary separation areas may be absorbed as part of subsequent stages.</i></p>	<p>AO9.1 The subdivision layout results in lots that are sited so that they are separated from the nearest edge of adjacent medium, high, or very high potential bushfire intensity areas, at the development envelope areas or lot boundary and achieves a radiant heat flux level of 29kW/m² or less based on a FFDI of 65 as a minimum.</p> <p>AO9.2 The asset protection zone is calculated and designed under the QFES Bushfire Resilient Communities Guide.</p> <p><i>Note—Existing cleared areas external to the site may be used in calculating the necessary separation areas where tenure ensures that the land will remain cleared of hazardous vegetation (for example the land is a road, or highly managed Park in public ownership).</i></p> <p><i>Note—Portions of lots more than 2,000m² may be located within the mapped medium, high and very high potential bushfire intensity areas.</i></p>
Perimeter road location and design	
<p>PO10 Subdivision layouts include perimeter roads that:</p> <ol style="list-style-type: none"> minimise the length of the perimeter road; minimise the number of lots exposed to hazardous vegetation. 	<p>AO10.1 Perimeter roads are provided as part of the development and are designed and constructed to:</p> <ol style="list-style-type: none"> have a two-lane sealed carriageway clear of hazardous vegetation; have a minimum 20m wide road reserve clear of hazardous vegetation; is connected to the wider public road network at both ends and at intervals of less than 250m; not include design elements that may impede access for firefighting and maintenance for firefighting purposes (for example traffic calming involving chicanes); allow ready access to reticulated water supply for firefighting purposes; incorporates mountable kerbing, where kerbing is provided; has a maximum gradient of 12.5%.
Safe egress for evacuation and firefighting	
<p>PO11 The subdivision layout provides roads that are designed to:</p> <ol style="list-style-type: none"> provide safe evacuation routes, to achieve an acceptable or tolerable risk to people; facilitate emergency access; provides operational space for firefighting, maintenance works and hazard reduction activities in a reduced fuel area to manage risk to an acceptable or tolerable level. <p><i>Note—For example, avoid finger-like or tree-like subdivision patterns</i></p>	<p>AO11.1 The subdivision layout:</p> <ol style="list-style-type: none"> avoids cul-de-sacs and no-through roads, unless alternative access connections link the cul-de-sac to other through roads; avoids the creation of bottle-necks in the road network (e.g. hourglass patterns and fragmented neighbourhoods); avoids a single point of access and egress and provides multiple access and egress options; ensures the road network is wide enough for the

<p>or substantive vegetated corridors between lots.</p> <p><i>Note—QFES Bushfire Resilient Communities Guide provides the methodology for demonstrating Evacuation planning.</i></p>	<p>evacuating population while allowing firefighting vehicles access.</p> <p>AO11.2 The subdivision layout ensures evacuation routes</p> <ol style="list-style-type: none"> directs occupants away from, rather than towards or through areas with a higher potential bushfire intensity; minimise the length of route through bushfire prone areas.
<p>PO12 The subdivision layout provides roads that are designed to:</p> <ol style="list-style-type: none"> facilitate emergency access; provide an operational space for firefighting, maintenance works and hazard reduction activities. 	<p>AO12.1 Where the subdivision is to be connected to reticulated water supply, the road network and fire hydrants are designed and installed under:</p> <ol style="list-style-type: none"> Fire Hydrant and Vehicle Access Guidelines for residential, commercial and industrial lots, Queensland Fire and Emergency Services, unless otherwise specified by the relevant water entity; the Road Planning and Design Manual.

Table 8.4-4: Bushfire hazard overlay code — Additional assessment benchmarks for assessable development in the Biodiversity overlay

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO13 Restoration and rehabilitation areas are designed and managed to ensure an acceptable level of risk is maintained and an increased risk in bushfire intensity level does not occur.</p> <p><i>Note—The undertaking of a bushfire hazard assessment under the methodology in the QFES Bushfire Resilient Communities Guide may assist in demonstrating compliance with this Performance Outcome.</i></p>	<p>AO13.1 Restoration and rehabilitation vegetation is assessed as part of the bushfire assessment to ensure it is:</p> <ol style="list-style-type: none"> located outside any asset protection zone; maintains a potential fuel load less than 8t/ha in aggregate; a fuel structure which is discontinuous. <p><i>Note—The preparation of a landscape management plan undertaken by a suitably qualified person under the methodology in the QFES Bushfire Resilient Communities Guide may assist in demonstrating compliance with acceptable outcome AO13.1 b.</i></p> <p>AO13.2 Restoration and rehabilitation areas located within the overlay areas, are revegetated and rehabilitated in a manner that maintains or reduces the existing fuel load.</p> <p><i>Note—The preparation of a Vegetation Management Plan, Ecological Restoration Plan and Environmental Offset Management Plan in accordance with Planning Scheme Policy 1 Biodiversity and undertaken under the methodology in the QFES Bushfire Resilient Communities Guide may assist in demonstrating compliance with this acceptable outcome.</i></p>

Table 8.4-5: Accepted driveway access and fire trail requirements

REQUIREMENT	DRIVEWAY AND FIRE TRAIL DESIGN
Minimum trafficable surface width	4m
Minimum horizontal clearance	6m: consisting of the 4m minimum trafficable surface with 1m wide, grassed area on each side. The 1m wide clearance is to be clear of long grass and bushes.
Minimum vertical clearance	4.8m clear of overhanging obstructions including tree branches 5m clearance to all powerlines
Maximum grade sealed	12.5%
Maximum grade unsealed	10% to prevent soil erosion and minimise ongoing maintenance
Minimum pavement surface rating	15 tonnes weight capacity for urban areas
Maximum crossfall	3%

Minimum turning radius	8.5m curve inner radius
Pavement type	All weather surface: a. Permeable paving where the slope is less than 7% for urban areas and rural residential areas with lots under 5,000m ² ; b. sealed where the slope is 7% and greater for urban areas and rural residential areas with lots under 5,000m ² ; or c. compacted gravel for all other areas.
Access, passing and reversing	Passing bays for firefighting appliances are 20m long by 3m wide, with a minimum trafficable width of 7m at the passing bay. Reversing bays for firefighting appliances are 6m wide and 8.5m deep to any gates, meeting above turning requirements. Fire maintenance trails have: a. passing bays or turning intervals located every 200m with a maximum grade of 5%; b. a vehicular access at each end of the trail; c. an access easement that is granted in favour of Lockyer Valley Regional Council and Queensland Fire and Rescue Service or located on public land.

8.5 Cultural heritage overlay code

8.5.1 Application

1. This code applies to development:
 - a. within the Cultural heritage overlay as shown on overlay map OM5 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Cultural heritage overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. This code applies to all development:
 - a. on a Local heritage place.

8.5.2 Purpose

1. The purpose of the Cultural heritage overlay is to ensure that:
 - a. development is compatible with the cultural heritage significance of the place, area or object so that it is conserved for the benefit of the community and future generations;
 - b. the cultural heritage of Lockyer Valley is protected and maintained for existing and future communities;
 - c. development is consistent with the Burra Charter;
 - d. new development reflects and respects cultural heritage significance;
 - e. places of cultural heritage significance are appropriately re-used.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. development on or adjoining a heritage place does not detract from the cultural heritage significance of the heritage place and its cultural heritage values.
 - b. development on or in a Local heritage place is compatible with the heritage significance of the place by:
 - i. retaining the heritage place, unless there is no prudent and feasible alternative to its demolition or removal;
 - ii. maintaining or encouraging as much as possible the appropriate use (including adaptive reuse) of the place while protecting the amenity of adjacent uses;
 - iii. protecting, as far as practicable, the context and setting of the place;
 - iv. ensuring development on or in the place is compatible with the cultural heritage significance of the place.
 - c. development on or adjoining a heritage place is visually subservient to the heritage place and does not adversely affect significant views or the visual setting of the heritage place.
 - d. development on or adjoining a heritage place incorporates features that reflect rather than replicate the heritage place.
 - e. partial demolition of a Local heritage place retains the features and fabric of significance.
 - f. demolition of a heritage place occurs where structural repair is not possible or practicable.
 - g. heritage of First Nation Peoples is protected and maintained in a culturally appropriate manner.
 - h. the archaeological potential of a heritage place is safeguarded.

8.5.3 Assessment benchmarks

Table 8.5-1: Cultural heritage overlay code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development in or on a Local heritage place	
PO1 Development in or on a Local heritage place avoids, or where avoidance is not possible, minimises harm to the cultural heritage features or elements of the place such that: <ol style="list-style-type: none"> a. the intensity and scale of the proposed use are compatible with conserving its heritage values; b. allows for adaptive reuse or conservation of the heritage place and surrounding grounds; c. the features, values, character and appearance that contribute to its cultural heritage significance are not permanently lost; d. where open space or the relationship between built and open spaces is important to the cultural heritage significance of the place, the arrangement of surrounding gardens and grounds is maintained; e. existing ground levels and the heritage place's elevation above ground level are preserved; 	No acceptable outcome is nominated.

f. existing views and setbacks to the place are maintained.	
PO2 Development avoids or minimises harm on an area or object that has cultural heritage significance to Aboriginal or Torres Strait Islander people. <i>Note—A ‘duty of care’ applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located, regardless of whether it has been identified or recorded in a planning scheme or cultural heritage database.</i>	No acceptable outcome is nominated.
PO3 Changes to a Local heritage place is appropriately managed and documented. <i>Note—Compliance with this Performance Outcome may be demonstrated by providing an archival quality photographic record that is consistent with DEHP guideline: Archival recording of heritage places of the features of the place or area that have been removed or destroyed.</i>	No acceptable outcome is nominated.
Heritage elements in the road reserve	
PO4 Heritage elements in a road reserve identified as a Local heritage place is protected and new features are compatible with the place.	No acceptable outcome is nominated.

Table 8.5-2: Cultural heritage overlay code — Additional assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
PO5 Reconfiguring a lot maintains a lot size and layout that: a. does not obscure or destroy a pattern of historic subdivision, the historical context, the landscape settings or the scale and consistency of the built environment relevant to the heritage place; b. provides enough curtilage around the heritage place to protect the cultural significance including the setting, views to and from the place, vehicle and pedestrian access, open space, landscaping and vegetation; c. does not reduce public access to the place or area. <i>Note—Compliance with this Performance Outcome may be demonstrated by a Cultural heritage impact assessment prepared to be consistent with Planning Scheme Policy 3 Cultural heritage and an analysis of cultural heritage area based on the building methods in Design in Context: Guidelines for Infill Development in the Historic Environment. NSW Heritage Office, RAI NSW Chapter.</i>	No acceptable outcome is nominated.

Table 8.5-3: Cultural heritage overlay code — Additional assessment benchmarks for assessable Operational work

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
For advertising device	
PO6 Advertising devices and signage located on a Local heritage place: a. are compatible with the cultural heritage significance of the place; b. do not harm the cultural significance of the heritage place or views to and from the place.	No acceptable outcome is nominated.
Archaeology — For excavation and filling involving 10m³ or more	
PO7 Excavation or other earthworks on a Local heritage place protects archaeological sites and artefacts. <i>Note—Compliance with this Performance Outcome may be</i>	AO7.1 The adverse effects of excavation are minor and limited to that part of the local heritage place that has been disturbed by previous excavation.

<i>demonstrated by providing an archaeological investigation and management plan or cultural heritage impact assessment prepared to be consistent with Planning Scheme Policy 3 Cultural heritage.</i>	AO7.2 An archaeological investigation is conducted for development involving a high ground disturbance or subsurface disturbance.
Vegetation clearing	
<p>PO8 Mature trees and landscaping that contribute to the fabric of a Local heritage place is protected and maintained.</p> <p><i>Note—Vegetation clearing will still need demonstrate compliance with PO1 of this code by a Cultural heritage impact assessment to be consistent with Planning Scheme Policy 3 Cultural heritage.</i></p>	<p>AO8.1 Only trees that do not have cultural heritage value on a heritage site are cleared.</p> <p>AO8.2 Trees that have cultural historical value that are dead or dying can be cleared if:</p> <ol style="list-style-type: none"> replaced with an advanced tree of the same species at least 1.8m in height; where the existing tree is a restricted or prohibited matter; a tree species that will grow to comparable size and shape. <p><i>Note—Compliance with this outcome may be demonstrated by an arborist report.</i></p>
Heritage of First Nation Peoples	
<p>PO9 Development protects and records any cultural heritage significance to First Nation Peoples.</p> <p><i>Editor's note—All proposed development on or adjacent to identified sites of indigenous cultural heritage significance is required to be carried out in accordance with the latest version of the Aboriginal Cultural Heritage Act — Duty of Care Provisions.</i></p>	No acceptable outcome is nominated.

Table 8.5-4: Cultural heritage overlay code — Additional assessment benchmarks for assessable Building work to a Local heritage place other than demolition or removal

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO10 Development maintains the cultural heritage significance of the local heritage place such that the features, values, character and appearance that contribute to its cultural heritage significance are not lost.</p>	<p>AO10.1 Building work necessary to repair or maintain the local heritage place is consistent with the era in which the local heritage place was constructed by using:</p> <ol style="list-style-type: none"> traditional materials; architectural design elements.

Table 8.5-5: Cultural heritage overlay code — Additional assessment benchmarks for assessable Building work for the demolition or removal of a Local heritage place

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO11 Development involving partial demolition of a Local heritage place that is a building or structure, retains the fabric and features of the cultural heritage significance.</p>	No acceptable outcome is nominated.
<p>PO12 Development involving the partial or total demolition of a local heritage place that is a building or structure only occurs if it can be demonstrated that:</p> <ol style="list-style-type: none"> loss of the building or structure will not contribute to the loss of cultural heritage values; or it is not capable of structural repair; or it is not practical to repair for public health and safety reasons. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a heritage impact assessment and structural report by RPEQ that provides an analysis of the building, based on the building condition, method of construction and that it is not capable of repair.</i></p>	No acceptable outcome is nominated.
<p>PO13 When demolition or relocation of a heritage place occurs, archival recording is undertaken and interpretive</p>	No acceptable outcome is nominated.

signage is erected.

Note—Compliance with this Performance Outcome may be demonstrated by providing a heritage impact assessment that includes an archival recording of the heritage place to be removed, the design and placement of interpretive signage consistent with Planning Scheme Policy 3 Cultural heritage.

8.6 Extractive resources overlay code

8.6.1 Application

1. This code applies to development:
 - a. within the Extractive resources overlay as shown on overlay map OM6 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Extractive resources overlay code in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

8.6.2 Purpose

1. The purpose of the Extractive resources overlay code is to protect extractive resources within key resource areas (KRA) from development that might prevent or constrain, current or future extraction of the resource by:
 - a. protecting the long-term availability of KRAs, including their accessibility;
 - b. avoiding new sensitive land uses and other incompatible land uses within the resource processing and separation areas of KRAs that could cause land use conflicts to occur;
 - c. maintaining safe and efficient transport routes of KRAs for the haulage of extractive materials and avoiding development that would compromise that function or expose sensitive land uses to adverse environmental impacts from transporting extractive materials.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development that is incompatible with extractive industries does not encroach into an extractive resource or processing area and separation area, transport routes or transport route separation areas.
 - b. Development does not compromise the operation of an existing or future extractive industry within a KRA mapped on OM6 Extractive resources overlay.
 - c. Development for a sensitive land use or incompatible land use avoids locating within the resource or processing area and related separation area of the KRA where extraction of the resource could be impeded.
 - d. Development adjacent to transport routes does not negatively affect safe and efficient transport of extractive resources.
 - e. Development not associated with the extractive industry for that transport separation area, does not increase the number of people working or residing in the transport route separation area unless mitigation measures are implemented.
 - f. Development provides screen landscaping to reduce light, dust and noise that results as an ordinary consequence in the extraction of resources from a KRA.
 - g. Development within the extractive resources separation area, including Extractive industries, does not reduce the function or effectiveness of the extractive resources separation area.

Note—An extractive resource may extend beyond the boundary of the resource or processing area into the separation area provided that the function of the separation area is not compromised. This may occur because the separation area may be less when considering slopes and topography.

 - h. Subdivision of land associated with a KRA, including land within the extractive resource or processing area and separation area, transport route or transport route separation area, does not occur.
 - i. Boundary realignments within a KRA ensure that the extractive resource or processing area and separation area are located within a single lot.

Editor's note—The KRAs within the Lockyer Valley Region are listed in the below table:

KRA NUMBER	KRA AREA
8	Harlaxton
79	Mount Cross
130	Mount Sylvia
131	Paradise Creek
159	Banff Terrace
171	McErlean Road

8.6.3 Assessment benchmarks

Table 8.6-1: Extractive resources overlay code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOME
Extractive resources or processing area and separation area	
<p>PO1 Development within the extractive resource or processing area and separation area does not constrain, prevent or otherwise interfere with the current or future viability and efficiency of extracting and processing key extractive resources.</p>	<p>AO1.1 Development for sensitive land uses or incompatible land uses does not locate in the extractive resource or processing area and separation area on OM6 Extractive resources overlay.</p> <p>AO1.2 Development within the extractive resource or processing area and separation area on OM6 Extractive resources overlay is for:</p> <ul style="list-style-type: none"> a. Extractive industry uses or ancillary uses that support the Extractive industry; or b. temporary or low impact rural uses that are compatible with existing and future Extractive industry operations.
<p>PO2 The extractive processing separation area protects and maintains an effective buffer around the extractive resource or processing area and separation areas from other uses.</p>	<p>AO2.1 Development within the resource processing separation area on OM6 Extractive resources overlay:</p> <ul style="list-style-type: none"> a. does not increase the number of lots; b. is not a sensitive land use; c. is compatible with the Extractive industry and does not compromise the function of the separation area as a buffer to surrounding land uses.
Transport routes and separation area	
<p>PO3 Development protects and improves the safe and efficient operation of extractive resource transport routes.</p>	<p>AO3.1 Development in the transport route separation area on OM6 Extractive resources overlay does not increase the number of vehicular accesses to the transport route.</p>
<p>PO4 The amenity of a premises is maintained where located alongside extractive resource haulage routes is maintained from noise, dust, vibration and other disturbance caused by frequent large vehicle movements.</p>	<p>AO4.1 Development in the transport route separation area on OM6 Extractive resources overlay mitigates the effect of noise, dust and vibration generated by the haulage of extraction materials along the transport route.</p>
<p>PO5 Development in the transport route separation area on OM6 Extractive resources overlay minimises the potential adverse effects of Extractive industries on people residing, working or congregating in the transport route separation area.</p>	<p>AO5.1 Development mitigates the effect of noise, dust and vibration generated by the haulage of extraction materials along the transport route by:</p> <ul style="list-style-type: none"> a. positioning buildings where people live and work the greatest practicable distance between the use and the key resource area — transport route; b. incorporating acoustic attenuation measures into buildings for sensitive land uses are consistent with Queensland Development Code MP4.4 Buildings in a transport noise corridor; c. incorporating site acoustic attenuation and landscape screening strips, mounding and landscape screening between buildings and structures and the key resource area — transport route; d. position any outdoor recreation spaces and private open spaces adjacent to a building façade so that it shields the space from the key resource area — transport route.

8.7 Flood hazard overlay code

Refer to the Temporary Local Planning Instrument for Flood regulation.

8.8 Helidon management area overlay code

8.8.1 Application

1. This code applies to development:
 - a. within the Helidon management area overlay as shown on overlay map OM8 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Helidon management area overlay code in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

8.8.2 Purpose

1. The purpose of the Helidon management area overlay code is to maintain the continuing safety, security, efficiency and operational integrity of existing and approved Special industry uses within the Helidon management area;
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Incompatible land uses are prevented from establishing in locations that could compromise the safe and effective operation and function of Special industry uses within the Helidon management area, including the storage of flammable or hazardous goods, chemicals or materials.
 - b. People and property within the Helidon management area are not at risk from new Special industry uses development.
 - c. Sensitive land uses or any other uses, excluding Cropping*, Animal husbandry*, Permanent plantation* and Special industry that are subservient and directly related to explosives and their manufacture, assembly, storage, distribution, or disposal constitute undesirable development and are unlikely to be supported, as the uses will compromise the continuing efficiency and operational integrity of the Helidon management area.
 - d. Vulnerable uses, critical infrastructure and difficult to evacuate uses are prevented from establishing within the Explosion risk area mapped on OM8 Helidon management area overlay.
 - e. Development protects, maintains and improves safe and efficient access to the Warrego Highway for existing Special industry and Extractive industry uses.

Note—Where sensitive land uses or any other uses, excluding; Cropping, Animal husbandry*, Permanent plantation*, Extractive industry and Special industry directly related to explosives and their manufacture, assembly, storage, distribution or disposal, are proposed within the Helidon management area, an approved risk assessment by the Queensland Government Chief Inspector of Explosives is recommended to demonstrate achievement of the purpose of the Helidon management area overlay code. A pre-lodgement meeting with the Explosives Inspectorate is strongly recommended to inform the risk assessment.*

*Note—Uses shown with * are accepted development on land within the Helidon management area and are not regulated by this code except if new buildings are proposed in which people will be residing or working.*

Note—Council may seek third-party advice from the Department of Resources Safety and Health Queensland — Explosives Inspectorate regarding the proposed development.

Editor's note—Development within Helidon management area should also seek advice from Resources Safety and Health Queensland Explosives Inspectorate and Office of Industrial Relations, Major Hazardous Facilities Unit before applying to Council.

8.8.3 Assessment benchmarks

Table 8.8-1: Helidon management area overlay code — Assessment benchmarks for assessable Material change of use and Operational work

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development within the Helidon management area	
PO1 Development within the Helidon management area: <ol style="list-style-type: none"> a. maintains the long-term ability to safely and securely manufacture, store and dispose of explosives in the Helidon explosive reserve and associated explosives facilities; b. does not compromise the operational integrity, continued safety and efficiency of the Helidon reserve and associated facilities; c. maintains the safety of people, property, infrastructure 	No acceptable outcome is nominated.

<p>and environment;</p> <p>d. does not materially increase the number of people living, working or congregating on site in the Helidon management area other than for Special industry uses directly related to explosives; their distribution, storage or manufacture;</p> <p>e. minimises the risk of harm from a bushfire hazard event arising from the Helidon reserve and associated facilities;</p> <p>f. new buildings and structures within the Helidon management area on OM8 Helidon management area overlay are sited consistently with AS.2187 Explosives — Storage, transport and use;</p> <p>g. new uses within the Helidon management area are licensed under the <i>Explosives Act</i>.</p> <p><i>Note—Compliance with the Performance outcomes may be demonstrated by a risk assessment prepared by a suitably qualified person. The assessment must demonstrate consultation with the Explosives Inspectorate in Resources Safety and Health Queensland.</i></p> <p>Editor's note—A licence under the Explosives Act is required for any use that manufactures, stores, or disposes of explosives.</p>	
<p>PO2 Development involving the use, storage and handling of explosive materials is located, designed and constructed to minimise risks to property, public health and safety, proportionate to the sensitivity of the surrounding land uses and zones.</p> <p><i>Note—Compliance with the Performance outcomes may be demonstrated by a risk assessment prepared by a suitably qualified person. The assessment must demonstrate consultation with the Explosives Inspectorate in Resources Safety and Health Queensland.</i></p>	No acceptable outcome is nominated.
Transport	
<p>PO3 Development does not compromise the safe and efficient operation of vehicles transporting explosive materials along Airforce Road, Borjesons Way, Cattos Road, Lockyer Siding Road and Warrigal Road to the Warrego Highway.</p>	No acceptable outcome is nominated.
Vulnerable uses, Critical infrastructure and Difficult to evacuate uses	
<p>PO4 Development within the explosion risk area does not include vulnerable uses, critical infrastructure or difficult to evacuate uses.</p> <p><i>Note—Vulnerable uses, critical infrastructure and difficult to evacuate uses are defined in Table SC1.2.2 Administrative definitions.</i></p>	No acceptable outcome is nominated.

Table 8.8-2: Helidon management area overlay code — Assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO5 Reconfiguring a lot does not result in an increase in the number of lots created or an increase of people living or working in the Helidon management area other than for Special industry uses directly related to explosives, their manufacture, assembly, storage, distribution or disposal.</p>	No acceptable outcome is nominated.

8.9 Infrastructure overlay code

8.9.1 Application

1. This code applies to development:
 - a. within the Infrastructure overlay as shown on the overlay maps contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Infrastructure overlay code by the tables of assessment in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Table 8.9-1: Map summary

OVERLAY MAP	MAPPED AREA
OM9A Infrastructure - Energy and water supply overlay	<p>Energy infrastructure:</p> <ol style="list-style-type: none"> a. Major electricity infrastructure corridor b. Electricity substation c. Major electricity infrastructure buffer <p>Bulk Water infrastructure:</p> <ol style="list-style-type: none"> a. Bulk water pump station b. Bulk water pipeline or channel c. Bulk water asset buffer d. Bulk water storage e. Bulk water storage area buffer (100m) f. Raw water intake buffer g. Weir buffer <p>Sewer infrastructure:</p> <ol style="list-style-type: none"> a. Sewer pump station b. Sewer pipeline c. Sewer treatment plant d. Sewer asset buffer <p>Water infrastructure:</p> <ol style="list-style-type: none"> a. Water bore b. Water pump station c. Water pipeline d. Water reservoir e. Water asset buffer
OM9B Infrastructure — Emitting and Hazardous activities overlay	<p>Chemical facilities:</p> <ol style="list-style-type: none"> a. Major chemical facility b. Hazardous chemical facility c. Chemical facility separation area <p>Environmental emitting facility:</p> <ol style="list-style-type: none"> a. Emitting facility b. Emission separation area <p>High pressure gas pipeline:</p> <ol style="list-style-type: none"> a. Pipeline corridor b. Pipeline buffer (100m) <p>Waste infrastructure:</p> <ol style="list-style-type: none"> a. Waste facility b. Waste facility buffer

8.9.2 Purpose

1. The purpose of the Infrastructure overlay code is to protect existing and future infrastructure, infrastructure corridors and facilities, to ensure development:
 - a. on, over or adjacent to existing and planned infrastructure corridors or facilities does not compromise or interfere with the integrity of the infrastructure or its ability to continue to function for its intended purpose;
 - b. does not locate people or property in locations where they would encroach upon existing and future operation of infrastructure or cause potential damage to the infrastructure;
 - c. does not locate people or property in locations where they would be at risk of unacceptable levels of noise, odour, dust, vibration or adverse visual affects;
 - d. maintains access to infrastructure for maintenance purposes.

2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development is located and designed to avoid compromising the efficiency, integrity, operation and maintenance of existing and planned infrastructure.
 - b. Development is located and designed to protect the amenity, public health and safety of people and property facilities and infrastructure.
 - c. Development is located and designed to identify, protect and manage infrastructure, or corridor including any future asset, corridor or buffer.

Editor's note—

- a. For energy infrastructure the entity responsible for its operation may have an advice or concurrence role for development occurring within the defined corridor.
- b. Council may seek third party advice from Seqwater and Urban Utilities where development is within the buffer or separation area for their infrastructure. Applicants should refer to Seqwater Network Consent Guidelines Separation distance from bulk water supply infrastructure and Urban Utilities standards and guidelines.
- c. Applicants proposing development within a high-pressure gas pipeline separation area should consult with the operator to identify ways to mitigate their risk before undertaking development. The area at risk of explosion exceeds the High-pressure gas pipeline separation area, assuming the area is the heat radiation zone associated with a full-bore pipeline rupture under the Petroleum and Gas (Production and Safety) Act, Petroleum and Gas (Production and Safety) Regulation and AS.2885 Pipelines—Gas and liquid petroleum.
- d. The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from the Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.

8.9.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below tables.

Table 8.9-2: Infrastructure overlay code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Dwelling houses	
<p>PO1 The development footprint of a Dwelling house (including a secondary dwelling and domestic outbuildings) is setback from existing and planned infrastructure assets, pipeline or facility as far as practicable to:</p> <ol style="list-style-type: none"> a. minimise exposure of people to adverse effects from the infrastructure including but not limited to noise and odour; b. maximise the safety of people and property from a high pressure gas pipeline. 	<p>*AO1.1 The development footprint of a Dwelling house (including a secondary dwellings and domestic outbuildings) is setback a minimum:</p> <ol style="list-style-type: none"> a. 10m from a pump station for water supply or sewerage; b. 20m from a Substation; c. 50m from a major electricity infrastructure corridor; d. 100m from a High pressure gas pipeline; e. 100m from a Bulk water pump station or Bulk water storage or Bulk water raw water intake; f. 100m from a water bore; g. outside of the mapped buffer area for a waste facility or emission separation area for an emitting activity. <p>*AO1.2 Onsite wastewater treatment systems are located outside of:</p> <ol style="list-style-type: none"> a. Bulk water storage area buffer (100m); b. Raw water intake buffer; c. Water bore buffer; d. Weir buffer. <p>*AO1.3 Dwelling houses (excluding domestic outbuildings) within a buffer mitigates and minimises adverse effects on human health, amenity and wellbeing by:</p> <ol style="list-style-type: none"> a. being set back as far as practicable from the impact activity; b. orientating buildings so bedrooms face away from the impact activity; c. positioning domestic outbuildings between the impact activity and living spaces; d. positioning the development on the windward side (prevailing south-east winds) of the impact activity; e. positioning barriers or fences between the development and the impact activity.

	<p><i>Note—Compliance with this Acceptable outcome may be demonstrated by clearly providing a plan that notes the setback to nearby infrastructure including any proposed onsite wastewater treatment system.</i></p> <p>*AO1.4 Dwelling houses (excluding domestic outbuildings) incorporate noise attenuation measures such that noise levels do not exceed 5db(A) above background noise level where within:</p> <ol style="list-style-type: none"> 10m of a pump station or substation. 50m from the lot boundary of a concrete manufacture facility; 100m from the lot boundary of an Extractive industry not involving blasting; 100m from a shooting range; 100m from a sawmill; 250m from the property boundary of an Extractive industry involving blasting or a Motor sport facility. <p><i>Note—Compliance with this Acceptable outcome may be demonstrated by clearly providing a plan that notes the separation distances to nearby infrastructure.</i></p>
<p>Sensitive land uses (excluding Dwelling houses)</p>	
<p>PO2 Sensitive land uses (excluding Dwelling houses), and Reconfiguring a lot that facilitates sensitive land uses, avoids locating or intensifying within the existing or planned:</p> <ol style="list-style-type: none"> vacant corridor/s or assets sites; High pressure gas pipeline buffer; Major electricity infrastructure buffer; Raw water intake buffer; Sewage treatment plant buffers; Substation buffer; Waste facilities buffers; Water bore buffer; Weir buffer. 	<p>*AO2.1 Sensitive land uses (excluding Dwelling houses), and Reconfiguring a lot that facilitates sensitive land uses, located within a buffer mitigates and minimises adverse effects on human health, amenity and wellbeing by:</p> <ol style="list-style-type: none"> providing a dense screening landscaping between the development and the existing or future infrastructure or activity that is a minimum of 5m wide and includes trees and shrubs that will grow to a minimum of 10m high; setting back sensitive land uses from existing and future noise sources a minimum of 50m; orientating buildings so bedrooms face away from existing and future noise sources; positioning outbuildings between the the impact activity and living spaces; positioning the development on the windward side (prevailing south-east winds) of the high impact activity; positioning barriers or fences between the development and the high impact activity. <p><i>Note—Compliance with this Acceptable outcome may be demonstrated by clearly providing a plan that notes the setback to nearby infrastructure including any proposed on-site wastewater treatment system.</i></p> <p>*AO2.2 Sensitive land uses (excluding Dwelling houses) that cannot be setback a minimum of 50m from existing and future noise sources, incorporate noise attenuation measures such that noise levels do not exceed 5db(A) above background noise level.</p>
<p>Vegetation and landscaping</p>	
<p>PO3 Screen landscaping and biodiversity restoration areas planted near pipelines protect and maintain the physical integrity and operation of the pipeline.</p>	<p>AO3.1 Screen landscaping and restoration buffers are planted outside of the linear infrastructure as shown on Figure 8.9-3: Excavation and filling near a corridor and easement.</p> <p>AO3.2 Landscaping adjoining an infrastructure corridor, asset or buffer complies with the clearance dimensions shown in Figure 8.9-2: Screen landscaping design near an easement.</p>

Easements	
PO4 Development protects and retains linear infrastructure on the premises by an easement that is consistent with the infrastructure provider's requirements and in favour of the responsible utility provider.	AO4.1 Existing easements are retained and where no easement exists for infrastructure on the premises, a new easement is created consistent with the infrastructure provider's requirements and in favour of the responsible utility provider.
Reverse amenity	
PO5 Development is designed to protect access to infrastructure within the premises and does not locate or intensify development within an infrastructure corridor, easement, asset or buffer including: <ul style="list-style-type: none"> a. buildings or permanent structures (e.g. dams); b. the storage of equipment or materials; c. fencing within, along or traversing the boundaries of the easement/s (unless required to limit public access from the development to the infrastructure for public safety). 	AO5.1 Development is located outside of an infrastructure corridor, easement, asset or buffer consistent with the setbacks specified in Table 8.9-4: Development setbacks from infrastructure. AO5.2 No new crossings (including roads, services, pedestrian or cycle crossings) traverse an infrastructure corridor, easement, asset or buffer. AO5.3 Where development cannot comply with AO5.2, any new road, services, pedestrian or cycle crossing is co-located or consolidated with an existing crossing (where practicable).
Emitting activity buffers	
PO6 To minimise encroachment upon or intensifying emitting activities, sensitive land uses or Reconfiguring a lot that facilitates sensitive land uses, are located and designed to avoid and mitigate adverse impacts generated by: <ul style="list-style-type: none"> a. noise; b. odour; c. air emission; d. dust; e. lighting. 	AO6.1 Sensitive land uses, and Reconfiguring a lot that facilitates sensitive land uses or incompatible non-residential development, do not locate within: <ul style="list-style-type: none"> a. 100m of the property boundary of a concrete manufacture facility; b. 200m of the property boundary of an Extractive industry not involving blasting; c. 250m of a shooting range; d. 250m of the property boundary of a sawmill; e. 500m of an Intensive animal industry; f. 500m of the property boundary of a Crematorium; g. 1,000m of the property boundary of an Extractive industry involving blasting or a Motor sport facility; h. 1,500m of the property boundary of an abattoir or slaughter yard.
High pressure gas pipeline	
PO7 Sensitive land uses, and Reconfiguring a lot that facilitates sensitive land uses or incompatible non-residential development, avoid locating within an existing or planned high pressure gas pipeline easement or buffer.	No acceptable outcome is nominated.
PO8 Development that is intensified within an existing or planned infrastructure corridor, asset or buffer minimises its exposure to high pressure gas pipelines. <i>Note—Compliance with this Performance outcome may be demonstrated by providing an assessment of the measures specified within the Environmental Protection Act.</i>	No acceptable outcome is nominated.
PO9 Reconfiguring a lot involving subdivision retains high pressure gas pipeline easement and buffer, so additional lots are not created within the easement or buffer and retains: <ul style="list-style-type: none"> a. high pressure gas pipeline as a single lot as an open space corridor; or b. a single pipeline easement. 	No acceptable outcome is nominated.
Hazardous chemical facilities	
PO10 Development avoids the cumulative adverse effects of Extractive industries, storage and disposal of explosives, and hazardous chemicals on human health, amenity, and the	AO10.1 Sensitive land uses, and Reconfiguring a lot that facilitates sensitive land uses or incompatible non-residential development, do not locate within a chemical facility buffer

<p>wellbeing of sensitive land uses.</p> <p>Editor's note—<i>The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from the Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.</i></p>	<p>shown on OM9B Infrastructure overlay — Emissions and hazardous activities.</p> <p>AO10.2 Where a sensitive land use is unable to locate outside of an emitting activity buffer, the development is designed to minimise adverse effects on human health, amenity and wellbeing by:</p> <ol style="list-style-type: none"> a. providing dense screening landscaping between the development and the existing or future infrastructure or activity that is a minimum of 5m wide and includes trees and shrubs that will grow to a minimum of 10m high; b. setting back sensitive land uses from existing and future noise sources a minimum of 50m; c. orientating buildings so that bedrooms face away from existing and future noise sources; d. positioning outbuildings between the the impact activity and living spaces; e. positioning the development on the windward side (prevailing south-east winds) of the high impact activity; f. positioning the development on the premises at the furthest point from the high impact activity; g. positioning barriers or fences between the development and the high impact activity. <p><i>Note</i>—<i>Compliance with this Acceptable outcome may be demonstrated by clearly providing a plan that notes the setback to nearby infrastructure including any proposed on-site wastewater treatment system.</i></p> <p>AO10.3 Extractive industries comply with the separation distances specified in Table 8.9-4: Development setbacks from infrastructure for land uses.</p> <p>AO10.4 Uses involved in the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals are not located adjacent to or within an infrastructure corridor, asset, buffer or explosion risk area on OM9B Infrastructure overlay — Emissions and hazardous activities.</p>
<p>Earthworks, filling and excavation</p>	
<p>PO11 Earthworks within a buffer or along the boundary of an existing or proposed infrastructure corridor prevent worsening of flooding, drainage or erosion conditions within the infrastructure corridor, asset or buffer.</p> <p><i>Note</i>—<i>Compliance with this Performance Outcome may be demonstrated by providing setbacks consistent with Figure 8.9-3: Excavation and filling near a corridor and easement.</i></p> <p>Editor's note—<i>Operational work within the corridor (including landscape works) may require approval of a Construction Management Plan from the infrastructure operator.</i></p>	<p>AO11.1 Excavation and filling activities do not occur within:</p> <ol style="list-style-type: none"> a. setbacks specified for Seqwater Network Consent Guidelines Separation distance from bulk water supply infrastructure for existing or planned Bulk water requirements; b. 10m of existing or planned Major electricity infrastructure corridor or Substation; c. the buffers shown in Figure 8.9-3: Excavation and filling near a corridor and easement.
<p>PO12 Earthworks maintains the stability of the land adjoining the infrastructure within the corridor, easement or buffer to maintain the physical integrity, safe and efficient operation of the infrastructure corridor.</p> <p>Editor's note—<i>Operational work within the corridor (including landscape works) may require approval of a Construction Management Plan from the infrastructure operator.</i></p>	<p>AO12.1 Earthworks are not undertaken within the separation distances specified in Figure 8.9-3: Excavation and filling near a corridor and easement.</p> <p>AO12.2 No valve pits occur within:</p> <ol style="list-style-type: none"> a. 60m of a tower, pole or stay for a 110kV electricity line; or b. 10m of a tower, pole or stay for a 33kV electricity line. <p>AO12.3 If the infrastructure provider has agreed to new roads or services traversing easement/s all the following apply:</p> <ol style="list-style-type: none"> a. Roads, services, footpaths and cycleways are provided at 90° to the infrastructure corridor;

	<p>b. Any trenches are backfilled to be compacted in 150mm layers to a 95% modified dry density compaction ratio;</p> <p>c. Trenches under construction are not left open overnight.</p>
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Table 8.9-3: Infrastructure overlay code— Additional assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO13 Development incorporates existing and future infrastructure corridor, easement, asset and buffer into the design including a development footprint suited to the future use.</p>	<p>AO13.1 Development maintains or reduces the number of lot boundaries that traverse an infrastructure corridor, easement or asset as shown in Figure 8.9-1: Subdivision design near an easement.</p> <p><i>Note—Figure 8.9-1: Subdivision design near an easement provides an example of how to maintain access to an existing easement. When creating an easement, the infrastructure provider should be consulted to ensure their requirements are met.</i></p>
<p>PO14 Where a premises includes infrastructure or a buffer, development incorporates the infrastructure and buffer as useable public open space and:</p> <p>a. has dimensions that allow landscaping to be located outside of the easement/s to screen and soften the appearance of poles, towers or other structures;</p> <p>b. contains recreational facilities and landscaping that do not impede access to the infrastructure and that are compatible with safety requirements.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO15 Development protects and retains existing infrastructure easement/s or creates a new easement/s where there is none and:</p> <p>a. avoids increasing the number of lots within an infrastructure easement/s;</p> <p>b. avoids intensifying development that increases safety risks to people and property.</p>	<p>No acceptable outcome is nominated.</p>

Table 8.9-4: Development setbacks from infrastructure

DEVELOPMENT	DISTANCE	INFRASTRUCTURE FEATURE
<p>All development including sensitive land uses (except for domestic outbuildings and infrastructure as listed below)</p>	20m	<p>Bulk water pipeline</p> <p>High pressure gas pipeline easement</p> <p>Water bore or reservoir</p> <p>Water or Sewerage pump station</p>
	50m	<p>Bulk water pump stations or storage asset</p> <p>Major electricity infrastructure corridor</p> <p>Substation</p> <p>Weir</p>
<p>Infrastructure</p>	20m	Substation
	50m	Major electricity infrastructure corridor
	100m	<p>Bulk water pump station or storage asset</p> <p>Raw water intake</p>
	250m	Water treatment plants
<p>Blasting operations</p>	200m	<p>Bulk water pipeline or pump station or storage asset or raw water intake</p> <p>Sewerage pump station, or pipeline or treatment plant</p> <p>Water bore or pipeline or pump station or storage</p> <p>Weir</p>
	500m	Bulk water storage

Figure 8.9-1: Subdivision design near an easement

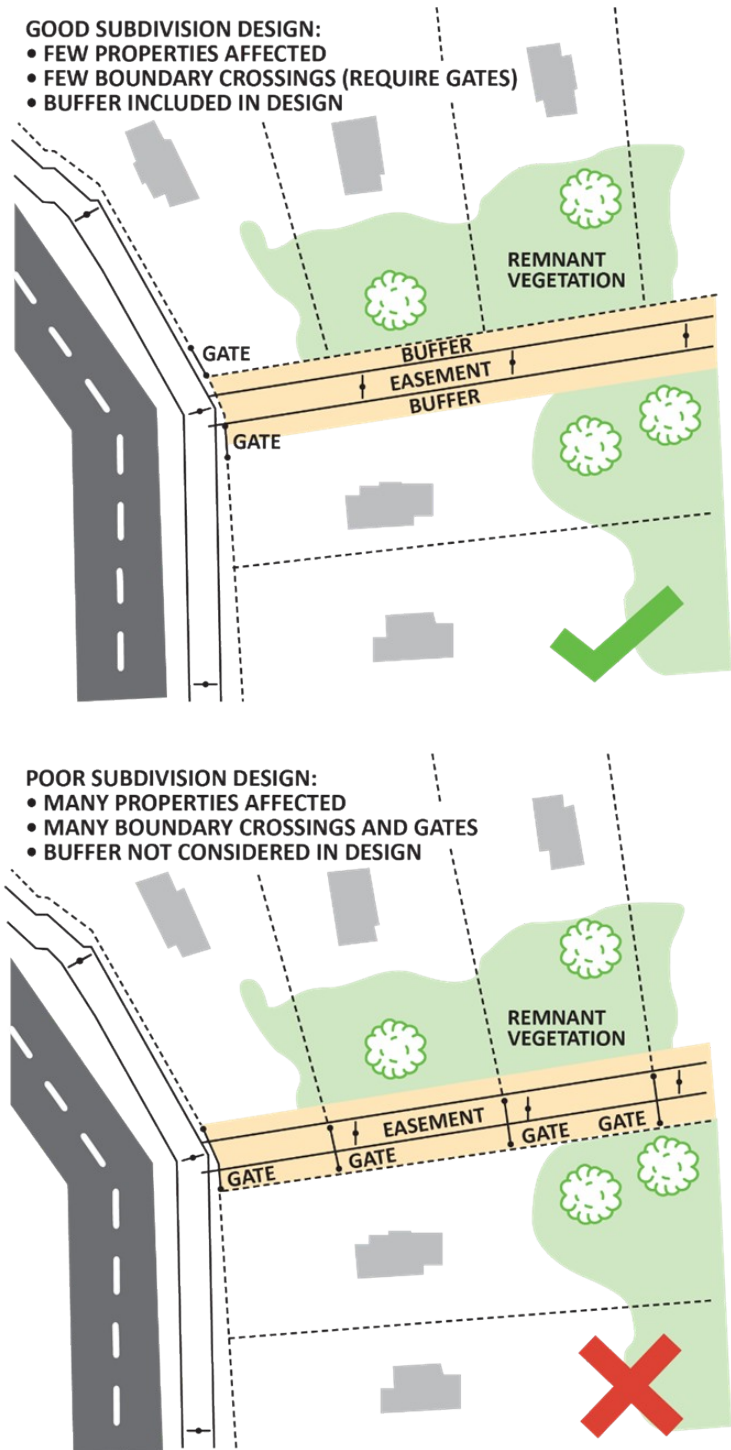


Figure 8.9-2: Screen landscaping design near an easement

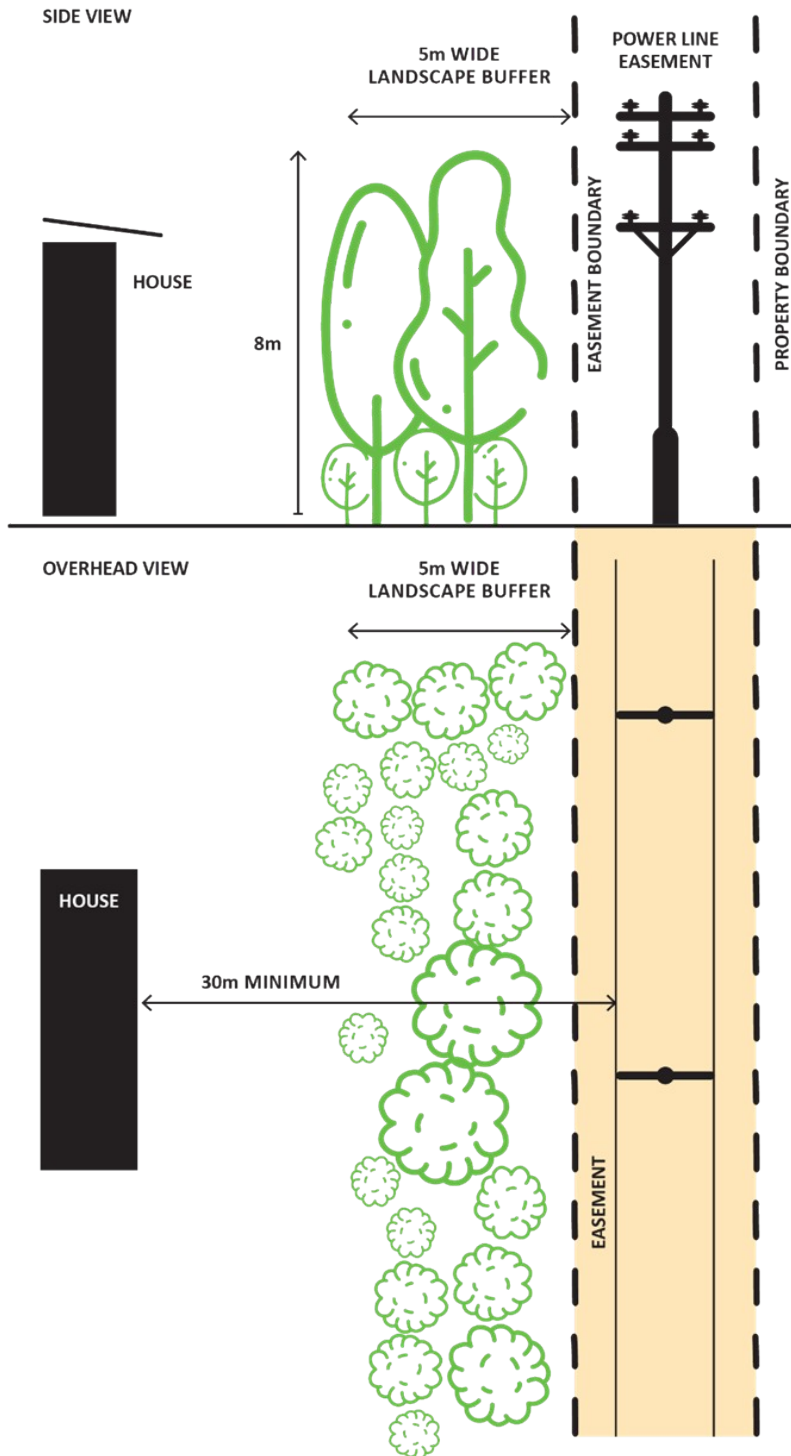
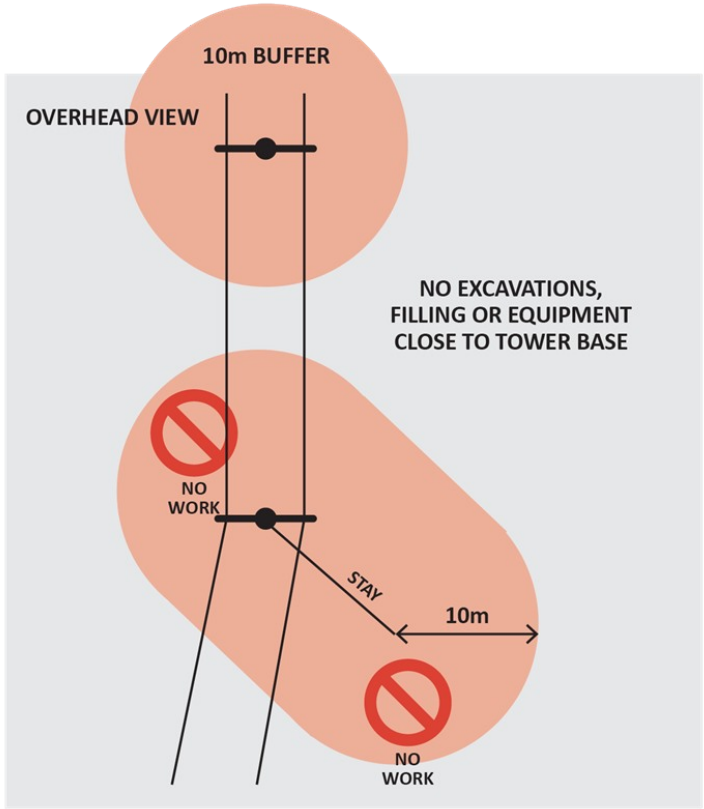
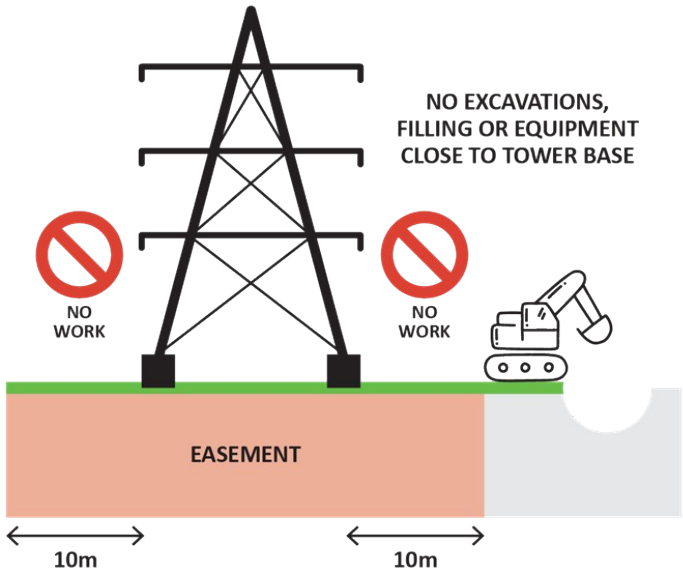


Figure 8.9-3: Excavation and filling near a corridor and easement



8.10 Scenic landscape overlay code

8.10.1 Application

1. This code applies to development:
 - a. within the Scenic landscape overlay as shown on overlay map OM10 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Scenic landscape overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

8.10.2 Purpose

1. The purpose of the Scenic landscape overlay code is to ensure the continuing protection and improvement of the scenic landscape areas and features which contribute to the unique character and identity of the Lockyer Valley.
2. The purpose of the Scenic landscape overlay code will be achieved through the following overall outcomes:
 - a. Development is located, designed and constructed to protect and minimise the loss of scenic landscape areas and is visually unobtrusive from viewing corridors and lookouts.
 - b. Development within areas of scenic landscape areas improves the natural and visual landscape values of the site when viewed from public roads and lookouts.
 - c. Development does not obstruct views of scenic landscape areas.

Note—Compliance with the Scenic landscape overlay code may be demonstrated by preparing a Scenic landscape assessment consistent with Planning Scheme Policy 8 Scenic landscape assessment.

8.10.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 8.10-1: Scenic landscape overlay code — Assessment benchmarks for all accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development other than infrastructure activities	
PO1 Development is located, designed and constructed to protect and minimise the loss of scenic landscape areas and is visually unobtrusive from viewing corridors and lookouts.	<p>*AO1.1 Building and structures including Dwelling houses and domestic outbuildings in scenic landscape area blends into the landscape.</p> <p>AO1.2 Development avoids changing the landform within scenic landscape areas by stepping down slopes consistent with Figure 8.11-1: Maximum height and storeys in relation to slope.</p> <p>AO1.3 Development avoids creating reflection or glare.</p>
PO2 Development: <ol style="list-style-type: none"> a. maintains the rural landscape and scenic amenity through building siting, scale, bulk, height, design, form, colours and materials which are sympathetic to the character of the site and zone; b. is located and designed to avoid, minimise or mitigate impacts on the rural landscape and scenic amenity when viewed from viewing corridors and lookouts; c. responds to the site's topography. 	No acceptable outcome is nominated.
Earthworks and Vegetation Clearing	
PO3 When viewed from an area of scenic landscape value or public road, earthworks, roads, vehicle accesses and vegetation clearing are visually inconspicuous and prevent a loss of scenic landscape value through excessive earthworks	<p>AO3.1 Earthworks in a scenic landscape area are no more than 500m³.</p> <p>AO3.2 Earthworks in a scenic landscape area are</p>

or vegetation clearing or changes to the finished landform.	revegetated to: a. minimise the visibility of the any cutting; and b. effectively stabilise the site.
PO4 Roads, vehicle accesses (including driveways) and earthworks minimise changes to the landform and visual appearance of scenic landscape areas.	No acceptable outcome is nominated.
Advertising devices	
PO5 The public's visual connection to scenic landscapes is protected by preventing advertising devices along viewing corridors.	No acceptable outcome is nominated.

8.11 Steep land overlay code

8.11.1 Application

1. This code applies to development:
 - a. within the Steep land overlay as shown on overlay map OM11 contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Steep land overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Editor's note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from the Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.

Table 8.11-1: Map summary

OVERLAY MAP	MAPPED AREA
OM11 Steep land overlay	<p>Assessment triggers:</p> <ol style="list-style-type: none"> a. Steep slope (15% to 20%) b. Very steep slope (20% or more) <p>Information layers:</p> <ol style="list-style-type: none"> a. Slope 5% to 10% b. Slope 10% to 15%

8.11.2 Purpose

1. The purpose of the Steep land overlay code is to ensure that risk to life, property, infrastructure and the environment from potential landslide is avoided or mitigated to an acceptable or tolerable level, where development:
 - a. increases the number of people living or working in an area of steep slope or very steep slope;
 - b. involves a premises visited or occupied by guests on a short-term basis;
 - c. involves uses where evacuating people may be difficult;
 - d. involves community infrastructure that needs to function during and immediately after landslide events;
 - e. involves the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development on steep slopes where there is an intolerable risk of landslide is avoided, including:
 - i. vegetation clearing, unless the land is progressively rehabilitated and restored;
 - ii. complex earthworks, involving excavation and filling that changes the natural landform;
 - iii. works that increase or redirect stormwater flows;
 - iv. works that increase the potential for erosion and sedimentation in a mapped area on OM13 High risk soils overlay.
 - b. Where steep slopes cannot be avoided, development is designed, located and managed to ensure risk to the safety of people and damage to property is mitigated to an acceptable or tolerable level before, during and after a natural hazard event.
 - c. Development avoids establishing or intensifying vulnerable uses, essential community infrastructure and critical infrastructure within or near areas that are subject to steep slopes hazard.
 - d. Landslide risk mitigation treatments avoid or minimise harm on the natural environment, ecological processes and biodiversity values and:
 - i. avoid changing the natural landform;
 - ii. effectively stabilise the site where landslide or erosion has already occurred;
 - iii. do not increase the risk to people or property through rehabilitation, revegetation and landscaping (e.g. increase or redirect stormwater flows).
 - e. New lots and development have a safe, practical and efficient vehicular access where on steep slopes or very steep slopes.
 - f. Development involving the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals, protects public safety and minimises the risk to people and the environment, if a landslide occurs.
 - g. Development contributes to and does not unduly burden, effective and efficient disaster management response and recovery capabilities and ensures safe evacuation from landslide can be facilitated.

Note—Landslides occur in rainfall events of 1EY or more. As such any risk assessment must consider the potential impact of flooding on roads or evacuation routes when undertaking a Geotechnical assessment.

Note—Landslip risk increases in areas where former mining activities (e.g. disused underground mines, tunnels and shafts) have occurred which is common in the Lockyer Valley. A pre-development ground inspection and check of GeoResGlobe is recommended as part of due diligence and general environmental duty under the Environmental Protection Act.

Note—Compliance with this Performance Outcome may be demonstrated by providing a site-specific geotechnical stability assessment report prepared by a suitably qualified person consistent with Planning Scheme Policy 5 Geotechnical assessment.

8.11.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below tables.

Table 8.11-2: Steep land overlay code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOME
<p>PO1 Development achieves a low or acceptable landslide risk to property and environment including:</p> <ul style="list-style-type: none"> a. on-site; b. off-site where development may affect adjacent premises on the downward and upward slopes; <p>and mitigates risk of landslide through design strategies that:</p> <ul style="list-style-type: none"> a. effectively stabilise the site; b. minimise structural failure. 	<p>AO1.1 Development within steep or very steep slope areas is undertaken on that part of the site that has the least risk of landslide.</p> <p>AO1.2 Development locating on steep slopes or very steep slopes mapped on OM11 Steep land overlay:</p> <ul style="list-style-type: none"> a. identifies the level of risk of landslide through a geotechnical risk assessment; b. responds to the identified level of risk through the design. <p>AO1.3 Development within steep or very steep slope areas is certified by an RPEQ, confirming that:</p> <ul style="list-style-type: none"> a. the proposed development is at a low level risk for landslide: <ul style="list-style-type: none"> i. where located on the development site; ii. from land upslope of the proposed development; b. the proposed development does not affect surrounding lots and roads at risk of landslide from: <ul style="list-style-type: none"> i. earthworks; ii. vegetation clearing including under scrubbing or surface removal of turf; iii. increased and/or redirected stormwater runoff; iv. undermining of any structural features or evacuation routes that adjoin the development site.
<p>PO2 The position and design of development:</p> <ul style="list-style-type: none"> a. avoids changing the natural land form consistent with Figure 8.11-1: Maximum height and storeys in relation to slope; b. minimises the need for complex earthworks solutions; c. minimises increasing the potential landslide risk to the site or surrounding lots through the design. <p><i>Note—Measures to achieve the Performance outcome may include:</i></p> <ul style="list-style-type: none"> a. design buildings and structure to have an elevated floor that steps downward with the slope; b. avoiding cutting and filling that: <ul style="list-style-type: none"> i. steepens the slopes or batters; or ii. undermining or removing the base of the slope; c. avoid creating building platforms with fill or loading the upper part of the slope; d. avoid vegetation clearing before, during and after construction; e. avoid using subsurface wastewater disposal methods. f. minimise retaining wall heights; g. minimise increasing or redirecting stormwater or surface water paths assuming 1EY events or more; h. restoring vegetation to slopes that have been previously cleared; i. effectively stabilising the surface and existing overland flow paths. 	<p>*AO2.1 Either:</p> <ul style="list-style-type: none"> a. buildings, outbuildings and/or vegetation clearing does not occur on that part of the site with steep slopes or very steep slopes; or b. all buildings, outbuildings and/or vegetation clearing are consistent with a development envelope area approved at subdivision stage. <p>*AO2.2 No vegetation clearing is proposed.</p> <p>*AO2.3 Overland flow paths that have been previously cleared are rehabilitated and effectively stabilised to accommodate any increase in stormwater flow from the development.</p> <p>*AO2.4 Property stormwater installations (including roof guttering and rainwater tank overflows) are directed to the stormwater drainage network to avoid an actionable nuisance from increased on-site groundwater, ponding of water and water concentration onto surrounding slopes or overland flow paths.</p> <p>*AO2.5 Either:</p> <ul style="list-style-type: none"> a. all wastewater is disposed of by a sewerage connection; or b. where sewerage connection is not available, onsite

	<p>wastewater treatment systems are located on that part of the site that has a slope of 10% or less; and</p> <p>c. where subsurface disposal of effluent is proposed, the potential landslide risk achieves a low or acceptable risk.</p>
<p>PO3 Development provides safe and efficient access for all transport modes and avoids the need for extensive earthworks and/or retaining walls that bound the road reserve.</p>	<p>*AO3.1 Vehicle access and driveways are no more than 20m in length and less than 20% slope.</p> <p>*AO3.2 Vehicle access and driveways within steep or very steep slope areas are provided with a slip-resistant surface (e.g. broom brushed concrete or 10mm coarse gravel bitumen).</p> <p>*AO3.3 Where earthworks are required for a driveway, it is confined to the proposed driveway area with the ground level being retained in all remaining areas.</p>
<p>Vulnerable uses, Essential community infrastructure and Critical infrastructure</p>	
<p>PO4 Vulnerable uses and essential community infrastructure avoids establishing or intensifying the use within steep slopes unless:</p> <ol style="list-style-type: none"> there is an overriding need in the public interest for the new or expanded service the development provides; and there are no other suitable alternative locations; and site planning can appropriately mitigate the risk to a low level or acceptable level. <p><i>Note—The overall outcomes of this code identify the development outcomes which are intended to avoid intolerable or mitigate tolerable risk of landslide to vulnerable uses and difficult to evacuate uses.</i></p>	<p>*AO4.1 Community residence/s do not locate within an area of steep slope or very steep slope.</p> <p>*AO4.2 Vulnerable uses and essential community infrastructure do not locate within an area of steep slope.</p> <p>AO4.3 Vulnerable uses and essential community infrastructure is designed and constructed to:</p> <ol style="list-style-type: none"> achieve an acceptable landslip risk; or be structurally resilient to landslip; and have back-up emergency electricity supply where a utility installation; and have back-up communications; and have an emergency access separate to the primary road access.
<p>PO5 Critical infrastructure providing essential utilities avoids establishing or intensifying within steep slopes unless:</p> <ol style="list-style-type: none"> there is an overriding need in the public interest for the new or expanded service the development provides (for example, there are no other suitable alternative locations that can deliver the required level of service or meet emergency service response times during and immediately after a 1EY or greater rainfall event or landslide event); the infrastructure can function effectively during and immediately after a 1EY or greater rainfall event or landslide event; it can be provided underground; or site planning can appropriately mitigate the risk to a low level or acceptable level. 	<p>AO5.1 Critical infrastructure is designed and constructed to:</p> <ol style="list-style-type: none"> achieve an acceptable landslip risk; or be structurally resilient to landslip; and have back-up emergency electricity supply where a utility installation; and have back-up communications; and have an emergency access separate to the primary road access.
<p>Hazardous chemicals</p>	
<p>PO6 Hazardous chemical facilities for the manufacturing, assembly, storage, distribution or disposal of hazardous chemicals, avoids establishing or intensifying within areas of steep slope unless the risks to public safety and the environment can be mitigated to a low level or acceptable level.</p> <p><i>Editor's note—Besides the requirements of this code, the Work Health and Safety Act and associated Regulation and Guidelines, the Environmental Protection Act and the relevant building assessment provisions under the Building Act contain requirements for the manufacturing, assembly, storage, distribution or disposal of hazardous materials including hazardous chemicals.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO7 Hazardous chemical facilities do not establish or</p>	<p>No acceptable outcome is nominated.</p>

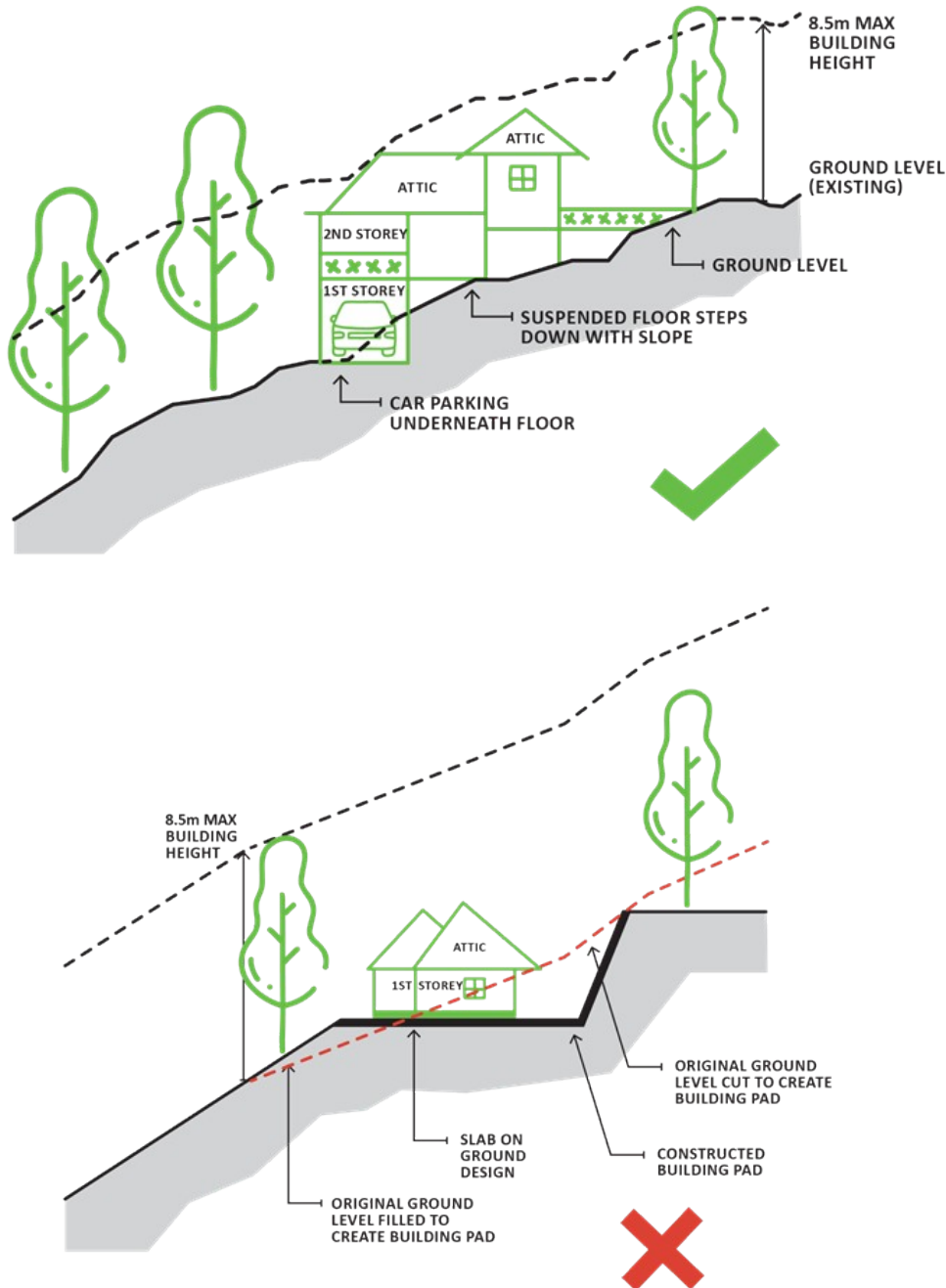
<p>intensify within areas of steep slope and:</p> <ul style="list-style-type: none"> a. can function effectively during and immediately after a 1EY or greater rainfall event or landslide event; b. have an emergency access separate to the primary road access; c. have an evacuation plan if a landslide occurs; d. can safely remove hazardous materials to alternative sites if a landslide occurs. 	
Development involving Operational work (including vegetation clearing, earthworks, excavation and filling)	
<p>PO8 Development involving Operational work effectively stabilises the site and does not:</p> <ul style="list-style-type: none"> a. increase slope instability; b. cause soil loss from sheet, rill or gully erosion; c. lead to sedimentation; d. lead to water contamination; e. redirect stormwater flows to a location outside the stormwater drainage network; f. concentrate stormwater or overland flows. 	<p>*AO8.1 Earthworks are minimised and limited to a height of:</p> <ul style="list-style-type: none"> a. 2m adjoining a non-residential site; b. 1.2m adjoining a residential site; c. 0.9m adjoining a public road, Park or other public area. <p>*AO8.2 Earthwork cuts and retaining walls incorporate subsoil drainage systems that direct stormwater to the stormwater drainage network or existing overland flow path.</p> <p>*AO8.3 Earthwork cuts that are greater than 900mm high, are separated by terraces with a minimum width of 1.5m or equal to the height of the cut, whichever is the greater.</p> <p>*AO8.4 Retaining walls are 1.5m in height or less compared to the ground level.</p> <p>*AO8.5 The crest of any cut or toe of any fill, or any part of any retaining wall or structure, is located no closer than 600mm to any boundary of the lot.</p> <p>*AO8.6 All retaining walls are designed and certified by an RPEQ. Boulder walls or loose blocks must not be used as retaining walls on sites steeper than 20%.</p> <p>AO8.7 Cut and/or fill slopes are effectively stabilised to protect against erosion by providing a:</p> <ul style="list-style-type: none"> a. minimum 80% grass cover; b. dense landscaping; or c. another protective, stabilisation measure as recommended by an RPEQ. <p>AO8.8 Earthworks on steep slopes or very steep slopes are retained before, during and after construction by:</p> <ul style="list-style-type: none"> a. vegetation restoration or rehabilitation; and b. retaining structures; or c. other stabilisation methods consistent with Planning Scheme Policy 6 Infrastructure design. <p>AO8.9 Earthworks on steep slopes or very steep slopes do not occur during the wettest part of the year (i.e. November to March).</p>

Table 8.11-3: Steep land overlay code — Additional assessment benchmarks for assessable Reconfiguring a lot

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOME
<p>PO9 Reconfiguring a lot:</p> <ul style="list-style-type: none"> a. avoids excessive work or changes to the finished landform for new roads and vehicular access for created lots; b. minimises retaining walls to create lots or new roads; c. ensures each lot has an area for development that will: <ul style="list-style-type: none"> i. be protected from landslide; or ii. have an acceptable risk from landslide activity on the 	<p>AO9.1 Development for reconfiguring a lot ensures each lot has a development envelope area that is stable and has a slope of less than 15% and where:</p> <ul style="list-style-type: none"> a. in the Rural residential zone has a minimum area of 2,500m² in one location with a minimum dimension of 30m; and b. in other zones, has an area adequate to contain buildings, outbuildings, car parking and on-site

<p>site; or</p> <p>iii. have an acceptable risk from landslide activity originating above or from surrounding lots.</p>	<p>wastewater treatment systems.</p> <p>AO9.2 Roads are constructed on slopes of 12.5% and less.</p> <p>AO9.3 All development envelope areas designated within any created lots, are accessible by a road access, consistent with Planning Scheme Policy 6 Infrastructure design.</p>
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Figure 8.11-1: Maximum height and storeys in relation to slope



8.12 Waterways and water resources overlay code

8.12.1 Application

1. This code applies to development:
 - a. within the Waterways and water resources overlay as shown on overlay map OM12A and OM12B contained in schedule 2 Maps; and
 - b. identified as requiring assessment against the Waterways and water resources overlay code in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Table 8.12-1: Map summary

OVERLAY MAP	MAPPED AREA
OM12A Waterways and water resource catchment - Ecosystems overlay	a. Springs separation area b. Wetland c. Wetland separation area d. Waterway — stream order 1 and 2 e. Waterway — stream order 3 and greater f. Overland flow paths
OM12B Waterways and water resource catchment — Water resource catchments overlay	a. Lockyer Creek water resource catchment b. 200m Bulk water supply storage buffer c. 400m Bulk water supply storage buffer d. 800m Bulk water supply storage buffer e. Water supply buffer area Information layers: a. Lockyer Creek water sub-catchments b. Bulk water supply storage

8.12.2 Purpose

1. The purpose of the Waterways and water resources catchment overlay is to ensure development is sited, designed and managed to improve water quality, flow regimes, environmental values and the physical integrity of natural processes to protect water supply.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development protects and improves the environmental values and water quality objectives of waterways and the following water supply storages:
 - i. Lake Atkinson;
 - ii. Lake Clarendon;
 - iii. Lake Dyer;
 - iv. Seven Mile Lagoon.
 - b. Development protects and improves the drinking water supply environmental values and water quality objectives of the Lockyer Creek Catchment and sub-catchments.
 - c. Development improves the quality of surface water and groundwater.
 - d. Development protects and improves the physical integrity of waterways, wetlands, lakes, springs, riparian areas, land features and natural ecosystems that contribute to maintaining healthy functioning catchments.
 - e. Development protects water quality, either directly or indirectly, including adjoining regional Council catchments.

Editor's note—Council may refer development applications that result in ground disturbance and increase the quantity and quality of stormwater flows to Seqwater for third party advice.

Editor's note—Accepted Operational work for driveway or vehicle access within streams orders 1 and 2 may require approval for Operational work from the State Assessment and Referral Agency for constructing or raising waterway barrier works in fish habitats.

Note—In accordance with the Environmental Protection Act and the General environmental duty, all reasonable and practicable measures must be taken to prevent or minimise environmental harm. All development, therefore, must be designed to suit the soil type in the location it is sited.

Note—A site specific Erosion and Sediment Control Plan (ESCP) is required where any ground disturbance may occur. An ESCP is to be prepared consistent with Planning Scheme Policy 9 Stormwater management and Planning Scheme Policy 6 Infrastructure design.

8.12.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below tables.

Table 8.12-2: Waterways and water resources overlay code — Assessment benchmarks for all assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Development locations	
<p>PO1 Development protects and improves physical integrity of the waterway and water quality by avoiding locating within:</p> <ol style="list-style-type: none"> a mapped area on OM12A Waterways and water resource catchment - Ecosystems overlay; or within the 200m Bulk water supply storage buffer; or the Water supply buffer area. <p><i>Note—Environmental values are referenced within Environmental Protection (Water and Wetland Biodiversity) Policy.</i></p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based stormwater quantity management plan (SQMP) prepared by a suitably qualified person. The SQMP achieves stormwater quantity and quality control measures for discharge during operational phases of development designed to be consistent with the Queensland Urban Drainage Manual (QUDM).</i></p> <p><i>Note—A site specific Erosion and Sediment Control Plan (ESCP) is required where any ground disturbance may occur. An ESCP is to be prepared consistent with Planning Scheme Policy 9 Stormwater management and Planning Scheme Policy 6 Infrastructure design.</i></p>	<p>*AO1.1 Development is connected to:</p> <ol style="list-style-type: none"> a stormwater drainage network or other lawful point of discharge; sewerage network. <p>*AO1.2 Dwelling houses and domestic outbuildings are setback from the defining bank of a waterway and overland flow path a minimum of:</p> <ol style="list-style-type: none"> 10m from an overland flow path; 25m from stream order 1 and 2; 50m from stream order 3 and greater. <p>AO1.3 Development involving an on-site wastewater treatment system, vegetation clearing or earthworks does not occur within:</p> <ol style="list-style-type: none"> a mapped area on OM12A Waterways and water resource catchment - Ecosystems overlay; or within the 200m Bulk water supply storage buffer; or the Water supply buffer area. <p>AO1.4 Development involving a use listed in Table 8.12-3: Separation distance to waterways and other locational measures is consistent with the separation distances listed.</p> <p><i>Note—Where another setback distance or locational criterion is identified within this code, the higher standard applies.</i></p>
Water quality	
<p>PO2 Development improves the quality of water entering ground or surface water supply in the local receiving waters.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Hydrological impact assessment and Water Management Plan prepared by a suitably qualified professional.</i></p>	<p>AO2.1 Water released to ground, or surface waters is consistent with the water quality objectives and environmental values in <i>Environmental Protection (Water and Wetland Biodiversity) Policy, schedule 1 Document for Lockyer Creek</i>.</p> <p>AO2.2 Operational work within a wetland or wetland separation area does not undertake excavation or filling of more than 100m³.</p> <p>AO2.3 Operational work that diverts water to or from a wetland or a wetland separation area, does not undertake excavation or filling of more than 1,000m³.</p>
<p>PO3 Development rehabilitates the condition and physical integrity of waterways, wetlands, springs, overland flow paths and separation areas, to improve the healthy functioning of the catchment.</p>	<p>No acceptable outcome is nominated.</p>
Development involving an on-site wastewater treatment systems	
<p>PO4 On-site wastewater treatment systems do not adversely impact on the environmental values and water quality objectives of the local receiving waters.</p>	<p>*AO4.1 Development provides an area for on-site wastewater treatment systems outside of:</p> <ol style="list-style-type: none"> a mapped area on OM12A Waterways and water resource catchment — Ecosystems overlay;

<p><i>Note—Drinking water supply environmental values are referenced within Environmental Protection (Water and Wetland Biodiversity) Policy.</i></p> <p><i>Note—Compliance with this Performance Outcomes may be demonstrated by a wastewater site analysis prepared by a suitably qualified professional.</i></p>	<ul style="list-style-type: none"> b. 400m from the supply level bulk water supply storage buffers on OM12B Waterways and water resource catchment - water resource catchment overlay c. 400m from a drinking water bore.
Development in a water supply buffer area or separation area	
<p>PO5 Where development is connected to an onsite wastewater treatment system, that system is designed, constructed and managed in a way that:</p> <ul style="list-style-type: none"> a. monitors discharges of wastewater quality a minimum of every 13 weeks; b. is consistent with the environmental values and water quality objectives of the local receiving waters. <p><i>Note—Drinking water supply environmental values are referenced within Environmental Protection (Water and Wetland Biodiversity) Policy.</i></p> <p><i>Note—Where development involves the release of wastewater, a Wastewater Management Plan (WWMP) is to be prepared by a suitably qualified person. Plans are to provide an assessment of all risks and associated mitigation strategies for preventing adverse impact on the quality of drinking water and may require a water quality monitoring program.</i></p>	<p>*AO5.1 Wastewater (other than domestic wastewater) that is collected and contained on-site is:</p> <ul style="list-style-type: none"> a. lawfully disposed to sewer; or b. transferred off-site for treatment or disposal to a licensed facility. <p>AO5.2 Wastewater (other than domestic wastewater) that is reused on-site is:</p> <ul style="list-style-type: none"> a. in a closed-cycle irrigation scheme, industrial process, reused for washing or cleaning, or other purpose; b. treated to meet the environmental values and water quality objectives of the local receiving waters before release.
<p>PO6 Development is designed, constructed and managed to ensure an effectively stabilised surface is provided before development commences to prevent:</p> <ul style="list-style-type: none"> a. soil loss from sheet, rill or gully erosion; b. sedimentation of ground or surface waters; c. contamination of ground or surface waters; d. concentrated stormwater and overland flows. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based SQMP and a site specific ESCP prepared by a suitably qualified person. The SQMP is to achieve stormwater quantity control measures for discharge during operational phases of development designed to be consistent with the Queensland Urban Drainage Manual (QUDM). The SQMP and ESCP is to be consistent with Planning Scheme Policy 9 Stormwater management and Planning Scheme Policy 6 Infrastructure design.</i></p>	<p>No acceptable outcome is nominated.</p>
Water quantity impacting on land	
<p>PO7 Development improves the existing surface and groundwater hydrological regime.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Hydrological impact assessment and Water Management Plan prepared by a suitably qualified person.</i></p>	<p>AO7.1 Development does not lower or raise the water table or hydrostatic pressure outside the bounds of the variability of existing pre-development conditions.</p> <p>AO7.2 Development prevents saline water from entering freshwater aquifers.</p> <p>AO7.3 Development design does not worsen the potential for salinity expression.</p>
<p>PO8 Development involving the extraction of ground or surface waters for a commercial purpose occurs outside of the Lockyer Creek water resource catchment and sub-catchments.</p>	<p>No acceptable outcome is nominated.</p>
Surface and ground water hydrology	
<p>PO9 Development ensures that the natural surface water and</p>	<p>AO9.1 Development does not adversely affect the natural</p>

<p>groundwater hydrologic regimes of waterways, overland flow paths, wetlands, springs, groundwater dependant ecosystems and hydrologically sensitive plant communities are improved.</p> <p><i>Editor's note—Groundwater dependent ecosystems are identified on Queensland Government Wetland Info mapping.</i></p>	<p>surface water or groundwater hydrologic regimes by:</p> <ol style="list-style-type: none"> avoiding and minimising channelisation, redirection or interruption of water flows; avoiding water extraction; improving groundwater recharge and discharge processes; allowing natural water fluctuations; avoiding contaminants entering water (e.g. from runoff, effluent disposal).
<p>Storage and disposal of hazardous chemicals and environmentally hazardous materials</p>	
<p>PO10 Hazardous chemicals, wastes and other potential contaminants are managed, stored and disposed of in a manner that does not harm the quality of any surface water or groundwater.</p>	<p>AO10.1 The total amount of hazardous chemicals and other potential contaminants stored and handled on-site is less than 200L or 200kg.</p> <p>AO10.2 Storage of hazardous chemicals and other potential contaminants (other than petroleum products) in aggregate quantities more than 1,000L or 1,000kg is not undertaken unless a site-specific risk assessment shows that the risk to drinking water quality is minimal.</p> <p>AO10.3 Hazardous chemicals and other potential contaminants are located and stored:</p> <ol style="list-style-type: none"> in containers; on land outside the defined flood level; undercover in a building or similar structure within an impervious bunded compound that has: <ol style="list-style-type: none"> a net capacity to contain spills 1.5 times the bunded containers or aggregate quantity of containers when operated as a single unit; enough area to hold the containers and their contents in the event that the containers collapse; to prevent the lateral movement of packages or containers during a natural hazard event; consistent with AS.1940 The Storage and Handling of Flammable and Combustible Liquids. <p>AO10.4 The storage and handling of hazardous chemicals and other potential contaminants does not occur within:</p> <ol style="list-style-type: none"> any area identified in the OM12A Waterways and water resource catchment — Ecosystems overlay; 800m of a bulk water supply storage buffer on OM12B Waterways and water resource catchment - Water resource catchment overlay; 800m of a drinking water bore on OM9A Infrastructure overlay map - Energy and water supply.

Table 8.12-3: Separation distance to waterways and other locational measures

USE	DISTANCE FROM WATERWAY STREAM ORDER 1 TO 2	DISTANCE FROM WATERWAY STREAM ORDER 3 OR MORE	WATER SUPPLY STORAGE AREA OR DRINKING WATER BORE OR SPRING
Aquaculture	Case by case	Case by case	Case by case
Intensive animal industry; Service Station	50m	100m	800m
Crematorium; High impact industry; Low impact industry; Medium impact industry; Special industry; Transport depot;	100m	100m	800m

Utility installation for: <ul style="list-style-type: none"> • sewage treatment plant; • waste management facilities; Warehouse.			
Agricultural supplies store; Animal keeping; Animal husbandry; Bulk landscape supplies; Cropping (including forestry); Extractive industry; Intensive horticulture; Low impact industry; Major sport, recreation and entertainment facility; Motor sport facility; Outdoor sport and recreation; Rural industry; Wholesale nursery; Winery; All other development not listed above.	50m	100m	400m

8.13 High risk soils — information overlay

8.13.1 Application

1. This overlay contains no code and is for administrative purposes. References to this overlay can be found in the following sections:
 - a. Part 3 Strategic Framework;
 - b. Part 4.4 Desired standards of service;
 - c. Part 5.10 Categories of development and assessment — Overlays;
 - d. Part 8.3 Biodiversity overlay code;
 - e. Part 8.11 Steep land overlay code;
 - f. Part 8.12 Waterways and water resource catchment overlay code;
 - g. Part 9.3.3 Dwelling house code;
 - h. Part 9.3.13 Rural uses code;
 - i. Part 9.4.3 Earthworks, filling and excavation code;
 - j. Part 9.4.4 Environment and amenity code;
 - k. Part 9.4.7 Stormwater management code.

Note—High-risk soils means an area with:

- a. *erosive soils — soils that are more susceptible to erosion due to their physical structure or chemistry;*
- b. *dispersive soils — soils that are structurally unstable and readily disperse into their constituent particles (e.g. clay, silt and sand) in water. Flocculants and coagulants may be required to interfere with this process to allow suspended sediment to settle out of the water column, for example in a sediment basin;*
- c. *sodic soils — soils with a high percentage of sodium ions (in soluble or exchangeable form), exhibiting degradation such as dispersion when wet and crusting when dry;*
- d. *saline soils — soils containing enough concentrations of soluble salts within the soil profile to result in reduced plant productivity or damage to infrastructure such as roads and building footings;*
- e. *acid sulfate soils (ASS) — soils that include both actual and potential ASS. Soil or sediment containing highly acidic soil horizons (or layers) affected by the oxidation of iron sulphides is known as actual ASS. Soil or sediment containing iron sulphides or other sulphide material that has not been exposed to air and oxidised is known as potential acid sulfate soils (PASS).*

8.15 Road hierarchy — information overlay

8.15.1 Application

1. This overlay contains no code and is for administrative purposes. References to this overlay can be found in the following section:
 - a. Part 3 Strategic Framework;
 - b. Part 5 Tables of Assessment;
 - c. Relevant sections of Part 6 Zones;
 - d. Relevant sections of Part 9 Development codes.

8.14 Transport noise corridor — information overlay

8.14.1 Application

1. This overlay contains no code and is for administrative purposes. References to this overlay can be found in the following section:
 - a. 1.6 Building work regulated under the planning scheme; and
 - b. Relevant sections of Part 9 Development codes.

Editor's note—OM14 Transport noise corridor overlay the transport noise corridors designated under section 246X of the Building Act and referred to in Queensland Development Code MP4.4 — Building is a transport noise corridor applies to building work in the designated locations.

Part 9 Development codes

9.1 Preliminary

1. Development codes are codes for assessment where identified as an assessment benchmark in Part 5 Tables of assessment.
2. The following are the Use codes for the planning scheme:
 - a. Commercial activities code
 - b. Community and recreation activities code
 - c. Dwelling house code
 - d. Extractive industry code
 - e. Home-based business code
 - f. Industry activities code
 - g. Market code
 - h. Medium density residential uses code
 - i. Outstation code
 - j. Renewable energy facility code
 - k. Retirement and Residential care facility code
 - l. Roadside stall code
 - m. Sales office code
 - n. Rural uses code
 - o. Service station and Car wash code
 - p. Telecommunications facility code
 - q. Tourism uses code
 - r. Worker accommodation code
3. The following are the Works codes for the planning scheme:
 - a. Advertising devices code
 - b. Building design code
 - c. Earthworks, filling and excavation code
 - d. Environment and amenity code
 - e. Infrastructure and services code
 - f. Landscaping code
 - g. Stormwater management code
 - h. Transport, access and parking code
4. The following are the Other development codes for the planning scheme:
 - a. Reconfiguring a lot code.

9.2 Development that cannot be made assessable in accordance with schedule 6 of the *Planning Regulation*

1. The planning scheme does not include requirements or assessment benchmarks for development prescribed by the *Planning Regulation*. Please check the relevant schedule of the *Planning Regulation* for this information.

9.3 Use codes

9.3.1 Commercial activities code

9.3.1.1 Application

1. This code applies to development for which the Commercial activities code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Adult store;
 - b. Agricultural supplies store;
 - c. Bar;
 - d. Car wash;
 - e. Food and drink outlet;
 - f. Function facility;
 - g. Funeral parlour;
 - h. Garden centre;
 - i. Hardware and trade supplies;
 - j. Health care service;
 - k. Hotel;
 - l. Nightclub entertainment facility;
 - m. Office;
 - n. Outdoor sales;
 - o. Parking station;
 - p. Shop;
 - q. Shopping centre;
 - r. Showroom;
 - s. Theatre;
 - t. Veterinary service.

9.3.1.2 Purpose

1. The purpose of the code is to ensure Commercial activities meet the needs of the local community, visitors and the travelling public by supplying safe, convenient, comfortable, attractive and accessible services.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Commercial activities are well designed and contribute to the local character and desired amenity of the zone.
 - b. Effects on the amenity of surrounding land uses, particularly residential uses, are minimised.
 - c. Commercial activities are accessible to a wide range of transport modes and the use of a range of transport options is encouraged.
 - d. Commercial activities are consistent with and reinforce the centre hierarchy.
 - e. Commercial activities are designed and positioned in a manner that responds to the zone and locality in which they are located, streetscape characteristics and surrounding land uses.
 - f. Commercial activities contribute to the economic vibrancy of the centre in which they are located.
 - g. Site layout, building design and landscape treatments provide safe and efficient conduct of business activities, vehicle access and manoeuvrability.
 - h. Building design is of a human scale.
 - i. Development integrates with natural landforms and landscape features and protects heritage values.
 - j. Commercial activities are in a zone and on a site suitable for the use with adequate supporting infrastructure, services, transport and road network connectivity.
 - k. Commercial activities manage potential adverse effects such as noise, lighting and hours of operations on surrounding residential land uses and consider the cumulative impact of multiple entertainment activities in the location.
 - l. Commercial activities are of a type, scale and intensity suitable to its location, surrounding development and character.
 - m. Commercial activities are located and designed to provide a safe and secure environment for patrons and employees.

9.3.1.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of

the below table/s.

Table 9.3.1-1: Commercial activities code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Shop or Food and drink outlet within a Residential zone or Township zone	
<p>PO1 A Shop or Food and drink outlet within a residential zone is consistent with the design, scale, amenity and character of the neighbourhood.</p>	<p>*AO1.1 A Shop or Food and drink outlet is located on a site more than 400m radial distance from a centre zone.</p> <p>*AO1.2 A Shop or Food and drink outlet:</p> <ul style="list-style-type: none"> a. has a GFA less than: <ul style="list-style-type: none"> i. 200m² if in the Township zone; ii. 100m² elsewhere. b. is located: <ul style="list-style-type: none"> i. on a collector street or higher order road; or ii. on a site adjoining an existing community or commercial activity. <p>*AO1.3 The Shop or Food and drink outlet maintains the on-site landscaping and carparking associated with the previous use.</p>

Table 9.3.1-2: Commercial activities code — Additional assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Land use	
<p>PO2 Commercial activities:</p> <ul style="list-style-type: none"> a. protect and maintain the viability and vitality of a nearby centre; b. are consistent with the scale and intensity of the zone; c. have access to all necessary infrastructure and services suited for the use; d. are conveniently located and accessible to the population catchment they service; e. protects and maintains the centre hierarchy. <p><i>Note—Compliance with the Performance Outcome may be demonstrated by providing an Economic impact assessment.</i></p>	<p>AO2.1 Commercial activities are located within a centre zone, a Mixed use zone, Township zone or Industry zone.</p>
Site characteristics	
<p>PO3 Development is located on a site that has enough area and width to:</p> <ul style="list-style-type: none"> a. accommodate the scale and form of buildings; b. manage vehicle access, manoeuvring, servicing and parking on site; c. provide enough space for transitions, setbacks or buffers to sensitive land uses or land in a residential zone; d. accommodate on-site wastewater treatment system, where applicable; e. remain compatible with and located to avoid conflict with adjacent uses. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site plan prepared by a suitably qualified person.</i></p>	<p>No acceptable outcome is nominated.</p>
Building design	
<p>PO4 Buildings are visually interesting and contribute to the streetscape, local identity and sense of place.</p>	<p>AO4.1 Buildings include:</p> <ul style="list-style-type: none"> a. balconies and recesses;

	<ul style="list-style-type: none"> b. variation in materials, colours and/or textures; c. recessions and projections in the roof and wall plane; or d. variations in the building form.
Retail uses	
<p>PO5 Active uses are located to encourage pedestrian movement and interaction.</p> <p><i>Note—An example of active uses include a Bar, Food and drink outlet, Office, Sales office and Shop.</i></p>	AO5.1 Retail activities are at ground level on the street frontage to provide for a continuous active street frontage.
<p>PO6 Ground floor spaces are designed to allow flexible reuse of the tenancies to support a range of changing community and commercial activities.</p>	AO6.1 The floor to floor height of the ground floor is 4.2m to provide flexibility to accommodate changing uses over time.
<p>PO7 Large format retail uses are positioned behind smaller scale uses or tenancies that provide a shopfront presentation to the street.</p>	No acceptable outcome is nominated.
Outdoor areas and dining	
<p>PO8 Outdoor areas including balconies, rooftops or any other outdoor areas used for entertainment activities are located, designed and operated to avoid causing nuisance to adjacent uses.</p>	AO8.1 Outdoor and roof top areas used for dining or bar activities are located away from residential land uses and are oriented towards the street.
<p>PO9 Outdoor dining areas are designed and located so that:</p> <ul style="list-style-type: none"> a. adverse impacts on the amenity of sensitive land uses are avoided or mitigated; b. structures are in keeping with the existing character of the zone, including the architecture of the associated building; c. outdoor dining adds to the landscaped streetscape without increasing perceived building bulk; d. adequate air movement is available. 	<p>*AO9.1 Outdoor dining areas:</p> <ul style="list-style-type: none"> a. are positioned along the primary road front; or b. are acoustically attenuated; c. have screen landscaping, where not located on the primary road front and there are surrounding sensitive land uses. <p>*AO9.2 Roof structures over footpaths and outdoor dining areas have a minimum clearance height of 2.4m.</p> <p>*AO9.3 Outdoor dining areas have a non-slip surface which is water resistant.</p> <p>AO9.4 Outdoor dining areas include soft landscaping integrated with the outdoor dining environment to create an ambient atmosphere for diners.</p> <p>*AO9.5 Temporary structures, e.g. walls, dividers, are stored when not in use.</p>
Public facilities	
<p>PO10 Public toilets are designed and constructed to:</p> <ul style="list-style-type: none"> a. ensure the safety of all people using them; b. take advantage of informal surveillance from adjoining uses and activities; c. discourage nonlegitimate uses. 	<p>AO10.1 Publicly accessible toilets are located near places or pathways with high foot traffic.</p> <p>AO10.2 Entrances to public toilets are visible from the street, footpath and other activity areas on the site.</p> <p>AO10.3 Features that may legitimise loitering, such as seating or public telephones, are not located within 15m of toilet entrances.</p>
Access, parking and movement	
<p>PO11 Off-street parking areas are located and treated to minimise their visual impact from the street.</p>	AO11.1 Off-street parking areas are located beside, behind or within the building.
Amenity	
<p>PO12 Live music creates entertainment for patrons and vitality within the streetscape and is positioned to avoid adverse impacts on surrounding residential land uses.</p>	AO12.1 Live music is contained inside an acoustically treated building.

	AO12.2 Amplified live music outdoors ceases to operate by 7:00pm.
PO13 Development does not result in adverse impacts on residential uses from noise or light.	*AO13.1 A 2m high solid acoustic screen fence is provided along the common boundary with a residential use or land in a residential zone.
PO14 Service and loading areas are visually screened from public areas.	AO14.1 Service and loading areas are: a. located underground; or b. behind the use.
PO15 Development maintains the privacy and amenity of surrounding residential uses and their enjoyment of indoor and outdoor living areas.	AO15.1 Where commercial activities border an existing or approved residential use, privacy and amenity is maintained by: a. positioning and orientating buildings to minimise the potential of overlooking occurring; b. having windows and outdoor areas, (including balconies and veranda) located and designed to prevent looking into dwellings; and c. incorporating screening over building openings
Development involving demolition	
PO16 A temporarily vacant development site maintains the safety and visual amenity of the site from the time of demolition until construction of an approved use.	AO16.1 Where development involves the demolition of a building and redevelopment of the site will not begin within 3 months of demolition, the site: a. maintains public amenity of the location; b. is cleared of all rubble, debris and demolition materials; c. is fenced where there is a change in the ground level from street level more than 1m in height; d. is provided with drainage to prevent ponding; e. maintains an effectively stabilised surface, so no sediment release and water contamination occur.
Adult stores	
PO17 Adult stores are appropriately located and designed.	AO17.1 The distance between the boundary of the land occupied by a non-residential sensitive land use and the entrance of a proposed Adult store is: a. more than 200m according to the shortest route a person may take, by vehicle or on foot; b. more than 100m measured in a straight line. AO17.2 The display window of an Adult store is completely screened to prohibit viewing into the interior of the development where goods are displayed. AO17.3 Signage associated with an Adult store that is visible from the street is not sexually suggestive or offensive.
Garden centre and Outdoor sales	
PO18 Development that includes the outdoor display of products for hire or sale provides a high quality streetscape appearance and boundary landscaping to soften the visual appearance	No acceptable outcome is nominated
PO19 Dust from the outdoor storage of materials does not extend beyond the boundary of the site.	No acceptable outcome is nominated
Nightclub entertainment facilities	
PO20 Nightclub entertainment facilities avoid significant noise and disturbance on the amenity of adjacent Residential activities and sensitive land uses.	AO20.1 Nightclub entertainment facilities locate in the Principal centre zone. AO20.2 Nightclub entertainment facilities operate inside an acoustically treated building and do not include the use of outdoor areas for entertainment uses.

Parking station	
<p>PO21 The Parking station is designed to be safe, convenient and accessible to users and not impact on the function of the surrounding road network.</p> <p><i>Note—Development is to be connected to the Council's drainage network in accordance with section 77 of the Local Government Act. It is an offence under section 80 of Local Government Act to restrict or redirect stormwater.</i></p>	<p>AO21.1 The Parking station has one access point for each street frontage.</p> <p>AO21.2 All access, manoeuvring and parking areas in open air Parking stations are sealed and provided with stormwater installations that are directed to the stormwater drainage network.</p> <p>AO21.3 Parking stations which are used by the public during the evening are provided with night lighting.</p> <p>AO21.4 Facilities for ticket collection are sited inside the Parking station to allow vehicles to queue off street.</p> <p>AO21.5 Parking stations do not incorporate tandem or stacked parking.</p>
Service industry	
<p>PO22 Service industries are small in scale and provide a convenience function so that adverse effects do not extend beyond the boundary of the tenancy.</p>	<p>No acceptable outcome is nominated</p>
Veterinary services	
<p>PO23 Veterinary services are designed and operated in a manner which ensures that the visual and acoustic amenity of sensitive land uses are protected and maintained.</p>	<p>AO23.1 Where Veterinary services border a sensitive land use, animal holding areas are insulated or buffered from adjacent sensitive land uses to reduce noise levels.</p> <p>AO23.2 Domestic animals (e.g. not livestock) are treated inside an acoustically treated building.</p>

9.3.2 Community and recreation activities code

9.3.2.1 Application

1. This code applies to development for which the Community and recreation activities code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Childcare centre;
 - b. Club;
 - c. Community care centre;
 - d. Community use;
 - e. Educational establishment;
 - f. Emergency services;
 - g. Environment facility;
 - h. Hospital;
 - i. Indoor sport and recreation;
 - j. Major sport, recreation and entertainment facility;
 - k. Outdoor sport and recreation;
 - l. Place of worship.

9.3.2.2 Purpose

1. The purpose of the code is to ensure community activities are located, designed and operated to meet the needs of users and maintain the amenity of the zone.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Community and recreation activities provide a range of facilities that are accessible to a wide range of users and meet the needs of the community.
 - b. Community and recreation activities operate safely and efficiently, are visually attractive and improve community identity and character.
 - c. Community and recreation activities are designed to be of a scale and intensity in response to the zone, character of surrounding development and streetscape.
 - d. Community and recreation activities are established close to the population catchment to best serve the community.
 - e. Community and recreation activities are designed to protect:
 - i. the open space, character of the environment and prevent intrusion of development into recreation areas;
 - ii. the amenity of adjoining sensitive land uses.
 - f. Community and recreation activities border or link to active transport networks to maximise accessibility and convenience.
 - g. Community activities are located on a suitable site with adequate supporting infrastructure, services, transport and road network connectivity.
 - h. Community and recreation activities are integrated and co-located with other community, recreation or business activities.

9.3.2.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Table 9.3.2-1: Community activities code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Community activities in a Centre zone, Mixed use zone or Township zone	
PO1 Development that involves a change of use within an existing building: <ol style="list-style-type: none"> a. expands the GFA a minor amount; b. is consistent with the design, scale, amenity and character of the zone. 	*AO1.1 A Community use in a Centre zone, Mixed use zone or Township zone involves no building work, or Minor building work only. *AO1.2 The Community use maintains the on-site landscaping and carparking associated with the previous

	use.
Site characteristics	
PO2 The use is: a. co-located with other community or recreational activity focal points, such as active transport routes, public transport stops or public open space; and b. compatible with and located to avoid conflict with adjacent uses.	No acceptable outcome is nominated.
Building design	
PO3 Building design responds to the public domain by incorporating design treatments that reduce the bulk of the building, provides an attractive street frontage, and screens unattractive service and storage areas.	AO3.1 External walls avoid broad expanses of featureless walls by including: a. horizontal and vertical variation; b. solid and void elements; c. shadow details; d. openings; e. a mix of building materials; f. colour variation.
Public facilities	
PO4 Public toilets are designed and constructed to: a. ensure the safety of all people using them; b. take advantage of informal surveillance from adjoining uses and activities; c. discourage nonlegitimate uses.	*AO4.1 Publicly accessible toilets are located near spaces or pathways with high foot traffic. *AO4.2 Entrances to public toilets are visible from the street, footpath and other activity areas on the site. *AO4.3 Features that may legitimise loitering, such as seating or public telephones are not located within 15m of toilet entrances.
Access, parking and movement	
PO5 Parking and vehicular movements within the site protect and allows for the safe pedestrian movement of children.	AO5.1 Car parks, set-down areas, vehicle access-ways and crossovers are separated from areas used by children with vehicle impact resistant fencing or bollards are provided to reduce the risk from vehicle collisions. AO5.2 Internal bus set-down and pick-up areas allow buses to move in a forward direction while on-site.
Amenity	
PO6 Everyday operation, vehicular movements or outdoor activities of Community uses protect and maintains residential amenity and amenity of sensitive land uses.	*AO6.1 The use is not located on an access street, or within a cul-de-sac. *AO6.2 Outdoor activities and congregational areas are located and orientated away from residential uses on surrounding lots. *AO6.3 Visual, noise and odour effects on public spaces and residential uses are avoided, or reduced by: a. enclosing refuse storage or collection facilities within service yards or courtyards; b. not locating site service facilities and areas along any road frontage or other public space.
PO7 Development does not result in adverse impacts on residential uses from noise.	*AO7.1 A 2m high solid acoustic screen fence is provided along the common boundary with a residential use or land in a residential zone.
PO8 Recreation activities, including buildings, structures, ancillary uses and car parking areas are positioned and designed to ensure the safe and efficient access and operation of the activity for users.	No acceptable outcome is nominated.

Childcare centre	
PO9 The site area of a Childcare centre allows for: a. the required buildings and structures; b. access, parking and manoeuvring; c. on-site landscaping; d. screening; e. acoustic attenuation measures.	AO9.1 A Childcare centre is located on a site having: a. a minimum net developable area of 2,000m ² ; b. a regular shape; c. a slope of less than 10%.
PO10 Outdoor activity and play areas are located and designed to maximise safety of children.	AO10.1 Outdoor activity or play areas use childproof fencing that ensures children cannot go through, over or under the fence. AO10.2 Shade is provided over outdoor activity and play areas by buildings or structures and landscaping. AO10.3 Outdoor activity and play areas are separated from roads, car parks, driveways, overland flow paths, waterways and waterbodies.
PO11 The scale of buildings and structures associated with the Childcare centre is consistent with the location, the zone and scale of surrounding development.	AO11.1 Unless located in a centre zone the buildings of the Childcare centre cover less than 50% of the net developable area.
PO12 The Childcare centre is located to minimise vehicle trips and encourage walking to drop off and pick up children.	AO12.1 Childcare centres are located no more than 200m from a: a. a centre zone or Mixed use zone; or b. a Shopping centre; or c. a library; or d. an active park; or e. an Educational establishment; or f. a sport field.
PO13 Childcare centres are separated from the Industry zone and industrial uses to minimise users' exposure to harmful air pollutants or any safety and health hazards.	AO13.1 Buildings and outdoor play areas are located more than 100m from any Major electricity infrastructure corridor or easement and 50m from any electricity Substation. AO13.2 Childcare centres are located a minimum of: a. 250m from Low and Medium impact industries; b. 500m from High impact industries; c. 1km from Special industries.
Health care service	
PO14 Site design and layout ensures there is sufficient access and egress for emergency vehicles.	No acceptable outcome is nominated.
Sport, recreation and entertainment uses	
PO15 Outdoor recreation uses protect the amenity enjoyed by users of surrounding residential uses.	*AO15.1 Outdoor recreational facilities including swimming pools, spas, courts and half courts are: a. setback at least 15m from the boundary of a residential zone; b. screened by a 5m wide screen landscaping; or c. positioned within a site so that buildings are arranged around the recreation facility; d. not used between the hours of 9:30pm and 6:30am the following day. *AO15.2 Outdoor recreational facilities including swimming pools, spas, courts and half courts that are lit at night ensure the light from the use does not exceed 8 lux when measured at any point 1.5m outside the boundary.
PO16 Walking and riding trails are designed and constructed to provide safe, comfortable and convenient links to existing public roads, walking and riding trails.	*AO16.1 Walking and riding trails are consistent with: a. AS.2156 Walking tracks; or b. Horse Trail Riding Good Practice Guide (if relevant); and c. Council's fire trail construction requirements in Planning

	Scheme Policy 2 Bushfire management plans, where in a designated bushfire prone area.
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9.3.3 Dwelling house code

9.3.3.1 Application

1. This code applies to development for which the Dwelling house code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Dwelling house;
 - b. Community residence inconsistent with schedule 6, part 2, section 6 of the *Planning Regulation*.

Editor’s note—Under schedule 24 of the *Planning Regulation*, a Dwelling house includes any domestic outbuildings associated with a dwelling and any Secondary dwelling and outbuildings associated with either dwelling.

9.3.3.2 Purpose

1. The purpose of the code is to ensure development for a Dwelling house:
 - a. maintains amenity and privacy for occupants and neighbours;
 - b. is compatible with the residential character and existing aesthetic of the streetscape.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development is sited to avoid native vegetation and limits vegetation clearing.
 - b. Development is sited and designed to protect residential amenity and privacy of adjacent residences.
 - c. Development is designed and sited to maintain or improve the existing streetscape and support residential character or aesthetic.
 - d. Development is provided with a level of infrastructure and services expected for the location.
 - e. Where not in a sewerage area, on-site domestic wastewater treatment systems are designed and sited to avoid adverse effects on the environment.
 - f. Driveways and crossovers provide safe and efficient vehicle access to minimise adverse effects on existing infrastructure and ensure safety for all users of the footpath.
 - g. Development provides access to water supply for domestic and firefighting purposes.
 - h. Secondary dwellings are small scale, subservient to the primary dwelling, retain a nexus with the primary dwelling and provide housing choice and amenity for the occupants. Community residences are of a domestic scale and protect the residential amenity of neighbours.
 - i. Secondary dwelling is located close to the primary dwelling.
 - j. Community residences are of a domestic scale and protect the residential amenity of neighbours.

Editor’s note—The *Environmental Protection Act* regulates the depositing of sediment and other water contaminants in the stormwater systems. Methods to prevent sediment washing or moving into roadways, stormwater pipes and waterways from building sites, can be found in the *Water by Design* program for *Erosion and Sediment Control for Dwelling houses*. Fines and legal action may occur if controlling stormwater pollution from building sites does not occur.

9.3.3.3 Assessment Benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Editor’s note—Where there is non-compliance with any of the acceptable outcomes, an application for Code assessable Building work will trigger referral to Council as a concurrence agency.

Table 9.3.3-1: Dwelling house code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Vegetation clearing	
<p>PO1 Development avoids and protects the environmental values and matters of environmental significance.</p> <p><i>Note</i>—Matters of environmental significance are defined in SC1.2 Administrative terms and include but not limited to areas mapped on:</p> <p>a. OM3A Biodiversity overlay — Ecological areas overlay; or</p>	<p>*AO1.1 Clearing of vegetation identified as a matter of environmental significance occurs only if:</p> <p>a. the vegetation is identified as MLES only;</p> <p>b. the amount cleared is no more than 3,000m² only and in one location.</p> <p><i>Note</i>—Siting of a Dwelling house is to be located in existing cleared areas first. Where there are partially cleared areas on a lot a</p>

<p>b. OM3B Biodiversity overlay — Wildlife habitat overlay; or c. OM3C Biodiversity overlay — Waterways and wetland habitat overlay.</p> <p>Editor's note—Further approvals from the State and Federal governments may be required where development affects:</p> <p>a. Protected plants and animals including koalas under the Nature Conservation Act; or b. Native vegetation regulated under the State vegetation management framework including the Vegetation Management Act; or c. a MNES under the Environment Protection and Biodiversity Conservation Act (Cth) (e.g. koalas and flying foxes).</p>	<p>maximum 3,000m² may be created by combining cleared areas into a single location. For example, if an existing Dwelling house is located within a cleared area of 2,000m², this same site can be expanded by up to an additional 1,000m² (3,000m² in total in an individual location). The additional 1,000m² cannot be located away from the existing cleared area. Where there are no existing cleared areas suitable to site a Dwelling house the provision for clearing for a maximum 3,000m² is accepted.</p>								
<p>Building height</p>									
<p>PO2 The height of buildings is: a. consistent with the residential character and aesthetic; b. protects residential amenity of the streetscape.</p>	<p>*AO2.1 Building height is 8.5m or less, regardless of slope.</p> <p><i>Note—For domestic outbuildings, the Queensland Development Code requirements apply for building height.</i></p>								
<p>Building setbacks</p>									
<p>PO3 Setbacks: a. provide access to backyards; b. provide a sustainable building design that includes access to views, breezes and sunshine; c. ensure there is privacy between adjacent residential dwellings; d. minimise overshadowing of adjacent houses and their solar systems.</p>	<p>*AO3.1 Building setback are consistent with the below table:</p> <table border="1"> <thead> <tr> <th>Zone</th> <th>Setback</th> </tr> </thead> <tbody> <tr> <td>All urban zones and Rural residential zone</td> <td>As required under the Queensland Development Code.</td> </tr> <tr> <td>Rural zone</td> <td>10m from all boundaries.</td> </tr> <tr> <td>All other Zones</td> <td>6m from all boundaries.</td> </tr> </tbody> </table> <p><i>Editor's note—This acceptable outcome provides alternative provisions to the Queensland Development Code under section 33 of the Building Act.</i></p> <p><i>Note—For domestic outbuildings, the Queensland Development Code requirements apply for setbacks.</i></p>	Zone	Setback	All urban zones and Rural residential zone	As required under the Queensland Development Code.	Rural zone	10m from all boundaries.	All other Zones	6m from all boundaries.
Zone	Setback								
All urban zones and Rural residential zone	As required under the Queensland Development Code.								
Rural zone	10m from all boundaries.								
All other Zones	6m from all boundaries.								
<p>Appearance</p>									
<p>PO4 Dwelling houses and domestic outbuildings maintain residential amenity and do not have an industrial aesthetic when viewed from the street.</p>	<p>*AO4.1 Shipping containers, sheds and industrial buildings used as Dwelling houses and domestic outbuildings are modified to have a residential appearance.</p>								
<p>Infrastructure and services</p>									
<p>PO5 The Dwelling house is provided with a level of infrastructure and services consistent with its location and meets the needs of its occupants.</p>	<p>*AO5.1 Where network service infrastructure is available, a Dwelling house is connected to: a. the stormwater drainage network or another lawful point of discharge; b. a pressurised reticulated water and sewer networks.</p> <p>*AO5.2 Where the network service infrastructure is unavailable a Dwelling house is connected to: a. a minimum water supply dedicated for domestic supply of 45,000 litres with a minimum 10,000 litre reserve for firefighting purposes; b. an on-site domestic wastewater treatment system that is consistent with the Queensland Plumbing and Wastewater Code.</p>								
<p>Access and car parking</p>									
<p>PO6 Vehicular access and on-site car parking is safe, convenient, attractive and accessible.</p>	<p>*AO6.1 The lot on which the Dwelling house is located has direct access to a constructed road, which is connected to the constructed road network.</p>								

	<p>*AO6.2 The Dwelling house has only 1 driveway and crossover.</p> <p><i>Editor's note—An Operational work application is required for a second vehicle crossover and driveway.</i></p>
<p>PO7 Car parking is provided to accommodate the number of vehicles likely to use the site, given:</p> <ol style="list-style-type: none"> the needs of residents and visitors; the existing lack of public transport; the need to minimise on street car parking; and the need to modify the streetscape. 	<p>*AO7.1 Car parking space is provided as follows:</p> <ol style="list-style-type: none"> Dwelling house without secondary dwelling — 2 spaces; Dwelling house with secondary dwelling — 3 spaces; Community residence — as required by the <i>Planning Regulation</i>. <p><i>Note—Vehicle parking may be provided as a tandem car parking space, where the tandem space is within the lot boundaries.</i></p>
Protection of infrastructure	
<p>PO8 Driveways and vehicle crossovers are located to protect existing public infrastructure from damage including street trees.</p>	<p>*AO8.1 Driveways and vehicle crossovers are located a minimum of 1m from:</p> <ol style="list-style-type: none"> street trees; stormwater installation outlet or stormwater gully inlet; electricity pole or pillar box. <p><i>Editor's note—An Operational work application is required for a vehicle crossover and driveway within 1m of existing street trees and stormwater drains.</i></p>
Earthworks and drainage	
<p>PO9 Earthworks and drainage works protect and improve the site and surrounding sites:</p> <ol style="list-style-type: none"> from ponding of water; from increased flooding from upstream or downstream flows; from any changes in the flows of water including any water in an overland flow path. <p><i>Editor's note—Development should ensure that filling does not affect the amenity and usability of adjacent premises (including loss of privacy caused by level changes) or off-site drainage.</i></p>	<p>*AO9.1 Filling other than for vehicle access and driveways does not cause an adverse effect, or an actionable nuisance from flooding or stormwater on adjacent premises.</p> <p><i>Note—Development is to be connected to the Council's drainage network in accordance with section 77 of the Local Government Act. It is an offence under the section 80 of Local Government Act, to restrict or redirect stormwater.</i></p>
Requirements for a secondary dwelling	
<p>PO10 A secondary dwelling:</p> <ol style="list-style-type: none"> is subservient in bulk and scale to the primary dwelling on the same lot so that it has the appearance of either a single residence on the lot or a single residence with an ancillary building on a residential lot; retains a functional nexus with the primary dwelling. 	<p>*AO10.1 A secondary dwelling within the Rural zone or Rural residential zone is located within 20m of the primary dwelling.</p> <p>*AO10.2 A secondary dwelling has a maximum GFA of:</p> <ol style="list-style-type: none"> in a residential zone or the Township zone — 70m²; elsewhere — 100m². <p>*AO10.3 A secondary dwelling has no more than 2 bedrooms.</p> <p>*AO10.4 A secondary dwelling shares private open space with the primary dwelling.</p> <p>*AO10.5 A secondary dwelling uses the same driveway and vehicle crossover as the primary dwelling.</p> <p>*AO10.6 A secondary dwelling shares all service connections with the primary dwelling.</p>

9.3.4 Extractive industry code

9.3.4.1 Application

1. This code applies to development for which the Extractive industry code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.3.4.2 Purpose

1. The purpose of the Extractive industry code is to facilitate Extractive industry development while minimising and mitigating impacts on rural scenic values, important agricultural areas, amenity and environmental values and to ensure a suitable standard of infrastructure networks.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. The establishment of Extractive industry operations is facilitated, provided that the environmental impacts of such operations are mitigated.
 - b. Effective separation distances are maintained between Extractive industry operations and sensitive land uses.
 - c. Extractive industries have minimal adverse on-site and off-site impacts, including on people and property, the environment and transport routes.
 - d. The development of the site achieves an acceptable standard of visual amenity, having regard to the characteristics of the site, the surrounding area and the character of the zone.
 - e. Extractive industries are located, designed and managed to maintain the safety of people.
 - f. Haulage routes meet the needs of the Extractive industry without compromising the safety and efficiency of the transport route.
 - g. Stable landforms are maintained during site operations and site rehabilitation is undertaken following cessation of extraction operations to achieve suitable land use and landforms for any future uses.

9.3.4.3 Assessment benchmarks

Table 9.3.4-1: Extractive industry code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site characteristics	
PO1 Extractive industries are not located in areas likely to result in significant land use conflicts.	<p>AO1.1 Extractive industries are not located on land identified as ALC Class A & B soils, or Important agricultural areas, as mapped on OM1 Agricultural land overlay.</p> <p>AO1.2 Extractive industry operations are located the following minimum distances from land in a residential zone, the Emerging community zone, the Rural residential zone, the Township zone and a sensitive land use:</p> <ol style="list-style-type: none"> a. where involving blasting of hard rock resources and/or crushing of materials — 1,000m; b. for resources that do not require blasting or crushing — 200m. <p><i>Note—A Caretaker's residence associated with the Extractive industry is excluded from the above requirements where on the same site.</i></p>
Noise, dust and vibration	
PO2 Development avoids or mitigates visual noise, dust and vibration impacts by providing setbacks and landscaped buffers.	<p>AO2.1 Extractive industries (including areas used for buildings, operations, car parking and storage) are setback the following minimum distances:</p> <ol style="list-style-type: none"> a. 100m from a boundary with a constructed road; b. 50m from all other boundaries; c. 15m from electricity pylons, water supply pipelines and sewer pipelines; d. 150m from any bridge pier abutment.

	<p><i>Note—This outcome prevails over the minimum setbacks requirements in Table 9.4.4-2: Building scale and bulk requirements.</i></p> <p>AO2.2 Landscaped buffers are provided with the following minimum widths:</p> <ol style="list-style-type: none"> a. 50m along a boundary with a constructed road; b. 25m along all other boundaries.
<p>PO3 Development avoids or mitigates adverse impacts on the amenity of adjoining or adjacent sensitive land uses from:</p> <ol style="list-style-type: none"> a. air emissions; b. odour c. dust; d. noise; e. vibration; f. air blast overpressure. <p><i>Note—The Transport Noise Management Code of Practice: Volume 2 — Construction Noise and Vibration Code lists the matters to be addressed in a Noise and Vibration Management Plan to demonstrate the minimum acceptable vibration limits to human comfort and building damage.</i></p>	<p>AO3.1 Hours of operation are limited to:</p> <ol style="list-style-type: none"> a. blasting operations: <ol style="list-style-type: none"> i. 9.00am to 3.00pm Monday to Friday; ii. no operations on Saturday, Sunday or public holidays; b. other operations: <ol style="list-style-type: none"> i. 6.00am to 7.00pm Monday to Friday and 7.00am to 4.00pm Saturday; ii. no operations on Sunday or public holidays. <p>AO3.2 Development is consistent with the acoustic quality objectives for sensitive receptors set out in the <i>Environmental Protection (Noise) Policy</i>.</p> <p>AO3.3 Development is consistent with the air quality objectives set out in the <i>Environmental Protection (Air) Policy</i>.</p>
<p>PO4 Landforms on site are stable during extraction of resources and after rehabilitation.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Geotechnical report consistent with Planning Scheme Policy 5 Geotechnical assessment.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO5 Development must:</p> <ol style="list-style-type: none"> a. minimise and mitigate negatively affecting the natural environment including matters of environmental significance on-site and on adjacent lots; b. protect waterways from erosion and sedimentation; c. provides a fauna sensitive design that incorporates corridors and exclusion fencing to direct animals around dangerous areas. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an Environmental management plan prepared by a suitably qualified person.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO6 Design, operation and staging of the Extractive industry avoids adversely impacting matters of environmental significance, scenic amenity and landscape character. Where adverse impacts on these areas cannot be avoided, the development mitigates impacts on these areas.</p>	<p>AO6.1 Extractive industries are not located in:</p> <ol style="list-style-type: none"> a. matters of environmental significance on: <ol style="list-style-type: none"> i. OM3A Biodiversity Ecological areas overlay; ii. OM3B Biodiversity — Wildlife habitat overlay; iii. OM3C Biodiversity Waterways and Wetlands overlay; b. wetlands and waterways areas mapped on OM12A Waterways and water resource catchment — Ecosystems overlay.
<p>PO7 Extraction activities do not cause changes in the natural fluvial processes, waterway bank stability or erosion, or the storage capacity volume of a floodplain.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater management plan consistent with Planning Scheme Policy 9 Stormwater management.</i></p> <p><i>Editor's note—Referral to Seqwater for third party advice may be undertaken for this Performance Outcome.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO8 Development protects groundwater and surface water from environmental harm and nuisance through positioning,</p>	<p>AO8.1 Stormwater runoff is diverted from excavated areas to avoid erosion, sedimentation and contamination of ground</p>

<p>design and management of on-site activities by:</p> <ol style="list-style-type: none"> minimising ponding in excavated areas; preventing erosion and sedimentation of overland flow paths; rehabilitation of created waterbodies; preventing pollution of groundwater and surface water; maintaining the quality of downstream water; providing opportunities to recycle water for use in processing, washing and or screening of materials. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater management plan and a site specific ESCP. An ESCP is required where any ground disturbance may occur and is to be consistent with Planning Scheme Policy 9 Stormwater management and Planning Scheme Policy 6 Infrastructure design.</i></p>	<p>and surface water.</p> <p>AO8.2 Stormwater runoff from excavated or disturbed areas is detained and treated on-site before release, to prevent environmental harm and nuisance.</p> <p>AO8.3 Industrial or regulated wastes are stored on-site in a covered and bunded structure until collected for disposal by a regulated waste contractor.</p>
Site rehabilitation	
<p>PO9 Progressive rehabilitation of the site is to be carried out over the life of the extractive operations to:</p> <ol style="list-style-type: none"> restore the species, biodiversity values and ecological functioning of the site that existed before the development; ensure stable landforms during and following cessation of extractive operations; promote a natural appearance of the site or suitable alternative land use following cessation of extractive resource operations. <p><i>Note — Compliance with this Performance Outcome may be partially demonstrated by providing an Ecological Restoration Plan that is consistent with Planning Scheme Policy 1 Biodiversity.</i></p>	<p>AO9.1 A staged rehabilitation plan prepared by a suitably qualified person demonstrates how this Performance Outcome is achieved.</p> <p>AO9.2 Rehabilitation results in a standard of water quality that can support fish life and other aquatic invertebrates.</p> <p>AO9.3 Created waterbodies are planted with local wetland species.</p> <p>AO9.4 A legal instrument protects the rehabilitated areas.</p> <p>AO9.5 Rehabilitation works are bonded to the approved value. The bond is progressively returned as staged rehabilitation works are completed.</p>
Safety	
<p>PO10 Any blasting, crushing, screening and loading operations:</p> <ol style="list-style-type: none"> are carried out safely and consistent with best practice management standards; disturbance to surrounding land uses is minor; affects from emissions are minimised. 	<p>AO10.1 Public warning and information signs are erected on a boundary or perimeter security fence complying with workplace health and safety requirements.</p> <p>AO10.2 Blasting and other operations are consistent with best practice approaches to vibration, avoidance and management consistent with AS.2670.2 <i>Evaluation of human exposure to whole-body vibration, Continuous and shock-induced vibration in buildings (1 to 80Hz)</i>.</p> <p>AO10.3 Blasting does not result in stone, rock or other projectiles escaping from the site.</p>
<p>PO11 Public accessibility to potentially hazardous areas is restricted and a high standard of public safety is always maintained.</p>	<p>AO11.1 Office operations and employee parking is clustered near the entry of the site to minimise unauthorised entry and internal pedestrian movement.</p> <p>AO11.2 Security, fencing and signs are provided to prevent unauthorised people from gaining access to the operational part of the Extractive industry site.</p> <p>AO11.3 To prevent unauthorised access, fencing with a minimum height of 2m is erected and maintained at a safe distance around any excavated areas and around ponded water having a depth of 1m or more.</p>
Access, parking and movement	
<p>PO12 Extractive industry transport routes do not result in significant land use conflicts.</p>	<p>AO12.1 Transportation of extractive resources occurs only on the following types of roads:</p>

	<ul style="list-style-type: none"> a. transport routes mapped on OM15 Road hierarchy overlay; b. other Extractive industry transport routes identified by the Queensland government; c. State-controlled roads; or d. sealed roads of suitable capacity being more than 100m from a sensitive land uses or land in a residential zone. <p>AO12.2 Vehicles do not use residential or rural residential streets to transport extracted resources.</p>
<p>PO13 Transport infrastructure associated with the hauling of extractive materials is constructed, upgraded and maintained to a standard required for transport purposes.</p> <p><i>Note—Compliance with this Performance outcomes may be demonstrated by Transport impact assessment consistent with Planning Scheme Policy 10 Transport Assessment.</i></p>	<p>AO13.1 Transport routes are sealed and constructed to standards to carry B-doubles.</p> <p>AO13.2 Vehicles on public roads avoid spills and dust nuisance by covering loads.</p>
<p>PO14 Development provides on-site access, parking and vehicle manoeuvring that:</p> <ul style="list-style-type: none"> a. is adequate for the type and volume of traffic generated; b. does not create or worsen any significant traffic hazard; c. does not have significant adverse effects on the amenity of the zone; d. is clearly defined as the transportation route for the development. 	<p>AO14.1 Wheel cleaning equipment is used to prevent waste, stone and soil adhering to wheels and being deposited on roads.</p> <p>AO14.2 The first 20m of the driveway into the site is sealed.</p> <p>AO14.3 Signage is provided on the site to clearly define areas for parking.</p>

9.3.5 Home-based business code

9.3.5.1 Application

1. This code applies to development for which the Home-based business code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.3.5.2 Purpose

1. The purpose of Home-based business code is:
 - a. to encourage the development of small scale businesses which are ancillary to the primary residential use of the premises,
 - b. to ensure business activities are consistent with the amenity and character of the zone;
 - c. to ensure that the business has a scale and intensity that protects the viability of the planned commercial and industrial areas.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Home-based businesses are small in scale and consistent with the residential character of the zone.
 - b. Home-based businesses protect and maintain the privacy and amenity expected in residential areas.
 - c. Home-based businesses generate a level of traffic and on-site car parking that is expected for Dwelling houses within a residential area.
 - d. Home-based businesses are integrated visually and functionally into the neighbourhood.
 - e. A permanent resident of the Dwelling house operates the Home-based business.
 - f. Guest accommodation does not compromise the use of premises as a permanent residence or working farm (where a bed and breakfast or farm stay).
 - g. Guest accommodation is only provided to a limited number of guests on a temporary basis.

Editor's note—The use of a residential premises for storing vehicles that are for a business activity, (e.g. courier truck, tipping truck, prime mover) must be subordinate to the residential use of the premises.

9.3.5.3 Assessable benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Table 9.3.5-1: Home-based business code —Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Land use	
PO1 The Home-based business is: <ol style="list-style-type: none"> a. a small-scale activity; b. subservient to the primary use of the Dwelling house as a permanent residence. 	*AO1.1 The Home-based business is operated only by people who permanently reside in the Dwelling house. *AO1.2 Only 1 non-resident person is employed for the Home-based business. *AO1.3 Only 1 Home-based business is conducted on the premises. *AO1.4 The Home-based business is conducted within the Dwelling house or an associated domestic outbuilding and no new Building work is undertaken for the Home-based business. *AO1.5 Unless a bed and breakfast or home day care, the total use area for the business is less than: <ol style="list-style-type: none"> a. if on a lot less than 2ha—45m²; b. if on a lot of 2ha or more—100m².
Amenity and environmental values	

<p>PO2 The Home-based business:</p> <ul style="list-style-type: none"> a. maintains the residential amenity of the site; b. maintains the appearance of the dwelling and protects the streetscape; c. does not cause a nuisance because of noise, vibration, odour, dust or other air pollutants or light; d. does not involve signage that is visually obtrusive. 	<p>*AO2.1 Unless a bed and breakfast or home day care, customers of the business attend the site only between the hours of:</p> <ul style="list-style-type: none"> a. 7.00am and 7.00pm weekdays; b. 8.00am and 5.00pm on Saturday; c. not on Sunday or public holiday. <p>*AO2.2 Unless a bed and breakfast or home day care, the maximum number of customers on the site:</p> <ul style="list-style-type: none"> a. at any given time is 6; b. on any given day is 12. <p>*AO2.3 The Home-based business does not involve:</p> <ul style="list-style-type: none"> a. the retail sale of goods except where those goods are made on site or relate to a service being provided on site; b. the display of goods for sale visible from outside the dwelling or associated domestic outbuilding. <p>*AO2.4 Materials or equipment used for the business are stored within a building.</p> <p>*AO2.5 Signage is limited to 1 sign that:</p> <ul style="list-style-type: none"> a. includes only the name, occupation and contact details of the operator of the Home-based business; b. has a maximum sign face area of 0.5m²; c. is not illuminated or in motion. <p>*AO2.6 No noise, odour or dust associated with the Home-based business extends beyond the lot boundaries.</p> <p>*AO2.7 The Home-based business does not involve an industry activity unless a Service industry.</p> <p>*AO2.8 The total amount of hazardous chemicals and other potential contaminants stored and handled on-site is less than 200L or 200kg.</p>
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Access, parking and movement

<p>PO3 Vehicles associated with the business protect and maintain the amenity of the zone and do not cause nuisance to surrounding premises or street block.</p>	<p>*AO3.1 If in an urban area, all car parking and manoeuvring areas are sealed.</p> <p>*AO3.2 No more than 2 vehicles associated with the business are parked, garaged or stored on site at any one time.</p> <p>AO3.3 If the Home-based business is for the transporting of goods:</p> <ul style="list-style-type: none"> a. if in the Rural zone or Rural residential zone - 1 of the vehicles may be a heavy vehicle if on a lot of at least 1 ha; b. if in the Rural zone - the vehicles may be heavy vehicles if on a lot of at least 2 ha. <p>AO3.4 If the Home-based business is in an urban area, or not for the transporting of goods, no vehicle associated with the business is a heavy vehicle.</p> <p>*AO3.5 Loading and unloading of deliveries are undertaken within the site.</p> <p>*AO3.6 The Home-based business uses the same driveway and driveway crossover as the residential use.</p>
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Bed and breakfast accommodation

PO4 The bed and breakfast is:

- a. a small-scale activity;
- b. subservient to the primary use of the Dwelling house as a permanent residence;
- c. maintains the appearance of a single Dwelling house;
- d. provides temporary accommodation;
- e. protects and maintains the amenity or the streetscape and does not cause any noise or light nuisance.

Editor's note—A Bed and breakfast that involves the preparation of food for guests may be a licensable food business under the Food Act. A person is required to hold a licence under the Food Act to carry on a licensable food business.

***AO4.1** A maximum of 3 bedrooms are used for guest accommodation.

***AO4.2** A maximum of 6 guests are accommodated at any one time.

***AO4.3** Guest accommodation is provided within the Dwelling house and the visual appearance from the street is not changed to accommodate the use.

***AO4.4** Guests stay no longer than 14 consecutive days.

9.3.6 Industry activities code

9.3.6.1 Application

1. This code applies to development for which the Industry activities code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The following uses are subject to this code:
 - a. Bulk landscape supplies;
 - b. High impact industry;
 - c. Low impact industry;
 - d. Medium impact industry;
 - e. Research and technology industry;
 - f. Service industry;
 - g. Special industry;
 - h. Transport depot;
 - i. Warehouse.

Editor’s note—The State government is the assessment manager or referral agency for applications involving hazardous chemical facilities under schedule 10, part 7, division 2 of the Planning Regulation. Advice from the Office of Industrial Relations, Major Hazardous Facilities Unit should be sought before applying to Council.

9.3.6.2 Purpose

1. The purpose of the Industry activities code is to ensure that industrial uses are located on suitable sites that have regard to site characteristics and access and are consistent with the built form, character, amenity and environmental values of the zone.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Industry activities establish in suitable locations that have regard to surrounding existing and future land uses and access to the road network, infrastructure and services.
 - b. Industrial activities are consolidated within the Industry zone or are consistent with the zone outcomes.
 - c. Industrial activities are located with reciprocal or related industry activities.
 - d. Industrial development is designed to create visual interest and an attractive built form that is compatible with its location and setting.
 - e. Industrial development avoids and mitigates adverse impacts on community health, safety and amenity.
 - f. Industrial development avoids and mitigates adverse impacts on environmental values and ecological processes.
 - g. Industrial development does not have an adverse impact on the safety and efficiency of the road network.
 - h. Landscaping areas act as buffers along boundaries to sensitive land uses, transport corridors and street frontages to protect the amenity of adjacent uses and contribute to the visual presentation of the industrial development.
 - i. Areas between industry and sensitive land uses are effectively managed in terms of industrial hazards, air, noise and odour effects and community safety.

9.3.6.3 Assessable benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Table 9.3.6-1: Industry activities code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site location	
PO1 Industry activities are: <ol style="list-style-type: none"> a. consistent with the intended scale and intensity for the zone; b. located to ensure there are no adverse impacts on sensitive land uses or land in a residential zone; c. located near reciprocal, supporting or related activities. 	*AO1.1 Industry activities are located in an Industry zone. AO1.2 Industry activities are not established within distances specified in Table 9.3.6-2: Separation distances for industry activities from sensitive land uses.
Site characteristics	

<p>PO2 Industry activities are located on a site that has enough area and dimensions to:</p> <ol style="list-style-type: none"> accommodate the scale and form of buildings; manage vehicle access, manoeuvring, servicing and parking on site; provide enough space for transitions, setbacks or buffers to sensitive land uses or land in a residential zone; provide for on-site waste management, that is safe, convenient accessible for service providers; provides for best practice on-site stormwater management to protect surface water and groundwater quality; accommodate on-site wastewater treatment systems, where applicable. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based environmental management plan prepared by a suitably qualified person.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Building design</p>	
<p>PO3 Buildings and structures have a high-quality appearance when viewed from the street, public spaces and residential areas.</p>	<p>AO3.1 Walls facing the primary street frontage are designed to reduce massing and bulk by incorporating the following features:</p> <ol style="list-style-type: none"> variation in horizontal plane every 10m by using of recesses, columns or blades; variation in parapet design or roof height every 10m; building composition includes colour schemes with at least 3 distinct colours and material types; and windows and building openings have canopies or awnings that have a projection of at least 0.5m. <p>AO3.2 Walls facing other street frontages are designed to reduce massing and bulk by incorporating the following features:</p> <ol style="list-style-type: none"> variation in horizontal plane every 20m by using recesses, columns or blades; or variation in parapet design or roof height every 20m.
<p>PO4 Ancillary uses and parking areas are appropriately located to:</p> <ol style="list-style-type: none"> provide an attractive front façade to the building and create an identifiable entry; and minimise conflict between areas used for the Industry activities and visitors to the site. 	<p>AO4.1 Office, sales and showroom areas are orientated to the primary street frontage and are easily accessed from on-site parking areas.</p>
<p>Access</p>	
<p>PO5 Development does not affect the safety and functioning of the road network.</p>	<p>*AO5.1 Industrial development does not involve the creation of a new vehicular access to a local residential street.</p> <p>AO5.2 Development combines access points to reduce potential traffic conflict.</p> <p>AO5.3 Freight transport routes are sealed roads that can support the projected vehicle movements.</p>
<p>Amenity</p>	
<p>PO6 Hours of operation are controlled so that the use does not have an adverse effect on the amenity of surrounding residents and sensitive land uses.</p>	<p>*AO6.1 Where the site borders a sensitive land use, or land in a residential zone, the hours of operation, including for delivery vehicles, are limited to 7.00am to 7.00pm, Monday to Saturday, excluding public holidays.</p>
<p>PO7 Where the development has more than one industrial tenancy, enough area is provided for the storage of waste and recyclable items to minimise impacts on users,</p>	<p>*AO7.1 Each industrial tenancy has a waste storage area that:</p> <ol style="list-style-type: none"> is easily accessed and convenient to use;

<p>occupiers and surrounding sites.</p>	<ul style="list-style-type: none"> b. has an unobstructed access for waste removal and servicing; c. can hold the required number of waste containers; d. is located on land over which each tenancy has access rights or ownership.
<p>PO8 Landscaping is provided to:</p> <ul style="list-style-type: none"> a. soften the built form and hardstand areas; b. screen industrial buildings and storage areas; c. buffer sensitive land uses and non-industrial zoned land; d. improve the visual amenity of the streetscape. 	<p>AO8.1 A solid screen fence and screen landscaping a minimum of 2m wide and with a mature height of 3m is provided along the lot boundary where adjacent to a:</p> <ul style="list-style-type: none"> a. sensitive land use; b. non-industrial zoned lot; c. rail corridor; d. State-controlled road. <p>AO8.2 Landscaping is provided along the road frontage (excluding any driveways and vehicle crossovers) a minimum of 3m wide.</p>
<p>Hazardous chemicals management</p>	
<p>PO9 Industry activity involving the storage, handling or processing of hazardous chemicals or environmentally hazardous materials avoids risks to people, property and the environment by:</p> <ul style="list-style-type: none"> a. being located and positioned to minimise the risk to sensitive land uses; b. incorporating separation distances within the site to minimise risks; c. including spill containment systems so that the effects of any hazards are contained within the site boundary and do not affect groundwater quality; d. ensuring storage areas are ventilated; e. protecting against impacts (e.g. leaks or spills). <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based environmental management plan that addresses waste management prepared by a suitably qualified person and is consistent with the hierarchy of waste management measures outlined in the Waste Management and Resource Recovery Strategy:</i></p> <ul style="list-style-type: none"> a. waste prevention or avoidance; b. waste recycling or reuse; c. waste treatment; then d. waste disposal. 	<p>*AO9.1 The total amount of hazardous chemicals and other potential contaminants stored and handled on-site is less than 200L or 200kg.</p> <p>AO9.2 Storage of hazardous chemical and other potential contaminants (other than petroleum products) in aggregate quantities more than 1,000L or 1,000kg is not undertaken unless a site-specific risk assessment shows that the risk to drinking water quality is minimal.</p> <p>AO9.3 The storage and handling of hazardous chemicals and other potential contaminants is:</p> <ul style="list-style-type: none"> a. outside of a mapped area on OM12A Waterways and water resource catchment - Ecosystems overlay; and b. outside of the 800m to a full supply level of a dam on OM12B Waterways and water resource catchment - Water resource catchment overlay. <p>AO9.4 Hazardous chemicals and other potential contaminants are located and stored:</p> <ul style="list-style-type: none"> a. on land outside the defined flood level; b. undercover in a building or similar structure within an impervious bunded compound that has: <ul style="list-style-type: none"> i. a net capacity to contain spills 1.5 times the bunded containers or aggregate quantity of containers when operated as a single unit; ii. enough area to hold the containers and their contents in the event that the containers collapse: <ul style="list-style-type: none"> A. to prevent the lateral movement of packages or containers during a natural hazard event; B. consistent with AS.1940 The Storage and Handling of Flammable and Combustible Liquids. <p>AO9.5 The storage of petroleum products in bulk (more than 1,000L) above ground uses:</p> <ul style="list-style-type: none"> a. self-bunded containers that meet AS.1692 Steel Tanks for Flammable and Combustible Liquids; or b. single-skin containers installed within an impervious bunded compound that: <ul style="list-style-type: none"> i. is sufficiently impervious to the type of liquid stored to retain and recover all potential spills; ii. has a net capacity to contain spills 1.5 times the bunded container or aggregate quantity of containers where operated as a single unit; and iii. has enough area to hold the containers and their

	<p>contents in the event that the containers collapse.</p> <p>AO9.6 Petroleum products stored below ground are stored in containers that are non-corrodible, double walled with an interstitial space between and meet the requirements of:</p> <ul style="list-style-type: none"> a. AS.1692: Steel Tanks for Flammable and Combustible Liquids; and/or b. ULC 1316: Standard for Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids.
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Table 9.3.6-2: Separation distances for industry activities from sensitive land uses

USES	DISTANCE (M)
Low impact industry	50
Medium Impact Industry	250
High impact industry	500
Special Industry	1,500

Editor’s note—Where industrial development can demonstrate effective mechanisms to mitigate impacts to sensitive land uses smaller separation distances may be accepted.

9.3.7 Market code

9.3.7.1 Application

1. This code applies to development for which the Market code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.3.7.2 Purpose

1. The purpose of the code is to ensure Markets are conducted in a safe manner and to protect the amenity of adjacent sensitive land uses.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Markets operate in a manner that is consistent with the amenity of the zone.
 - b. Markets are operated to provide for the public health and safety and a comfortable and attractive environment for users.
 - c. Markets are managed so environmental nuisance does not affect adjoining and adjacent sensitive land uses.

Editor's note—A Market operating for no more than for 14 calendar days a year is identified as a Temporary use (see section 1.7 Local Government Administrative Matters).

9.3.7.3 Assessment benchmarks

1. All the Acceptable outcomes in this code are applicable to Accepted development.

Table 9.3.7-1: Market code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Scale and size	
PO1 The Market: <ol style="list-style-type: none"> a. does not compromise the economic viability of existing adjacent businesses; and b. protect and maintains the centre hierarchy. 	*AO1.1 A Market operates on the site no more than 2 days each week. *AO1.2 No more than 50 individual stalls (or similar) are provided.
Amenity	
PO2 The Market protects and maintains the existing amenity and character of the zone and adjacent sensitive land uses.	*AO2.1 Markets (including set-up and dismantling) are conducted between the hours of: <ol style="list-style-type: none"> a. 5.00am and 9.00pm, Monday to Saturday; b. 5.00am and 4.00pm, Sunday and public holidays. *AO2.2 The use of amplified music, megaphones, public address systems and noise generating plant and equipment does not occur between the hours of 9.00pm and 8.00am. *AO2.3 The site is tidied and restored to its original condition on completion of each Market day. *AO2.4 Any temporary lighting is directed away from sensitive land uses and removed at the end of each day.
PO3 Markets are designed to provide for: <ol style="list-style-type: none"> a. convenient access and movement; b. emergency access; c. legibility between stalls and existing adjacent uses; d. pedestrian comfort and safety. 	*AO3.1 Clear movement paths a minimum of 3m wide are provided between: <ol style="list-style-type: none"> a. stall fronts; b. stalls and existing Shop fronts. *AO3.2 Markets are not established in a cul-de-sac or access street.
PO4 Sufficient facilities and amenities are provided to cater to	*AO4.1 Public toilets:

the anticipated number of stalls (or similar) and attendees.	<ul style="list-style-type: none">a. are provided within the area of the Market or within 200m of the Market;b. are accessible during the hours the Market is operating, including set-up and dismantling;c. are maintained in a clean, safe and tidy state;d. are identified by signage.
Public Safety	
PO5 Development protects the health and safety of stallholders (or similar) and attendees.	*AO5.1 Measures are implemented for: <ul style="list-style-type: none">a. crowd and pedestrian control;b. traffic control;c. waste management;d. security.

9.3.8 Medium density residential uses code

9.3.8.1 Application

1. This code applies to development for which the Medium density residential uses code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.
3. The uses subject to this code are:
 - a. Dual occupancy;
 - b. Multiple dwelling;
 - c. Relocatable home park;
 - d. Rooming accommodation.

9.3.8.2 Purpose

1. The purpose of the Medium density residential uses code is to ensure development:
 - a. responds positively to local character and have a built form that is integrated with surrounding development;
 - b. provides a high standard of privacy and amenity for residents including well designed and useable open space and functional vehicle parking and manoeuvring areas;
 - c. protects the amenity and privacy of adjoining residents.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Housing diversity is provided for various household types to meet the existing and future needs of the community.
 - b. Rooming Accommodation:
 - i. for 5 persons or less has the appearance of single dwelling house and is consistent with the amenity and streetscape of the zone, where within a residential zone;
 - ii. for 6 persons or more is located in an area identified for higher residential density or within easy walking distance of public transport and a centre zone.
 - c. Development has a site area that is sufficient for the scale and form to deliver a comfortable living environment with minimal impact on neighbours.
 - d. Development is orientated and designed to contribute to a safe, attractive and walkable neighbourhood.
 - e. Development has a population density that is consistent and compatible with the character and residential amenity of the zone.
 - f. Buildings have a bulk and scale consistent with the intended form and character of the street block, streetscape and zone.
 - g. Development provides boundary setbacks and separation of buildings that:
 - i. contribute to the amenity of residents within and adjoining the site;
 - ii. transition between uses that are greater than 2 storeys in height.
 - h. Development has a height that is consistent with and not greater than specified for the zone.
 - i. Development in the Low density residential zone and Low-medium density residential zone:
 - i. includes a range of detached and attached building forms that reflects a diversity of housing consistent with the zone;
 - ii. provides safe vehicle access and parking at a rate commensurate with the use, and occupant demand.
 - j. Development in the Centre and Mixed Use zones:
 - i. facilitates a high level of activity and surveillance of the street;
 - ii. does not adversely affect the development potential or future residential amenity where adjoining the Low density residential zone and Low-medium density residential zone.
 - k. Development is visually attractive and responds to the subtropical climate, positively addresses the street and is integrated with surrounding development.
 - l. Development ensures that the siting of a building and any built to boundary walls do not negatively impact on the privacy and amenity of adjoining residents.
 - m. Development provides private open space for each dwelling:
 - i. that is useable and accessible;
 - ii. meets the needs of residents for recreation;
 - iii. maintains a high level of residential amenity for occupants and adjoining residents.
 - n. Development provides for communal open space for Multiple dwellings and Relocatable homes parks that has access to natural light, sunlight and breezes to support outdoor living.
 - o. Development provides on-site landscaping that:
 - i. positively contributes to the streetscape;
 - ii. screens Multiple dwellings and Relocatable homes parks from neighbouring dwellings;
 - iii. supports outdoor living and subtropical landscaping;
 - iv. assists in reducing urban heat island effects;
 - v. retains or establishes large shade trees.

- p. Development provides on-site parking which does not negatively impact on residents or the amenity of the streetscape and adjacent street blocks.
- q. Development addresses overlooking and positively contributes to the immediate streetscape.
- r. Development protects and provides visual privacy for residents adjoining and within the site through appropriate separation of buildings and screening.
- s. Development is compatible with adjacent existing uses and considers the health and wellbeing of occupants and does not adversely impact on the continued operation of those existing uses.

Editor’s note—The Environmental Protection Act, regulates the depositing of sediment and other water contaminants in the stormwater systems. Methods to prevent sediment washing or moving into roadways, stormwater pipes and waterways from building sites, can be found in the Water by Design program’s for Erosion and Sediment Control (<https://waterbydesign.com.au/esc>). Fines and legal action may occur if controlling stormwater pollution from building sites does not occur.

9.3.8.3 Assessment benchmarks

Table 9.3.8-1: Medium density residential uses code — Assessment benchmarks for accepted and assessable development for a Dual occupancy

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site area	
<p>PO1 Development has a site area and frontage width that is sufficient to:</p> <ul style="list-style-type: none"> a. accommodate the scale and form of dual occupancy buildings considering the existing site features such as heritage buildings, vegetation and slope; b. deliver useable private open space for each dwelling; c. achieve safe and convenient vehicle access to the site; d. accommodate on-site parking and vehicle manoeuvring for residents and visitors; e. minimise the impact of new driveways on the streetscape and the availability of on-street parking; f. not adversely impact on the amenity and privacy of adjoining residents. 	<p>*AO1.1 Each dwelling meets the maximum GFA requirements of:</p> <ul style="list-style-type: none"> a. 120m² GFA on lots less than 800m²; b. 150m² GFA on lots 800m² or greater. <p>*AO1.2 A Dual occupancy is not located on a rear access lot, or on a lot where access is by an easement/s.</p> <p>*AO1.3 Each dwelling has sufficient storage area for for 3 x 240L refuse bins.</p>
Bulk and scale	
<p>PO2 Development is of a bulk and scale that is consistent with the intended form and character of the zone and considers:</p> <ul style="list-style-type: none"> a. any existing buildings to be retained; b. infrastructure or service constraints; c. slope of the site area; d. adjoining buildings and separation of buildings to maintain amenity and privacy. 	<p>*AO2.1 A Dual occupancy has a maximum site cover consistent with Table 9.4.2-2: Building scale and bulk requirements.</p>
<p>PO3 Development has a building height consistent with the streetscape and zone, and considers:</p> <ul style="list-style-type: none"> a. the predominant height of existing or approved buildings in the street; b. providing appropriate separation and a sensitive transition between houses and higher scale building forms; c. the topography of the area and site slope; d. solar access to adjoining residences. 	<p>*AO3.1 A Dual occupancy has a maximum building height consistent with Table 9.4.2-2: Building scale and bulk requirements.</p>
Building setbacks	
<p>PO4 Development provides setbacks that:</p> <ul style="list-style-type: none"> a. define the street edge; b. relate to the existing streetscape and setback pattern; c. support the separation of buildings to provide visual and acoustic privacy without reliance on screening; d. contribute to the rhythm and pattern of the streetscape in 	<p>*AO4.1 Buildings are consistent with the setback requirements in Table 9.3.8-4: Building setbacks.</p> <p><i>Note—This AO prevails over Table 9.4.2-2: Building scale and bulk requirements.</i></p>

<p>keeping with the intended neighbourhood character.</p> <p>PO5 Development that involves built to boundary walls does not impact on the amenity or privacy of residents of adjoining premises.</p>	<p>AO5.1 Development ensures that a built to boundary wall is:</p> <ol style="list-style-type: none"> only for non-habitable rooms and the adjoining lot is more than 400m²; not located within the front or rear boundary setbacks; not located on the side boundaries of a corner lot, a maximum height of 3m from the ground level; constructed of low maintenance materials. <p><i>Note—Where relevant, this AO prevails over AO4.1, Table 9.3.8-4: Building setbacks and Table 9.4.2-2: Building scale and bulk requirements.</i></p> <p>AO5.2 A built to boundary or dividing wall is not:</p> <ol style="list-style-type: none"> within 900mm of a constructed window or wall, or within 1.5m of a constructed window to a habitable room. <p>AO5.3 Development ensures a built to boundary wall has a maximum length of 15m, where located in the Low—medium density residential zone or Mixed use zone.</p>
Building appearance	
<p>PO6 The design and siting of buildings are consistent with the preferred character of the zone and:</p> <ol style="list-style-type: none"> are orientated to face the street to provide visual interest; facilitate casual surveillance; minimise overshadowing adjoining dwelling houses and their private open space. 	<p>*AO6.1 Buildings have the appearance of a Dwelling house from the street.</p> <p>*AO6.2 Where located on a lot with two road frontages:</p> <ol style="list-style-type: none"> the building is designed to address both frontages such that it appears as a Dwelling house from both streets; a vehicle access and driveway is provided from each road frontage. <p>*AO6.3 Each dwelling has a clear pedestrian access from the road reserve to the front door that is accessible.</p> <p>*AO6.4 Each dwelling entry is covered and visible from the street.</p> <p>*AO6.5 Each dwelling has windows or balconies on the façade facing the street.</p> <p>*AO6.6 Garage doors and carport openings are less than 40% of the front elevation.</p> <p>*AO6.7 Carports and garages have similar roof form, detailing, materials and colours as the main building.</p> <p>*AO6.8 In a residential zone each dwelling unit has:</p> <ol style="list-style-type: none"> a single electricity meter box; a single letter box.
Private open space	
<p>PO7 Development provides private open space that:</p> <ol style="list-style-type: none"> is immediately accessible from the main living area of the dwelling; has dimensions capable of meeting the recreation needs of residents; is partially covered to provide an all-weather area for outdoor dining and entertainment; is located to provide privacy. 	<p>*AO7.1 Private open space has a slope less than 10%.</p> <p>*AO7.2 Each dwelling has direct access to the private open space area from the main living area.</p> <p>*AO7.3 Each dwelling at ground level is provided with 50m² of private open space that is:</p> <ol style="list-style-type: none"> 20m² or more and shaded; includes an area in one location of at least 25m² with a minimum dimension of 4m. <p><i>Note—Open space is exclusive of driveways, car parking, fencing, garbage collection points, clothes drying areas and other utilities.</i></p>

	<p>*AO7.4 Each dwelling above ground level has a shaded veranda, balcony or similar private open space area that is 25m² or more with a minimum dimension of 4m.</p> <p>*AO7.5 A screen fence of a height of 1.8m is provided to define private open space for each dwelling unit.</p>
Fencing	
<p>PO8 Development ensures that front boundary fencing:</p> <ul style="list-style-type: none"> a. facilitates casual surveillance of the street; b. enables the use of private open space; c. provides a positive interface to the streetscape. 	<p>*AO8.1 Fence heights and locations are consistent with:</p> <ul style="list-style-type: none"> a. Figure 9.3-1: Fence heights; b. Figure 9.3-2: Fence height locations. <p>*AO8.2 Development provides a 1.8m high acoustic fence along any side or rear boundary, and 1.2m high forward of the building line.</p>
Landscaping	
<p>PO9 Landscaping is provided:</p> <ul style="list-style-type: none"> a. consistent with the character of the streetscape and zone; b. to provide a high level of residential amenity including access to natural light, sunlight and breezes; c. to reduce a site's impervious areas; d. to create natural shade to mitigate heat island impacts. 	<p>*AO9.1 For every 10m of road frontage development provides 1 street tree that can grow to a maximum height of 12m.</p> <p>AO9.2 Unpaved or unsealed landscaped areas are maximised and are designed to facilitate on-site stormwater harvesting and infiltration.</p> <p>*AO9.3 Landscaping within private open space is a minimum of 30% of the open space area.</p>
Overlooking	
<p>PO10 Development minimises direct overlooking between dwellings via building siting and layout and the design of windows, balconies and screening devices.</p>	<p>AO10.1 Development provides a minimum separation distance of 12m or more between balconies on-site and a balcony on an adjoining site.</p> <p>AO10.2 Development provides a minimum separation distance of 9m between windows on-site and a window on adjoining site.</p> <p>AO10.3 Bedroom windows are 3m away from shared driveways, car parking areas, mechanical plant, refuse and recycling areas, vents and exhausts.</p>
Car parking and access	
<p>PO11 Development provides ample parking for residents and visitors, and minimises the impact of car parking on the streetscape.</p>	<p>*AO11.1 Vehicle accesses are a minimum of 9m from an intersection.</p> <p>*AO11.2 Dual occupancies with a single constructed road frontage are serviced by a shared driveway and crossover with a minimum width of 3.5m.</p> <p>*AO11.3 Where located on a lot with two road frontages, a vehicle access and driveway are provided from each road frontage.</p> <p>*AO11.4 Development provides a minimum of 2 on-site car parking spaces for each dwelling and 1 visitor car parking space.</p>

Figure 9.3-1: Fence heights

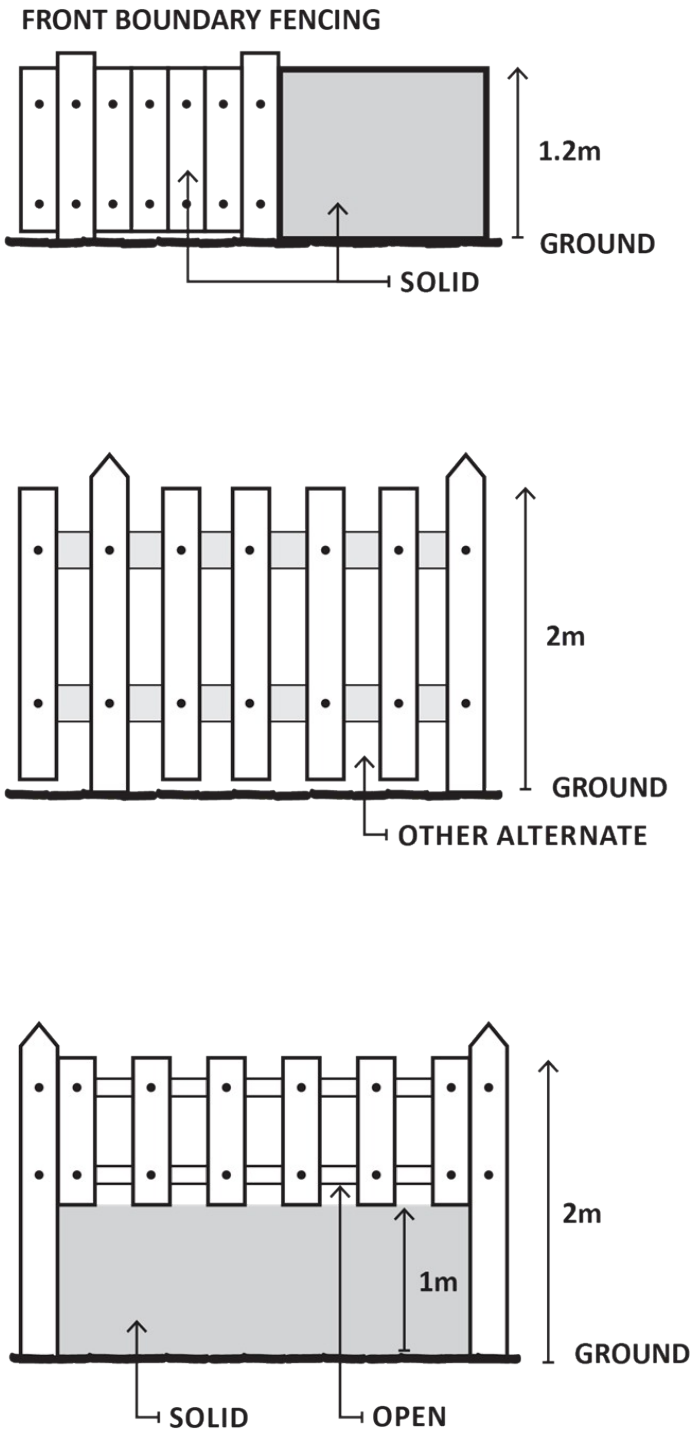


Figure 9.3-2: Fence height locations

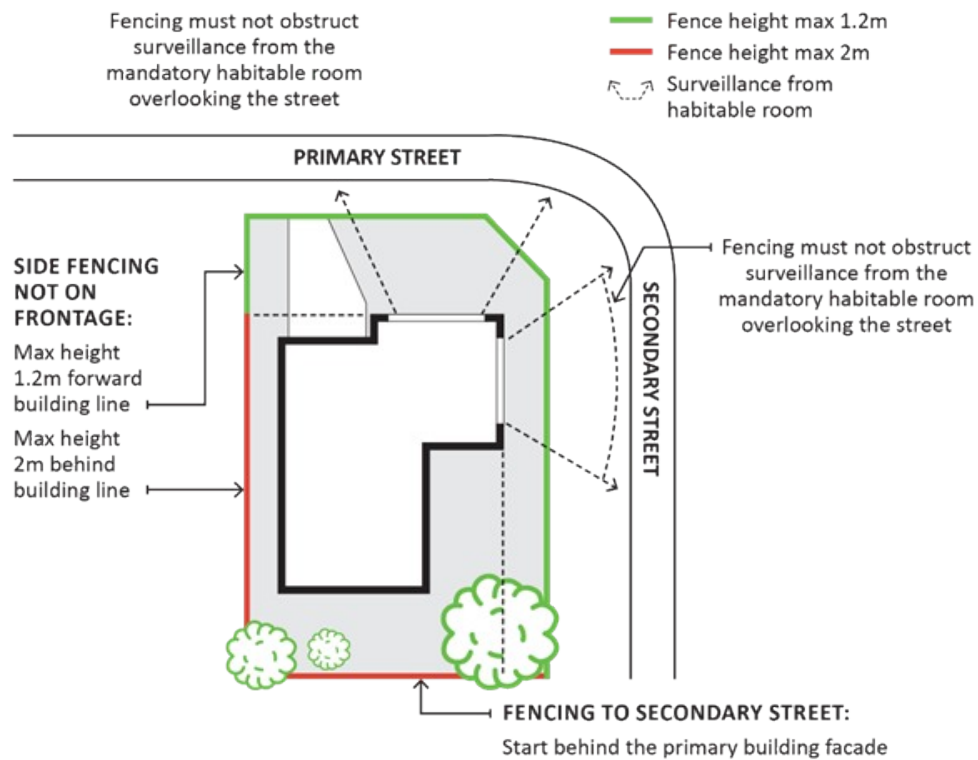


Table 9.3.8-2: Medium density residential uses code — Assessment benchmarks for assessable development for Multiple dwelling and Relocatable home park

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site characteristics	
PO12 The development is located on a site that has safe, convenient and accessible to retail services and community facilities.	AO12.1 The site is located: a. within an urban area; b. within 400m walking distance of Shops, parks and open space or community facilities.
PO13 The development is located on a site that is of an area, dimension and location to accommodate the development.	AO13.1 Development is located on a site with a slope less than 10%. AO13.2 The development is not established in a cul-de-sac, access street or rear access lots. AO13.3 Development has a minimum lot area of 1,000m ² .
Design and appearance	
PO14 The overall scale and proportions of the development: a. reflects the streetscape; b. reflects the zone in which it is located.	No acceptable outcome is nominated.
PO15 A range of dwelling designs and sizes is provided in the development to cater for different individual and household needs.	No acceptable outcome is nominated.
PO16 The building design provides a comfortable and attractive living environment that is appropriate for the subtropical climate of the region through: a. verandas or balconies; b. the use of structural elements and building materials of varying scales and textures; c. variations in exterior colours;	No acceptable outcome is nominated.

<p>d. suitable number and size of windows; e. the use of awnings and other sun protection devices; f. variation to roof and building lines; g. recesses on building plane; h. incorporates design elements to increase energy efficiency.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the Subtropical Design in South East Queensland — A Handbook for Planners, Developers and Decision Makers, prepared by the Centre for Subtropical Design.</i></p>	
<p>PO17 Buildings are sited and designed to:</p> <p>a. maximise cross-breezes through the site; b. minimise solar heat loads; c. promote access to breezes and natural light.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a sunlight and shadow analysis of the proposed development prepared by suitably qualified person.</i></p>	<p>AO17.1 Buildings are oriented on the site to:</p> <p>a. allow prevailing south-east and north-east breezes to pass through the development; b. maximise the exposure of individual residences to prevailing and cross-breezes; c. minimise exposure to western sun.</p> <p>AO17.2 Development does not result in the loss of solar access to habitable rooms and private open space of surrounding lots:</p> <p>a. between 9am and 3pm on 21 June; or b. where overshadowing occurs, a minimum of 3hrs or more of sunlight is retained between 9am and 3pm on 21 June.</p> <p>AO17.3 Individual residences are designed for natural ventilation and light with openings to 2 or more distinct aspects.</p>
<p>PO18 The development is designed and sited in a manner which reduces the scale and bulk of the building/s, while reflecting the character of the zone, including:</p> <p>a. buildings being consistent with the scale and bulk of adjacent residential buildings; b. providing a built form that addresses the street; c. providing a balance between the area of open space and built structures; d. providing enough area for parking, open space and landscaping; and e. maintain or enhancing visual amenity, the streetscape and privacy.</p>	<p>AO18.1 Buildings have a maximum podium height of 2 storeys.</p> <p>AO18.2 Buildings orientate towards and overlook streets and public spaces.</p> <p>AO18.3 Buildings have a maximum building height consistent with Table 9.4.2-2: Building scale and bulk requirements.</p> <p>AO18.4 Carports and garages are compatible with the main building design in terms of height, roof form, detailing, materials and colours.</p> <p>AO18.5 Buildings have the appearance of a Dwelling house from the street and address the street by having their main entrance on the street elevation.</p> <p>For Multiple dwelling: AO18.6 Buildings are consistent with the setback requirements in Table 9.3.8-4: Building setbacks.</p> <p>For Relocatable home parks: AO18.7 Relocatable homes are designed to have a maximum housing density of 30 homes to each hectare of net developable area.</p> <p>AO18.8 Relocatable homes located on internal individual sites are setback at least 3m from internal roads and internal site boundaries.</p> <p>AO18.9 The development is setback a minimum 6m from the front boundary and 3m from side and rear boundaries.</p>

	<p>AO18.10 The area allocated to accommodate each individual relocatable home site:</p> <ol style="list-style-type: none"> is at least 225m²; has a frontage of at least 10m wide to an internal road network; is connected to electricity, telecommunications, water, sewerage and stormwater drainage.
<p>Development as part of a mixed use development</p>	
<p>PO19 The medium density residential use as part of a mixed-use development is designed and sited in a manner which:</p> <ol style="list-style-type: none"> addresses and provides an active frontage to the street and other public areas; promotes casual surveillance of the street and other public and semi-public spaces; provides shelter and shade along street frontages for all users; presents as an attractive and integrated built form. 	<p>AO19.1 The development provides for an integrated awning and veranda over footpaths along the street frontage consistent with Figure 9.3-4: Mixed-use development.</p> <p>AO19.2 Multiple building entrances are provided and are appropriately spaced to provide visual interest and activity.</p> <p>AO19.3 Medium density development located above ground level in Centres and Mixed use zones has:</p> <ol style="list-style-type: none"> a clearly identifiable front door; low maintenance building materials and non-reflective finishes on exterior; external drainage or other pipes are integrated with building design; service areas are behind the main face of the dwellings.
<p>PO20 Where the development forms part of a mixed-use development, residents are provided with reasonable levels of privacy and security.</p>	<p>AO20.1 Where development forms part of a mixed-use development:</p> <ol style="list-style-type: none"> entry areas for residents and visitors to dwellings are provided separately from entrances for other building users; clearly marked, safe and secure parking areas are provided for residents and visitors which are separate from parking areas provided for other building users; security measures are installed such that other building users do not have access to areas that are intended for the exclusive use of residents and their visitors.
<p>Privacy and amenity</p>	
<p>PO21 The development is designed so that dwellings, private open spaces and surrounding residential sites are provided with a reasonable level of privacy.</p>	<p>AO21.1 A 2m high screen fence is erected along the common boundary with any residential use, except within the front building setback. Within the front building setback, the fence has a maximum height of 1.2m unless it contains openings that make it at least 50% transparent.</p> <p>AO21.2 Fence heights and locations are consistent with:</p> <ol style="list-style-type: none"> Figure 9.3-1: Fence heights; Figure 9.3-2: Fence height locations. <p>AO21.3 Front boundary walls are provided along a street boundary where located on a collector street or higher on OM14 Road hierarchy overlay and:</p> <ol style="list-style-type: none"> are a height of 2m; are of solid construction; where more than 10m in length are articulated to provide visual interest and improve the streetscape consistent with Figure 9.3-3: Articulated Walls. <p>AO21.4 Development provides a minimum separation distance of 12m or more between balconies on-site and a balcony on an adjoining site.</p> <p>AO21.5 Development provides a minimum separation distance of 9m between windows on-site and a window on adjoining site.</p>

	<p>AO21.6 Windows and openings:</p> <ul style="list-style-type: none"> a. of habitable rooms (e.g. bedrooms or living rooms) do not overlook habitable rooms of another dwelling consistent with Figure 9.3-5: Privacy screening and Figure 9.3-6: Screening to prevent overlooking; or b. where the windows of a bedroom or living area look at similar room windows in an adjoining dwelling and the buildings are within 2m at ground level and 8m above ground floor, privacy is provided by glazing and fixtures designed to minimise overlooking consistent with Figure 9.3-7 Glazing and fixture designed to minimise overlooking and: <ul style="list-style-type: none"> i. sill heights are a minimum of 1.7m above the finished floor level; or ii. fixed opaque glass below 1.7m; or iii. fixed external screens; or iv. a 2m high screen fence. <p>AO21.7 The outlook from windows, balconies, stairs, landings, terraces and decks or other private, communal, or public areas is screened where there is a view into private open space area for a surrounding existing use consistent with Figure 9.3-5: Privacy screening and Figure 9.3-6: Screening to prevent overlooking.</p> <p>AO21.8 Screening of windows, balconies, terraces and decks uses perforated panels or trellises that have a maximum opening of 25% and are permanently fixed consistent with Figure 9.3-6: Screening to prevent overlooking and Figure 9.3-7: Glazing and fixtures designed to minimise overlooking.</p> <p>AO21.9 Bedroom windows are 3m away from shared driveways, car parking areas, mechanical plant, refuse and recycling areas, vents and exhausts.</p>
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Private open space

<p>PO22 Development provides private open space that:</p> <ul style="list-style-type: none"> a. is clearly differentiated from areas of communal open space; b. is immediately accessible from the main living area of the dwelling; c. has dimensions capable of accommodating outdoor recreation needs and space for residents and service functions; d. is clearly defined from public open space areas; e. is partially covered to provide an all-weather area for outdoor dining and entertainment; f. is located to provide privacy considering outlook, natural site features, sunlight and breezes. 	<p>AO22.1 Private open space has a slope less than 10% and is clear of any utilities such as gas, water tanks, clothes drying areas and air conditioning units.</p> <p>AO22.2 Each dwelling has direct access to the private open space from the main living area of the dwelling.</p> <p>AO22.3 Private open space has a 1.8m high solid screen fence.</p> <p>For Multiple Dwellings:</p> <p>AO22.4 Each dwelling at ground level is provided with a private open space that has a minimum area of 25m² and a minimum width of 4m;</p> <p>AO22.5 Each dwelling above ground level has a shaded veranda, balcony or similar private open space area that has a minimum area of 18m² or more and a minimum width of 3m.</p> <p>For Relocatable homes:</p> <p>AO22.6 Each dwelling is provided with a private open space that has a minimum area of 30m² in one location and 50% is shaded.</p>
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Communal open space for development that includes 10 or more dwellings

<p>PO23 Development that includes 10 or more dwellings is provided with communal open space which:</p> <ol style="list-style-type: none"> provides opportunities for residents to engage in communal activities; supports active and passive recreation by residents and visitors; provides a comfortable and attractive outlook from dwellings and contributes to site amenity; is usable by residents and visitors any time of the day and throughout the year that has regard to the climate of the Lockyer Valley. 	<p>AO23.1 Communal open space:</p> <ol style="list-style-type: none"> is consistent with Figure 9.3-8: Communal open space; is provided in addition to private open space; is separate from private open space at ground level by a screen fence or landscaping; is 25% or more of the total site area; excludes land for stormwater drainage or flooding areas, or slopes 10% or more; has a minimum width of 5m; includes a covered area of 20m² or more; is connected to the internal walkways; is accessible from the building's public areas, entries or lobbies and provides equitable access for residents; protects and maintains the amenity of dwellings within the development and surrounding the site. <p>AO23.2 Communal open space is provided in a variety of locations (e.g. rooftops, on podiums or at ground level).</p> <p>AO23.3 Communal open space is provided with basic facilities such as seating, shade and wind protection (either structures or planting) and flexible spaces (e.g. common room) suitable for a range of recreation activities.</p>
<p>PO24 Open space and recreational areas and buildings are provided to meet the requirements of residents.</p>	<p>AO24.1 Balconies, verandas, internal covered walkways, or other parts of the building/s do not encroach upon open space and recreational facilities.</p> <p>AO24.2 Open space is:</p> <ol style="list-style-type: none"> screened by landscaping or fencing to maintain privacy; exclusive of driveways, car parking, garbage collection points, clothes drying areas and other utilities. <p>AO24.3 Communal recreational areas and buildings are centrally located and easily accessible.</p>
<p>Landscaping</p>	
<p>PO25 Landscaping and fencing:</p> <ol style="list-style-type: none"> improves the appearance of the development from the street and makes a positive contribution to the streetscape; maintains views from the street to the main building line, front entry and provides for clear lines of sight for vehicle access to the site; assist casual surveillance of the street; defines and screens private open space and service areas, such as rubbish bin areas and clothes drying areas from the street; defines communal open space areas; assists in legible pedestrian entries; assists in managing the microclimate to conserve energy and water. 	<p>AO25.1 Existing mature trees are retained and incorporated into the design of the development, wherever practicable.</p> <p>AO25.2 Development provides 1 street tree for every 10m of road frontage that can grow to a maximum height of 12m with a canopy width of 6m.</p> <p>AO25.3 Security fencing or gates to vehicle access is located 1m behind the main building line and not on the front boundary.</p> <p>AO25.4 Unpaved or unsealed landscaped areas are maximised and are designed to facilitate on-site infiltration of stormwater run-off.</p> <p>AO25.5 Landscaping within communal open space is a minimum of 30% of the communal open space.</p>
<p>Service facilities</p>	
<p>PO26 Development provides a secure and functional storage area for each dwelling.</p>	<p>AO26.1 A secure storage area is provided for each dwelling that:</p> <ol style="list-style-type: none"> has a minimum area of 3m²; has a minimum height of 2m; is weatherproof and above the defined flood level; is exclusive of any car parking area and private open space.

	AO26.2 A Relocatable home park provides an area for the storage of vehicles not able to be accommodated within a relocatable home site. Such vehicles may include caravans, Recreational Vehicles (RVs) or trailered boats
PO27 Service structures and mechanical plant (e.g. air conditioners, hot water systems and swimming pool equipment) are located, screened, or incorporated as part of the building form to minimise adverse acoustic and visual impacts on surrounding sites.	<p>AO27.1 Services structures and mechanical plant are located and screened to mitigate visual impacts to:</p> <ul style="list-style-type: none"> a. the street and other public spaces; b. surrounding residential premises. <p>AO27.2 Mechanical plant has acoustic reduction screening and is not located on balconies or adjacent to other liveable areas.</p> <p>AO27.3 Services and mechanical plant are located adjacent to service areas or within building recesses.</p>
Other facilities for Relocatable home park	
PO28 The entrance to the office, reception area and guest lounge is designed to be seen from the street and easily identifiable.	<p>AO28.1 Pedestrian access to the site by people other than residents and employees is limited to a single public entry which may be controlled using gates or other security devices.</p> <p>AO28.2 Entrances and exits are located to provide a direct link to driveways and car parking areas.</p>
PO29 On-site management facilities are provided to support residents.	AO29.1 An on-site manager residence is provided for the development.
Pedestrian movement	
<p>PO30 The development is designed and sited to:</p> <ul style="list-style-type: none"> a. provide a clear pedestrian access from the road reserve to the main entry of the building; b. minimise the potential for pedestrian-vehicle conflicts; c. is well signed and lit. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO30.1 Pedestrian access to the site:</p> <ul style="list-style-type: none"> a. is located on the primary frontage; b. has a clearly identifiable front entrance that is accessible from the street; c. has a pathway that is separate from the vehicular access. <p>AO30.2 The main building entrance is well lit and signed.</p> <p>AO30.3 Lighting is provided to internal walkways, residence entries, driveways and carparks to ensure a high level of safety and security for residents and visitors at night.</p> <p>AO30.4 Outdoor lighting for security purposes:</p> <ul style="list-style-type: none"> a. is directed inwards to the site; b. is hooded to ensure there is no disturbance to surrounding dwellings.
Vehicle Access and Parking	
PO31 Development results in safe and efficient vehicle access, parking and manoeuvring areas and does not introduce excessive traffic volumes onto residential streets.	<p>AO31.1 The development is not located on a rear access lot, or on a lot where access is by means of easement/s.</p> <p>AO31.2 The development is not established in a cul-de-sac or access street.</p>

Table 9.3.8-3: Medium density residential uses code — Assessment benchmarks for accepted and assessable development for Rooming Accommodation

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Population density	

<p>PO32 Development does not:</p> <ul style="list-style-type: none"> a. adversely affect amenity of adjacent sensitive land uses; b. exceed the anticipated residential density. 	<p>*AO32.1 Development:</p> <ul style="list-style-type: none"> a. has no more than 5 bedrooms; b. is occupied by no more than 5 persons.
Building character	
<p>PO33 Development in a residential zone maintains the zone pattern of a single dwelling house on individual lots and:</p> <ul style="list-style-type: none"> a. is consistent with the anticipated form, bulk and scale of residential development within the street; b. maintains the appearance of a single dwelling house. 	<p>*AO33.1 If in a residential zone, development is a single Class 1a building, or a building that would be so defined if not used as Rooming accommodation and has:</p> <ul style="list-style-type: none"> a. a single meter box; b. a single letter box. <p><i>Note—Building classifications are defined in the National Construction Code. A Class 1a building is a dwelling house, townhouse, row house or similar. Rooming accommodation of less than 300m² GFA is defined as a Class 1b building.</i></p>
<p>PO34 Development provides a readily accessible refuse and recycling storage space that is not visible from the street or any adjacent dwelling or sensitive land use.</p>	<p>*AO34.1 Development provides storage for 3 bins:</p> <ul style="list-style-type: none"> a. located under or behind a structure or a building; or b. if located forward of the building line, within a storage space with a minimum dimension of 1.8m width and 0.7m depth; c. screened from view of adjacent streets or public spaces by a 1.5m high permanent screen. <p><i>Note—Screening must be permanently fixed and durable and incorporate solid or translucent sheeting, perforated or slatted panels or fixed louvres that have a maximum of 25% openings, with a maximum opening dimension of 50mm.</i></p>
Safe living environment	
<p>PO35 Development provides:</p> <ul style="list-style-type: none"> a. acceptable standards of health, safety and amenity for residents; b. for the safe evacuation of occupants. 	<p>*AO35.1 Development complies with the acceptable outcomes of QDC MP 5.7 Residential Services Building Standard.</p> <p><i>Note—These requirements are applicable to all Rooming accommodation including otherwise exempted services.</i></p> <p>*AO35.2 Development complies with the acceptable outcomes of QDC MP 2.1 Fire Safety in Budget Accommodation Buildings.</p> <p><i>Note—These requirements will vary depending on the proposed gross floor area.</i></p>
Facilities	
<p>PO36 Rooming accommodation is provided with adequate kitchen, dining, laundry and common room facilities to accommodate the needs of residents and staff.</p>	<p>No acceptable outcome is nominated.</p>
Walkability	
<p>PO37 Development is located on a site within a walking distance of community services.</p>	<p>*AO37.1 Development is located within 800m walking distance of a centre zone.</p>
Amenity	
<p>PO38 Development protects the visual amenity of the adjacent sensitive land uses and streetscape.</p>	<p>*AO38.1 Any mechanical plant, refuse and recycling areas, vents and exhausts are not visible from:</p> <ul style="list-style-type: none"> a. the street or public open space; b. an adjacent dwelling house or sensitive land use. <p><i>Note—Mechanical plant includes generators, motors, compressors and pumps such as air-conditioning, refrigeration or coldroom motors.</i></p>
<p>PO39 Development ensures that all the residents' vehicles</p>	<p>*AO39.1 Development that accommodates a maximum of 5</p>

<p>can be parked on site and does not result in residents parking on the street.</p>	<p>people provides a minimum of 2 on-site parking spaces.</p> <p><i>Note—Vehicle parking may be provided in tandem.</i></p> <p><i>Note—Car parking rates for Rooming accommodation in other circumstances are included in the section 9.4.8 Transport, access and parking code.</i></p>
<p>Vehicle parking</p>	
<p>PO40 Development within a centre zone or Mixed use zone provides car parking spaces at rates that discourage private car use and encourage walking, cycling and the use of public transport.</p>	<p>*AO40.1 Development provides for on-site parking spaces consistent with section 9.4.8 Transport, access and parking code.</p>
<p>Landscaping</p>	
<p>PO41 Development provides landscaping between a building that is on the premises and the front boundary of the premises, excluding any driveway or pedestrian access.</p>	<p>*AO41.1 Development provides a 1.8m high acoustic fence along a boundary adjoining sensitive land uses.</p> <p>*AO41.2 Landscaping is provided within the front boundary setback.</p> <p>*AO41.3 A minimum of 10% of the open space is landscaped.</p>

Figure 9.3-3: Articulated walls

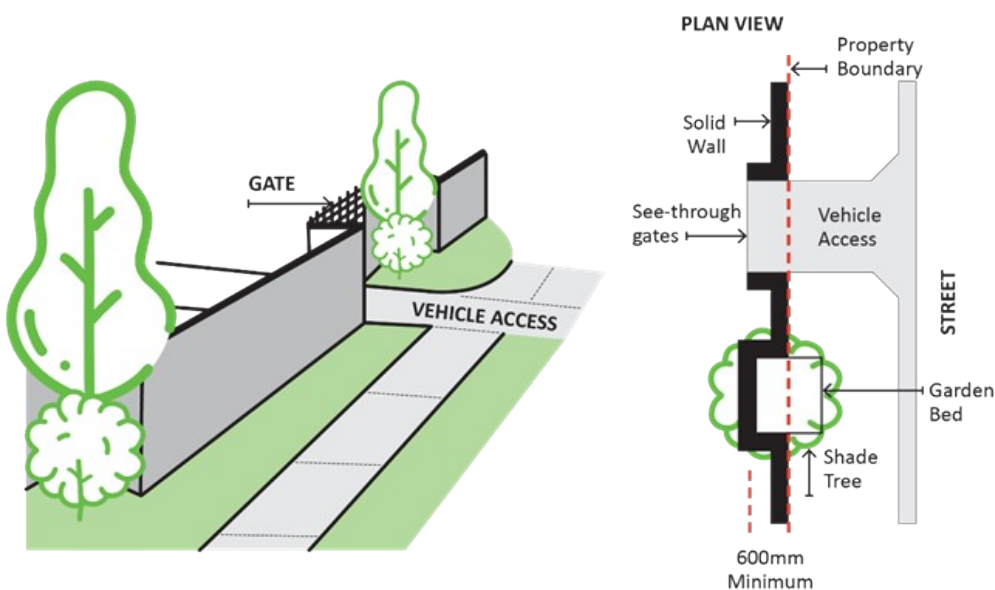


Figure 9.3-4: Mixed-use development

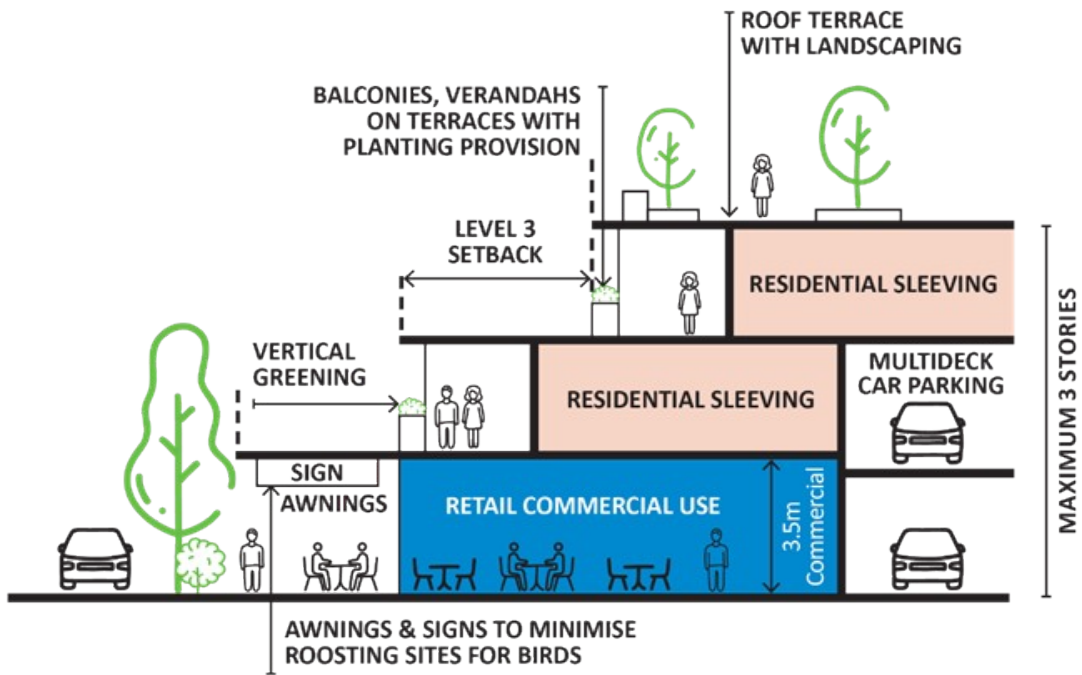


Figure 9.3-5: Privacy screening

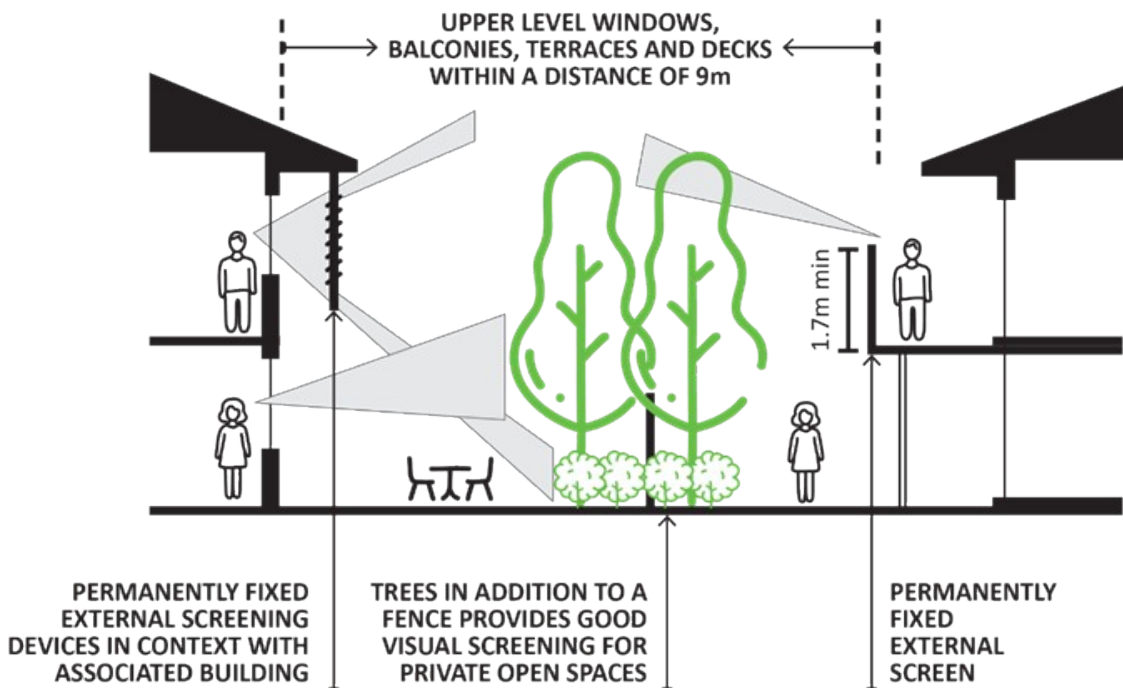


Figure 9.3-6: Screening to prevent overlooking

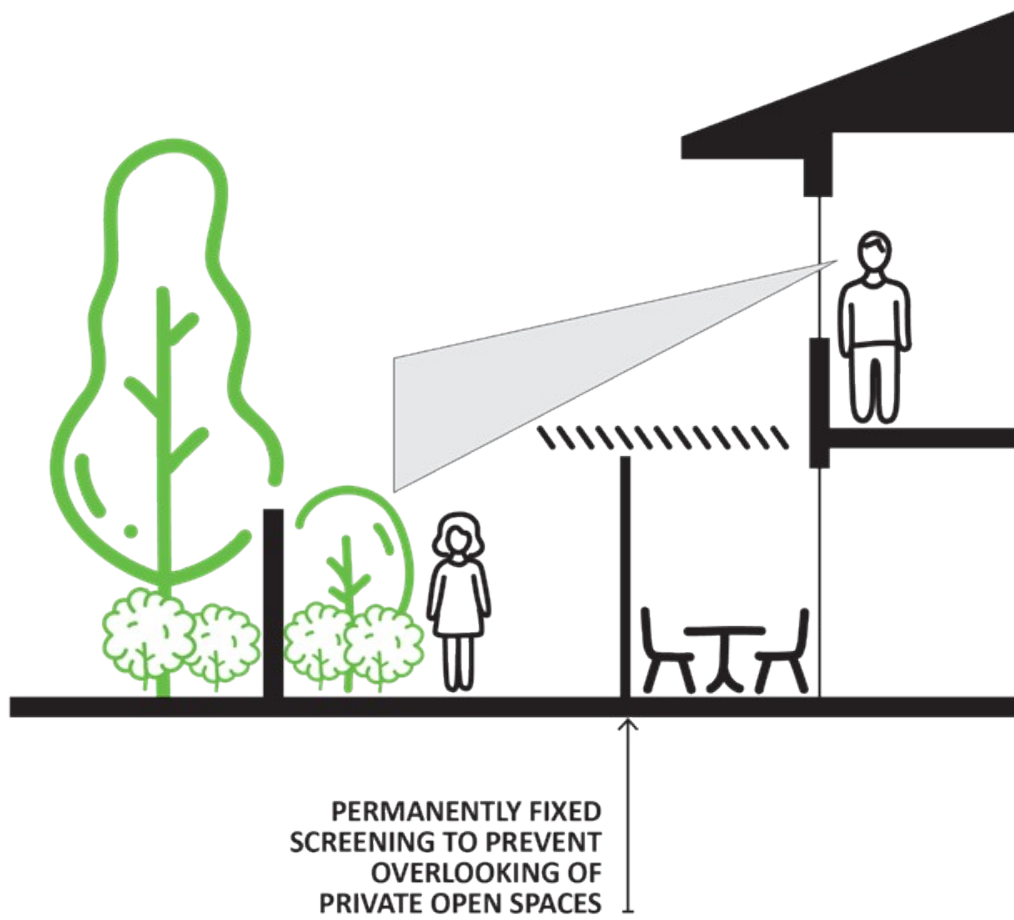


Figure 9.3-7: Glazing and fixtures designed to minimise overlooking

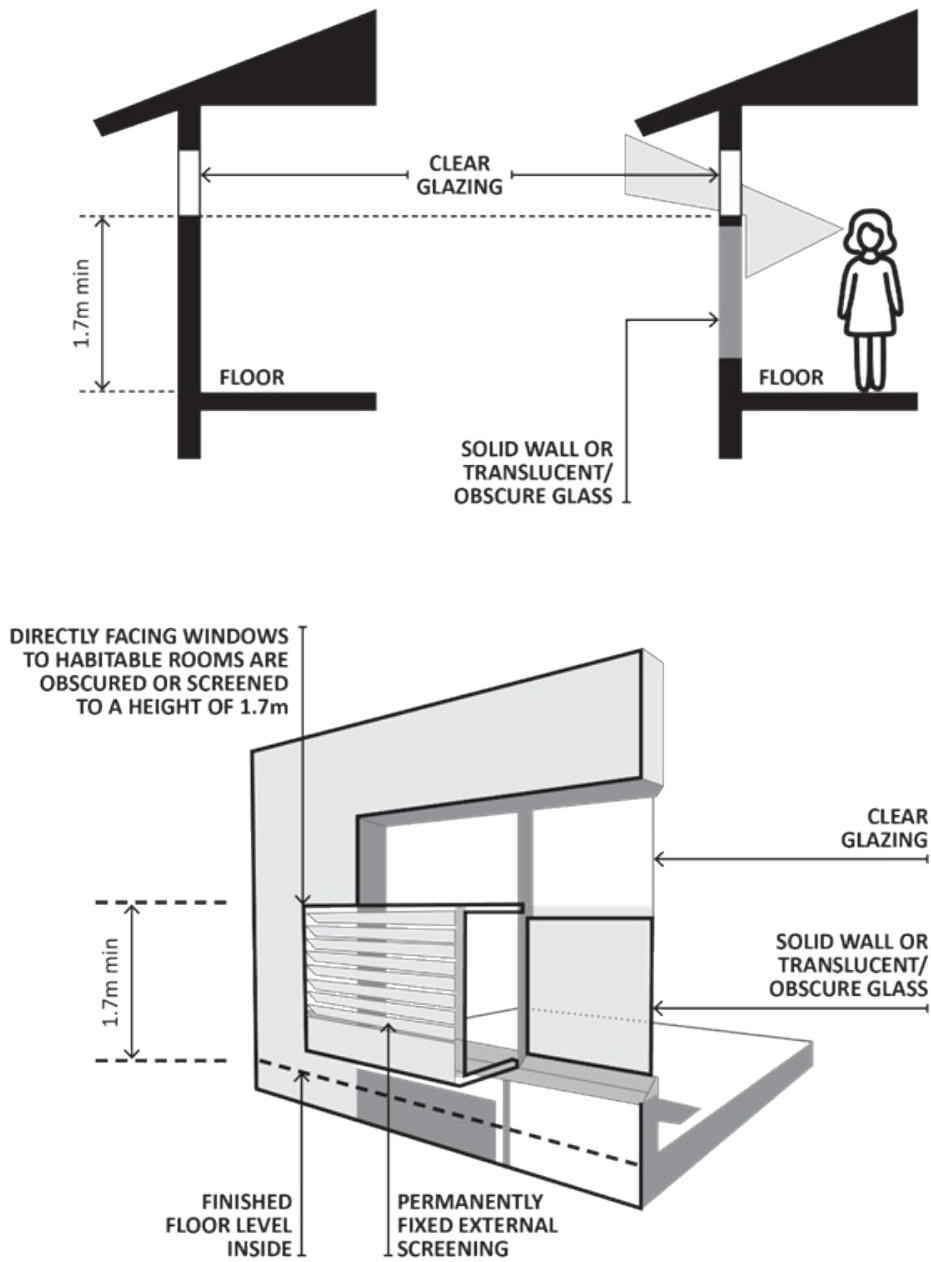


Figure 9.3-8: Communal open space

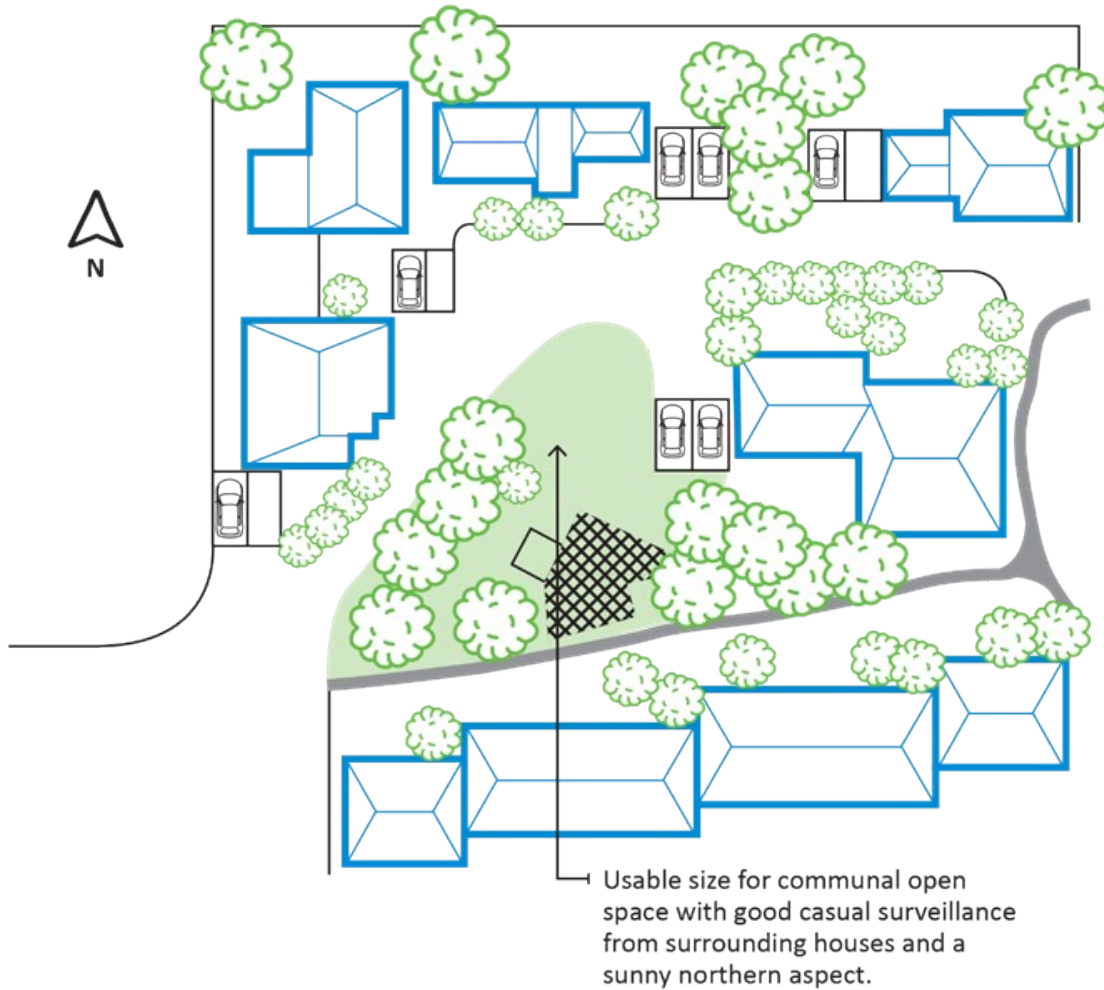


Table 9.3.8-4: Building setbacks

Editor's note—

1. Boundary setbacks are measured to the outermost projection of the building (i.e. roof line) unless otherwise stated.
2. Active street frontage is the road from where pedestrians and vehicles gain entry.

APPLICABLE ZONE	MINIMUM ACTIVE STREET FRONTAGE SETBACK	MINIMUM SECONDARY STREET FRONTAGE SETBACK	MINIMUM SIDE SETBACK	MINIMUM REAR SETBACK
Principal centre zone; and Major centre zone	a. 0m for storeys 1 & 2; b. 3m for storey 3; c. 6m for storey 4.	a. 2m for storeys 1 & 2; b. 3m for storey 3; c. 6m for storey 4.	a. 0m from a side boundary where adjoining a non-residential activity; b. 3m otherwise.	a. 0m from a rear boundary where adjoining a non-residential activity; b. 3m for storeys 1 & 2; c. 6m for storeys 3 & 4.
Local centre zone; and Mixed use zone	a. 0m for storeys 1 & 2 where adjoining a non-residential activity; b. 3m for storey 3 where adjoining a	a. 2m for storeys 1 & 2 where adjoining a non-residential activity; b. 3m for storey 3 where adjoining a		

	non-residential activity; c. 6m for storey 4 where adjoining a non-residential activity; d. 6m for where adjoining a residential activity.	non-residential activity; c. 4.5m for storey 4 where adjoining a non-residential activity d. 4.5m where adjoining a residential activity.		
Residential zones	6m	4.5m	3m for storeys 1 & 2; 5m for storey 3. <i>Note—A wall may be built to a side boundary where the wall has a maximum height of 3m and a maximum length of 15m unless it abuts a higher or longer existing or simultaneously constructed wall.</i>	3m

9.3.9 Outstation code

9.3.9.1 Application

1. This code applies where identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.3.9.2 Purpose

1. The purpose of the code is to ensure Outstations are conducted in a safe manner and protect the amenity of adjacent uses and adjoining residents.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Outstations are used by First Nations Peoples on a casual basis (i.e. on weekends, monthly or similar).
 - b. Outstations are not serviced by infrastructure.

9.3.9.3 Assessment benchmarks

Table 9.3.9-1: Outstations code — Assessment benchmarks for accepted and assessable development

1. All the Acceptable outcomes in this code are applicable to Accepted development.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
PO1 Outstations: <ol style="list-style-type: none">a. protect the country on which they are located;b. protect amenity of adjacent premises by being no closer than 100m from residential or rural activities.	AO1.1 Campers: <ol style="list-style-type: none">a. supply their own food, water and shelter;b. do not leave any waste or refuse behind;c. stay no more than 4 consecutive nights. AO1.2 Outstations do not include any constructed or permanent facilities. AO1.3 Parked vehicles are visually screened from any Dwelling house on adjacent or nearby premises.

9.3.10 Renewable energy facility code

9.3.10.1 Application

1. This code applies to development for which the Renewable energy facility code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.
3. The uses subject to this code are:
 - a. Battery storage facility;
 - b. Renewable energy facility.

9.3.10.2 Purpose

1. The purpose of the code is to ensure Renewable energy facilities and Battery storage facilities are designed and operated to protect the safety of the public, avoid environmental harm and nuisance and protect scenic and landscape amenity values.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Facilities protect the character, amenity and scenic landscape areas of the location through design, setbacks and landscaping of the facility.
 - b. Facilities are co-located or share an existing site with other electricity infrastructure and minimises the potential cumulative adverse effects of co-location.
 - c. Facilities are designed and operated to protect the safety of the public and avoid causing environmental harm or nuisance.
 - d. Facilities are designed and operated to be safe before and after natural hazard events and during construction and decommissioning.

Editor's note—Battery storage facilities that are more than 66kV/hr and/or more than 50m² in area, are defined as a Substation.

9.3.10.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.3.10-1: Renewable energy facility code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site characteristics	
<p>PO1 Development is located on land that is suited for the purpose and:</p> <ol style="list-style-type: none"> a. maintains water quality and hydrogeological processes; b. maintains ecological biodiversity and ecological connectivity; c. prevents adverse effects on environmental and water quality values and receiving waters; d. maintains an effectively stabilised surface. 	<p>AO1.1 Energy generation infrastructure is located outside the:</p> <ol style="list-style-type: none"> a. Agricultural land overlay; b. Biodiversity overlay; c. Cultural heritage overlay; d. Flood hazard overlay; e. Waterways and water resource catchment — Ecosystems overlay; f. Waterways and water resource catchment overlay — Water resource catchment overlay; g. areas of slope 10% or more. <p>AO1.2 Battery storage facilities, battery storage devices and Substations associated with a Renewable energy facility are located outside of:</p> <ol style="list-style-type: none"> a. the Bushfire hazard overlay; b. Critical Infrastructure Area; c. explosion risk area on OM8 Helidon management area overlay; d. high pressure gas pipeline explosion risk area on OM9B Infrastructure — Emissions and hazardous activities

	overlay.
Facility design	
<p>PO2 Renewable energy facilities and Battery storage facilities are connected to the power grid network that has regard to:</p> <ol style="list-style-type: none"> safety of the network connection; the location of the network connection and associated infrastructure; the scenic landscape character of the location. <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a technical assessment report including preliminary grid connection plans prepared by a suitably qualified professional.</i></p>	<p>AO2.1 Renewable energy facilities are located within 2km of the existing or approved:</p> <ol style="list-style-type: none"> electricity network; Substation. <p>AO2.2 Battery storage facilities are located towards the centre of the site and away from adjacent sensitive land uses, property boundaries and sensitive receptors.</p> <p>*AO2.3 Battery storage facilities in public areas (e.g. road reserve and parks) or residential zones are:</p> <ol style="list-style-type: none"> less than 2.4m in height; less than 4m in length. <p>AO2.4 Battery storage facilities are designed to:</p> <ol style="list-style-type: none"> maximise passive cooling; use mechanical cooling where the ambient temperatures could cause battery explosion and fire; contain battery explosions and fire.
Amenity	
<p>PO3 Renewable energy facilities and Battery storage facilities are located to protect and manage adverse effects on the amenity of surrounding sensitive land uses and the existing streetscape and broader region, having regard to:</p> <ol style="list-style-type: none"> the intent of the zone and surrounding zones that may be affected; the significance of the visual and character values; the streetscape character; reflection or glare. 	<p>AO3.1 Renewable energy facilities and Battery storage facilities are setback:</p> <ol style="list-style-type: none"> 500m from Conservation zone, except where siting is within 250m of a major electricity corridor or electricity easement. 1,500m from a Township zone, Rural residential zone and any other surrounding sensitive land uses. 30m from all boundaries. <p>AO3.2 Renewable energy facilities are setback:</p> <ol style="list-style-type: none"> 1,500m from Township zone, Rural residential zone and any other surrounding sensitive land uses. 30m from all boundaries. <p>AO3.3 If a solar farm, a glint and glare assessment and management plan is provided which considers the following impacts and adopts an accepted methodology based on best practice:</p> <ol style="list-style-type: none"> dwellings and roads within 1km of the proposed facility, taking into consideration their height within the landscape; aviation infrastructure including any air traffic control tower or runway approach path close to the proposed facility; any other sensitive receptor to which reflection may be a hazard or nuisance noting that the impacts of reflection may vary for each type of receptor.
<p>PO4 Renewable energy facilities and Battery storage facilities consider:</p> <ol style="list-style-type: none"> the sensitivity of the landscape and its ability to absorb change; the size, height, scale, spacing, colour and surface reflectivity of the facility's components; the number of facilities located close to each other within the same landscape; the excessive removal, or planting of inappropriate species of vegetation; the location and scale of other ancillary uses, buildings and works including major electricity corridor or easement, battery storage units and associated access 	No acceptable outcome is nominated.

roads; f. the proximity to environmentally sensitive areas such as public land, waterways and low-lying areas.	
PO5 Renewable energy facilities and Battery storage facilities: a. are co-located with other energy facilities to reduce the cumulative visual impacts of multiple facilities; or b. where possible and practical, are positioned in areas where the predominant land uses are energy facilities, industrial or commercial uses; c. are designed to facilitate future co-location of energy facilities; d. consider the cumulative impact of co-located facilities to ensure they are compatible with the amenity and character of the zone.	No acceptable outcome is nominated.
Acoustic assessment measures	
PO6 Renewable energy facilities and Battery storage facilities are located to protect and manage adverse effects on the amenity of surrounding sensitive land uses, having regard to the outdoor (free field) daytime and night-time 'A' weighted equivalent acoustic level (L _{aeq}), assessed at all noise affected existing or approved sensitive land uses.	AO6.1 Renewable energy facilities and Battery storage facilities have an outdoor (free field) night-time (10pm to 6am) acoustic level that does not exceed: a. 35dB(A); or b. the background noise (LA90) by more than 5dB(A); whichever is the greater. AO6.2 Renewable energy facilities and Battery storage facilities have an outdoor (free field) daytime (6am to 10pm) acoustic level that does not exceed: a. 37dB(A); or b. the background noise (LA90) by more than 5dB(A) whichever is the greater, for wind speed from cut-in to rated power of the wind turbine and each integer wind speed in between referenced to hub height.
Electromagnetic interference	
PO7 Development is designed, located and sited to avoid, or minimise and mitigate, electromagnetic interference to pre-existing television, radar and radio transmission and reception. <i>Note—Compliance with this Performance Outcome may be demonstrated by providing an electromagnetic interference impact assessment prepared by a suitably qualified profession to be consistent with standards in the Telecommunications Act (Cth) and Radiocommunications Act (Cth).</i>	AO7.1 Ancillary battery storage devices that are likely to generate an electro-magnetic pulse are centrally located within the facility.
Public safety	
PO8 Public access to Renewable energy facilities and Battery storage facilities the site is prevented. <i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i>	AO8.1 The site is secured by a minimum of 2m high fence to prevent unauthorised or accidental public access to the facility. AO8.2 Public warning and information signs are erected on a boundary or perimeter security fence to comply with workplace health and safety requirements. AO8.3 Battery storage facilities in public areas (e.g. road reserve and parks) are vandal proof.
Landscaping	
PO9 Landscaping mitigates: a. increases in heat on the microclimate; b. minimises adverse visual impacts of the facility from the street; c. integrates existing native vegetation into the landscaping	AO9.1 Landscaping minimises increases in microclimate by: a. locating landscaping around the Renewable energy facilities; b. including dense screen landscaping a minimum of 10m wide around the Renewable energy facilities.

<p>design.</p>	<p>AO9.2 Within the building setbacks, dense screen landscaping, screens facilities from the street, surrounding sensitive land uses, or any other highly visible public vantage point.</p> <p>AO9.3 Retention of mapped native vegetation areas may be used as dense screening where more than 10m wide.</p>
<p>PO10 Facilities assist with the movement of wildlife through the site by:</p> <ol style="list-style-type: none"> incorporating wildlife corridors and habitat refuges; and incorporating fencing that allows the passage of small animals without unreasonably compromising the security of the facility. 	<p>No acceptable outcome is nominated.</p>
<p>Emergency Management</p>	
<p>PO11 Renewable energy facilities and Battery storage facilities have an Emergency management plan that addresses natural hazards and extreme events to ensure that the facility does not unduly burden Emergency services.</p> <p><i>Note—Compliance with this requirement may require the facilities to be consistent with AS.3745 Planning for emergencies in facilities battery explosion risk management</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Construction management</p>	
<p>PO12 Development avoids, minimises or mitigates impacts on soils to ensure these can be maintained or returned to a pre-construction standard.</p> <p><i>Note—Compliance with this Performance outcomes may be demonstrated by Transport impact assessment and management plan consistent with Planning Scheme Policy 10 Transport Assessment, for during both construction and operation of the Renewable energy facility.</i></p>	<p>AO12.1 Renewable energy facilities and Battery storage facilities on land mapped as ALC Class A & B soils provide for removable options for the foundations for solar arrays and wind turbines instead of buried concrete foundations.</p> <p>AO12.2 Construction management practices minimise impacts on soil such as:</p> <ol style="list-style-type: none"> storage of excavated ALC Class A & B soils and replacing these as part of decommissioning; maintaining an effectively stabilised surface; identify site configurations to avoid land fragmentation and to manage overland flows and stormwater from any increase in impervious area.
<p>Decommissioning and rehabilitation</p>	
<p>PO13 Following cessation of the use, the site is rehabilitated to a condition which is suitable for other uses compatible with the zone.</p>	<p>AO13.1 Restoration of land after decommissioning considers:</p> <ol style="list-style-type: none"> who will be responsible for decommissioning the facility; at what stage the responsible authority will be advised the facility will be decommissioned; the processes, plans and procedures for removing all built form and for restoring the land to its pre-developed or natural state; where equipment will be disposed and if it can be recycled the timeline for the decommissioning work. <p>AO13.2 Restoration of the land is completed within 12 months after the use has ceased operation and the facility is decommissioned.</p> <p>AO13.3 Waste from decommissioned plant is disposed of based on the principles of the waste and resource management hierarchy.</p>

9.3.11 Retirement facility and Residential care facility code

9.3.11.1 Application

1. This code applies to development for which the Retirement facility and Residential care facility code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Retirement facility;
 - b. Residential care facility.

9.3.11.2 Purpose

1. The purpose of the Retirement facility and Residential care facility code is to ensure Retirement facility and Residential care facility development:
 - a. responds positively to local character and has a built form that is integrated with surrounding development;
 - b. provides a high standard of privacy and amenity for residents including well designed and useable open space and functional vehicle parking and manoeuvring areas;
 - c. protects the amenity and privacy of adjoining residents.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development is designed and sited to achieve a high level of amenity for residents of the facility and provides a stimulating, comfortable and attractive living environment for residents.
 - b. Development provides buildings that are designed to integrate with the character of the zone, provide home-like environments, privacy, independence, comfort and safety.
 - c. Development is located near activity centres, community facilities and services, public spaces and public transport.
 - d. Development has a site area and frontage width that is sufficient for the building scale, building form, open space measures and operation of the development, to deliver a comfortable living environment and to minimise adverse impacts on neighbours.
 - e. Development is designed and sited to contribute to and minimise adverse impacts upon the amenity of adjoining and adjacent residential dwellings and other sensitive land uses, including protecting visual privacy through appropriate setbacks, separation of buildings and screen landscaping.
 - f. Greater building heights for a Retirement facility or Residential care facility are supported on larger sites where the impacts from the height on adjoining and nearby sites can be mitigated by:
 - i. transitioning the height of the building down to the height of buildings surrounding the development;
 - ii. appropriate building setbacks, generous landscaping and open space buffers to adjoining sites;
 - iii. providing an appropriate balance of built form and open space.
 - g. Development is designed for the subtropical climate and landscape areas that are open, engaging and shaded, with opportunities to interact with the outdoors.
 - h. Retirement facilities provide useable private open spaces for each residence to maximise indoor-outdoor living opportunities.
 - i. Development provides a variety of communal open spaces for residents that are accessible and attractive.
 - j. Development is provided with a level of infrastructure and services commensurate with the use.

9.3.11.3 Assessment benchmarks

Table 9.3.11-1: Retirement facility and Residential care facility — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site characteristics	
PO1 The development is located on a site that has safe and convenient access to retail services and community facilities.	AO1.1 The site is located within 400m of a centre zone, parks and public transport route.
PO2 The development is located on a site that is of a size and configuration that accommodates a well-designed Retirement facility or Residential care facility development that: <ol style="list-style-type: none"> a. provides for attractive residences that have opportunities for access to natural light and breezes; b. achieves an appropriate balance between built form and 	AO2.1 The site area, frontage and site cover comply with Table 9.3.11-2: Site requirements and building height. AO2.2 Development is located on a site with a slope less than 10% and is clear of any utilities, the stormwater drainage network and service easement/s.

<ul style="list-style-type: none"> areas of open space and landscaping; c. incorporates attractive and functional communal and private open space areas and landscaping; d. results in safe and efficient vehicle access, parking and manoeuvring areas; e. includes any necessary buffering to incompatible uses or to protect the amenity and privacy of adjoining residences. 	<p>AO2.3 The development is not established in a cul-de-sac, access street or on a rear access lot.</p>
<p>Design and appearance</p>	
<p>PO3 Development provides for the accommodation needs of users of all ages and abilities at various stages of their lives, allowing independence for people with disabilities, seniors and people requiring assisted living.</p> <p><i>Note—Compliance with this Performance outcome may be achieved by meeting the planning and design standards and key design elements of PDA guideline no. 02 Accessible housing published by the Queensland Department of Infrastructure, Local Government and Planning.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO4 The overall scale and proportions of the development:</p> <ul style="list-style-type: none"> a. respond to the subdivision pattern; b. reflect the streetscape pattern; c. reflect the zone in which it is located. 	<p>No acceptable outcome is nominated.</p>
<p>PO5 Retirement facilities provide a range of unit designs and sizes are provided in the development to cater for different individual and household needs.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO6 The building design ensures the development achieves a comfortable and attractive living environment that is appropriate for the sub-tropical climate of the region through:</p> <ul style="list-style-type: none"> a. including verandas or balconies; b. the use of structural elements and building materials of varying scales and textures; c. variations in exterior colours; d. suitable number and size of windows; e. the use of awnings and other sun protection devices; f. variation to roof and building lines; g. recesses on building plane; h. incorporating design elements to increase energy efficiency. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the Subtropical Design in South East Queensland — A Handbook for Planners, Developers and Decision Makers, prepared by the Centre for Subtropical Design.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO7 Buildings are sited and designed to:</p> <ul style="list-style-type: none"> a. maximise cross-breezes through the site; b. minimise solar heat loads; c. promote access to breezes and natural light. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a sunlight and shadow analysis of the proposed development prepared by suitably qualified person.</i></p>	<p>AO7.1 Buildings are oriented on the site to:</p> <ul style="list-style-type: none"> a. allow prevailing south-east and north-east breezes to pass through the development; b. maximise the exposure of individual residences to prevailing and cross-breezes; c. minimise exposure to western sun. <p>AO7.2 Development does not result in the loss of solar access to habitable rooms and private open space of surrounding sites:</p> <ul style="list-style-type: none"> a. between 9am and 3pm on 21 June; or b. where overshadowing occurs, a minimum of 3hrs of sunlight is retained between 9am and 3pm on 21 June. <p>AO7.3 Individual residences are designed for natural ventilation and light with openings to 2 or more distinct</p>

<p>PO8 Development provides an entrance that defines the threshold between public and private space and provides:</p> <ol style="list-style-type: none"> safe, secure and convenient access to the site for residents and visitors; a sufficiently scaled and sheltered entry and meeting space; clear building signage and numbering to support visitor and emergency access; lighting; conveniently located mailboxes (Retirement facility); a clear visual and physical transition between private outdoor space and the street. 	<p>aspects.</p> <p>AO8.1 Development provides a clear pedestrian access that is separated from vehicle access and connects the building directly with the road reserve and includes:</p> <ol style="list-style-type: none"> waiting space off the footpath; shelter; lighting; mailboxes (Retirement facility). <p>AO8.2 Development for a Retirement facility containing ground storey dwellings adjacent to the street frontage, includes:</p> <ol style="list-style-type: none"> direct and level entry from the street; private outdoor space setbacks to accommodate a minimum 2m landscape area between the front boundary and the dwellings' private outdoor space; street numbering.
<p>Building height, setbacks and transitions</p>	
<p>PO9 Development is designed to minimise the appearance of building bulk and create a human-scale connection with the streetscape while reflecting the surrounding built character by:</p> <ol style="list-style-type: none"> reflecting the predominant height of existing or approved buildings in the street; where building height is more than the predominant height in the local street, the development reduces heights towards site boundaries to a compatible scale with the height of buildings on surrounding sites; contributing to the character of the streetscape and relates to the existing streetscape rhythm and setback pattern. <p><i>Note—Compliance with this Performance Outcome may be demonstrated through the streetscape elevations, site sections and plans showing adjoining and street context, shadow diagrams and landscape plans.</i></p>	<p>AO9.1 Buildings that are 4 storeys or more have a podium that is 2 storeys high.</p> <p>AO9.2 Buildings meet the setback requirements Table 9.3.11-3: Boundary setbacks.</p> <p>AO9.3 Buildings orientate towards and overlook streets and public spaces consistent with Figure 9.3-4: Mixed use development.</p> <p>AO9.4 Development adjoining a lot containing a Dwelling house in a residential zone has maximum building height of 8.5m or 2 storeys within 10m of the adjoining boundary.</p> <p>AO9.5 Development adjoining a lot with a use other than a Dwelling house is a maximum of 1 storey more than the building height on the adjoining site where within 10m of the adjoining boundary.</p>
<p>Building design in centre zones or Mixed use zone</p>	
<p>PO10 Development in the centre zones or the Mixed use zone is:</p> <ol style="list-style-type: none"> located, designed and constructed to protect bedrooms and other habitable rooms from exposure to noise arising from non-residential activities; designed and constructed to achieve a minimum reduction in sound pressure level between the exterior of the building and the bedrooms or indoor primary living areas of 30dBA. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a noise impact assessment report prepared by a suitably qualified professional.</i></p>	<p>AO10.1 Development in the centre zones or the Mixed use zone has a minimum acoustic performance of:</p> <ol style="list-style-type: none"> Rw 35 for glazing (windows and doors) where total area of glazing is more than 1.8m²; Rw 32 for glazing (windows and doors) where total area of glazing is less than or equal to 1.8m².
<p>PO11 Development is designed and sited in a manner which:</p> <ol style="list-style-type: none"> addresses and provides an active frontage to the street and other public areas; promotes casual surveillance of the street and other public and semi-public spaces. 	<p>AO11.1 Where built to the front boundary, the development provides for an integrated awning and veranda over footpaths along the street frontage consistent with Figure 9.3-4: Mixed use development.</p> <p>AO11.2 Multiple building entrances are provided and are appropriately spaced to provide visual interest and activity.</p> <p>AO11.3 Development located above ground level in a centre zone or Mixed use zone has:</p>

	<ul style="list-style-type: none"> a. a clearly identifiable front door; b. low maintenance building materials and non-reflective finishes on exterior; c. external drainage or other pipes integrated with building design; d. service areas behind the main face of the dwellings.
Design requirement for higher dwelling densities over 120 dwellings for each hectare	
<p>PO12 Development meets the Gold Level of performance in the Liveable Housing Australia's Liveable Housing Design Guidelines.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design assessment prepared by a suitably qualified professional.</i></p>	No acceptable outcome is nominated.
<p>PO13 Development is consistent with Best Practice Principles for Seniors Community Design.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design assessment prepared by a suitably qualified professional.</i></p>	No acceptable outcome is nominated.
<p>PO14 Parapets, rooftops and building caps contribute to architecturally distinct buildings and the roofline is not marred by plant and equipment.</p>	<p>AO14.1 Development provides building caps and rooftops which:</p> <ul style="list-style-type: none"> a. include interesting forms created through pitches, gables, skillions or other features; b. ensures rooftop service structures, lift motor rooms and mechanical plant and equipment is visually and acoustically screened from any communal open space on the rooftop; <p><i>Note—Architectural features of the building may be used that screen services structure may include enclosed rooms or the roof form.</i></p> <ul style="list-style-type: none"> c. allows for the inclusion of plant and equipment in an unobtrusive manner.
Privacy and amenity	
<p>PO15 The development is designed so that dwellings, private open spaces and surrounding residential sites are provided with a reasonable level of privacy.</p>	<p>AO15.1 Development provides a minimum separation distance of 12m or more between balconies on-site and a balcony on an adjoining site.</p> <p>AO15.2 Development provides a minimum separation distance of 9m between windows on-site and a window on adjoining site.</p> <p>AO15.3 Windows and openings:</p> <ul style="list-style-type: none"> a. of habitable rooms (e.g. bedrooms or living rooms) do not overlook habitable rooms of another dwelling consistent with Figure 9.3-5: Privacy screening and Figure 9.3-6: Screening to prevent overlooking; or b. where the windows of a bedroom or living area look at similar room windows in an adjoining dwelling and the buildings are within 2m at ground level and 8m above ground floor, privacy is provided by glazing and fixtures designed to minimise overlooking consistent with Figure 9.3-7: Glazing and fixtures designed to minimise overlooking and: <ul style="list-style-type: none"> i. sill heights are a minimum of 1.7m above the finished floor level; or ii. fixed opaque glass below 1.7m; or iii. fixed external screens; or iv. a 2m high screen fence.

	<p>AO15.4 The outlook from windows, balconies, stairs, landings, terraces, decks and other private, communal or public areas is screened where there is a view into private open space areas for a surrounding existing use consistent with Figure 9.3-5: Privacy screening and Figure 9.3-6: Screening to prevent overlooking.</p> <p>AO15.5 Screening of windows, balconies, terraces and decks uses perforated panels or trellises that have a maximum opening of 25% and are permanently fixed consistent with Figure 9.3-6: Screening to prevent overlooking and Figure 9.3-7: Glazing and fixtures designed to minimise overlooking.</p> <p>AO15.6 Bedroom windows are 3m away from shared driveways, car parking areas, mechanical plant, refuse and recycling areas, vents and exhausts.</p>
<p>PO16 Where the development forms part of a mixed-use development, residents are provided with reasonable levels of privacy and security.</p>	<p>AO16.1 Where development forms part of a mixed-use development:</p> <ul style="list-style-type: none"> a. entry areas for residents and visitors to dwellings are provided separately from entrances for other building users; b. clearly marked, safe and secure parking areas are provided for residents and visitors which are separate from parking areas provided for other building users; c. security measures are installed such that other building users do not have access to areas that are intended for the exclusive use of residents and their visitors.
Private open space	
<p>PO17 Development provides private open space that:</p> <ul style="list-style-type: none"> a. is clearly differentiated from areas of communal open space; b. is immediately accessible from the main living area of the dwelling; c. has dimensions capable of accommodating outdoor recreation needs and space for residents and service functions; d. is clearly defined from public open space areas; e. is partially covered to provide an all-weather area for outdoor dining and entertainment; f. is located to provide privacy considering outlook, natural site features, sunlight and breezes; g. provides residents with attractive functional private open space or indoor-outdoor spaces that receive extensive natural light and breezes while offering protection from the elements. 	<p>AO17.1 Each dwelling has direct access to private open space from the main living area of the dwelling.</p> <p>AO17.2 Development for a Retirement facility:</p> <ul style="list-style-type: none"> a. provides balconies or private open space immediately accessible from primary living areas with a minimum 2m² screened area capable of screening clothes lines etc.; b. positions private open space to the north or north-east in a minimum of 75% of dwellings. <p>AO17.3 Development for a Residential care facility provides residents' rooms with:</p> <ul style="list-style-type: none"> a. balconies or direct access to open space; or b. openings enabling natural ventilation and natural light, such as balconette or operable louvres. <p>AO17.4 Facilities and dwellings that do not contain balconies or direct access to private open space ensure residents' rooms of a Residential care facility, habitable rooms in a Retirement facility and communal facilities, have:</p> <ul style="list-style-type: none"> a. an outlook to communal or public open space; b. access to natural ventilation and natural light through the extensive use of windows.
Communal open space	
<p>PO18 Development provides communal open space that is easily accessible and designed to provide:</p> <ul style="list-style-type: none"> a. residents with passive and active recreation; b. a comfortable and attractive outlook for residents and maximises opportunities for shared access to views; c. opportunity for a range of uses and flexible use; 	<p>AO18.1 Development provides communal open space that is:</p> <ul style="list-style-type: none"> a. consistent with Figure 9.3-8: Communal open space; b. provided in addition to private open space; c. separate from private open space at ground level by a screen fence or landscaping;

<p>d. opportunities for interaction with and observation of the local community;</p> <p>e. a balanced combination of soft and hard landscape features;</p> <p>f. natural light but is shaded to protect the residents from direct sunlight.</p>	<p>d. 25% or more of the total site area of which generally:</p> <ul style="list-style-type: none"> i. 50% is outdoor communal open space; ii. 25% is dedicated as internal recreation space; iii. 25% is landscaped open space; <p>e. exclusive of the stormwater drainage network and slopes 10% or more;</p> <p>f. is accessible from the building's public areas, entries or lobbies and provides equitable access for residents;</p> <p>g. protects and maintains the amenity of dwellings within the development and surrounding the site;</p> <p>h. for a Residential care facility, 75% of the communal open space areas are positioned to the north or north-east.</p> <p><i>Note—Internal communal open spaces may include a gymnasium, movie room or entertainment room.</i></p> <p>AO18.2 Communal open space may be provided in a variety of locations including rooftops, on podiums or at ground level.</p> <p>AO18.3 Communal open space is:</p> <ul style="list-style-type: none"> a. provided with basic facilities such as seating, shade and wind protection (either structures or planting) and flexible spaces suitable for a range of recreation activities; b. designed to provide a range of recreational facilities such as seating, barbeque, swimming pool and vegetable garden, commensurate with the development. <p>AO18.4 Internal communal areas provide large openings to outdoor spaces and windows with ventilation.</p>
<p>PO19 Open space and recreational areas meet the requirements of residents.</p>	<p>AO19.1 Open space is:</p> <ul style="list-style-type: none"> a. screened by landscaping or fencing to maintain privacy; b. exclusive of driveways, car parking, garbage collection points, clothes drying areas and other utilities. <p>AO19.2 The surface of driveways, internal walkways, entries, outdoor patios, letter boxes and clothes lines are:</p> <ul style="list-style-type: none"> a. semi-porous to maximise on-site infiltration of stormwater; b. finished in non-slip surfaces; c. suitable for use by people dependent on walking frames and wheelchairs.
<p>Landscaping and fencing</p>	
<p>PO20 Landscaping and fencing:</p> <ul style="list-style-type: none"> a. improves the appearance of the development from the street and makes a positive contribution to the streetscape; b. maintains views from the street to the main building line and front entry and provides for clear lines of sight for vehicle access to the site; c. allow casual surveillance of the street; d. defines and screens private open space and service areas, such as rubbish bin areas and clothes drying areas from the street; e. defines communal open space areas; f. assists in highlighting the pedestrian entries; g. assists in managing the microclimate to conserve energy and water. 	<p>AO20.1 Existing mature trees are retained and incorporated into the design of the development, wherever practicable.</p> <p>AO20.2 Development provides 1 street tree for every 10m of road frontage that can grow to a maximum height of 12m with a canopy width of 6m.</p> <p>AO20.3 A 2m high screen fence is erected along the boundary, except within the front building setback consistent with Figure 9.3-1: Fence heights and Figure 9.3-2: Fence height locations.</p> <p>AO20.4 Front boundary walls are provided along a street boundary where located on a collector street or higher on OM15 Road hierarchy overlay:</p> <ul style="list-style-type: none"> a. are a height of 2m; b. are of solid construction; c. where more than 10m in length are articulated to provide visual interest and improves the streetscape consistent

	<p>with Figure 9.3-3: Articulated Walls.</p> <p>AO20.5 Fences and walls along a street boundary where <u>not</u> located on a collector street or higher on OM15 Road hierarchy overlay:</p> <ol style="list-style-type: none"> are 1.2m high where solid; or 2m high where more than 50% transparent; consistent with Figure 9.3-1: Fence heights and Figure 9.3-2: Fence height locations. <p>AO20.6 Security fencing or gates to vehicle access are located 1m behind the main building line and not on the front boundary.</p> <p>AO20.7 The surface of driveways and internal walkways exposed to the elements are:</p> <ol style="list-style-type: none"> permeable to maximise on-site infiltration of stormwater; finished in non-slip surfaces. <p><i>Note—Permeable pavements are not considered impervious area or landscaping and:</i></p> <ol style="list-style-type: none"> excluded from the maximum site cover; do not form part of the minimum landscape requirements. <p>AO20.8 Unpaved or unsealed landscaped areas are maximised and are designed to facilitate on-site infiltration of stormwater run-off.</p> <p>AO20.9 Landscaping within communal open space is a minimum of 30% of the communal open space.</p>
<p>Service facilities</p>	
<p>PO21 Development provides a secure storage area for long and short-term storage for each dwelling that caters to the resident's needs.</p>	<p>AO21.1 A secure storage area is provided for each dwelling that:</p> <ol style="list-style-type: none"> has a minimum area of 3m²; has a minimum height of 2m; is weatherproof and above the defined flood level; can be accessed by the resident at any time. <p>AO21.2 A storage area with an electrical charging point is provided for mobility devices within each dwelling.</p>
<p>PO22 Development provides appropriate on-site management, social and care facilities to support residents.</p>	<p>AO22.1 Retirement facilities and Residential care facilities include:</p> <ol style="list-style-type: none"> on-site management facilities; supervised care facilities; social and recreation facilities in communal buildings or outdoor area.
<p>PO23 Service structures and mechanical plant (e.g. air conditioners, hot water systems and swimming pool equipment) are located, screened, or incorporated as part of the building form to screen adjacent sites acoustically and visually.</p>	<p>AO23.1 Services structures and mechanical plant are located or screened to mitigate noise and visual impacts to:</p> <ol style="list-style-type: none"> the street and other public spaces; adjacent residential premises. <p>AO23.2 Mechanical plant is not located on balconies or adjacent to other liveable areas.</p> <p>AO23.3 Services and mechanical plant are located adjacent to service areas and within building recesses.</p>
<p>Pedestrian movement</p>	
<p>PO24 The development is designed and sited to:</p> <ol style="list-style-type: none"> provide a clear pedestrian access from the road reserve to the main entry of the building; minimise the potential for pedestrian-vehicle conflicts; 	<p>AO24.1 Pedestrian access to the site:</p> <ol style="list-style-type: none"> is located on the primary frontage; has a clear front entrance that is accessible from the street;

<p>c. is well signed and lit.</p>	<p>c. has an undercover point of entry; d. has a pathway that is separate from the vehicular access.</p> <p>AO24.2 The main pedestrian entry is well lit and signed.</p> <p>AO24.3 Lighting is provided to internal walkways, residence entries, driveways and carparks to ensure a high level of safety and security for residents and visitors at night.</p> <p>AO24.4 Outdoor lighting for security purposes: a. is directed inwards to the site; b. is hooded to ensure there is no disturbance to surrounding residents.</p> <p>AO24.5 Development provides: a. strong way-finding and visual cues to support navigation through the site; b. a variety of places to sit at intervals along internal walkways; c. resting seats, shade and handrails that are incorporated into the walkway design.</p>
<p>PO25 The entrance to the office, reception area and guest lounge is designed to be seen from the street and easily identifiable.</p>	<p>AO25.1 Pedestrian access to the site by people other than residents and employees is limited to a single public entry which may be controlled using gates or other security devices.</p> <p>AO25.2 The entrance to office/reception and visitor areas is lit and signed.</p> <p>AO25.3 Entrances/exits are located to provide a direct link to driveways and car parking areas.</p>
<p>PO26 The pedestrian movement: a. allows residents to easily navigate the site on foot or with the assistance of mobility aids; b. incorporates protected internal walkways, particularly those linking residences with communal facilities; c. provides comfortable and attractive environment with points to rest, socialise and observe surrounding activities; d. provides a variety of circulation options; e. links with external active transport networks; f. is well signed and lit.</p>	<p>AO26.1 Internal walkways: a. are a width of 2m or 3.5m when combined with a seating area; b. comply with <i>AS. 1428 Design for Access and Mobility</i>; c. have a firm, level, well drained non-slip surface; d. provide handrails where there are grade changes or other areas of potential risk to pedestrians; e. provide a covered principal walkway that link on-site communal facilities.</p>
Vehicle Access and Parking	
<p>PO27 Development results in safe and efficient vehicle access, parking and manoeuvring areas and does not introduce excessive traffic volumes onto residential streets.</p>	<p>AO27.1 The development is not located on a rear access lot, or on a lot where access is by means of an easement/s.</p> <p>AO27.2 The development is not established in a cul-de-sac, access street or rear access lots.</p> <p>AO27.3 Carports and garages are compatible with the main building design in terms of height, roof form, detailing, materials and colours</p>
Hours of Operation	
<p>PO28 Hours of operation for delivery vehicles are managed so that the Retirement facility or Residential care facility does not impact on the amenity of: a. a residence within the building where the use is located; b. surrounding sensitive land uses.</p>	<p>AO28.1 Hours of operation for delivery vehicles are: a. unlimited in the Principal centre zone or Major centre zone; b. limited to 6am to 10pm in the Local centre zone or the Mixed use zone; c. limited to 7am to 8pm in any other zone.</p>

Table 9.3.11-2: Site requirements and building height

Note—The maximum site cover should be calculated on the net developable area, that is the total area of the site free of overlay constraints. Land below 5% AEP is to be used for the stormwater drainage network. Land between 5% to 1% AEP are floodways and cannot be used for development.

ZONE	MINIMUM NET DEVELOPABLE AREA	MINIMUM ROAD FRONTAGE	MAXIMUM SITE COVER	MAXIMUM BUILDING HEIGHT
Major centre zone Principal centre zone	1,000m ²	20m	90%	4 storeys and 15m
Mixed use zone Community facilities zone	3,000m ²	40m	70%	4 storeys and 15m
Local centre zone	3,000m ²	40m	70%	3 storeys and 12.5m
Low-medium density residential zone	3,000m ²	40m	50%	3 storeys and 12.5m
Low density residential zone	3,000m ²	40m	50%	2 storeys and 8.5m

Table 9.3.11-3: Boundary setbacks

Editor's note—

- a. Boundary setbacks are measured to the outermost projection of the building (i.e. roof line) unless otherwise stated.*
- b. Active street frontage is the road from where pedestrian and vehicles gain entry.*

ZONE	MINIMUM ACTIVE STREET FRONTAGE SETBACK	MINIMUM SECONDARY STREET FRONTAGE SETBACK	REAR BOUNDARY MINIMUM SETBACK	SIDE BOUNDARY MINIMUM SETBACK
Major centre zone Principal centre zone	0m	0m	0m from a side boundary where adjoining a non-residential use; 3m in all other circumstances	0m from a rear boundary where adjoining a non-residential use; 3m for storeys 1 & 2 in all other circumstances; 6m for storeys 3 & 4 in all other circumstances
Mixed use zone Community facilities zone Local Centre	0m for storeys 1 & 2 where adjoining a non-residential use; 3m for storeys 3 & 4 where adjoining a non-residential use; 6m in all other circumstances	1.5m for storeys 1 & 2 where adjoining a non-residential use; 3m for storeys 3 & 4 where adjoining a non-residential use; 4.5m in all other circumstances		
Low-medium density residential zone Low density residential zone	6m	4.5m		

9.3.12 Roadside stall code

9.3.12.1 Application

1. This code applies to development for which the Roadside stall code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.3.12.2 Purpose

1. The purpose of the Roadside stall code is to allow for Roadside stalls to provide low-key, informal secondary income opportunities in rural areas that are appropriate to the character of the zone and ensure safe access.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Roadside stalls are very small scale uses associated with the rural use of land that integrate with the streetscape.
 - b. Roadside stalls protect and maintain the centre hierarchy.
 - c. Roadside stalls can be accessed by the traveling public and pedestrians safely.

9.3.12.3 Assessment benchmarks

1. All the Acceptable outcomes in this code are applicable to accepted development.

Table 9.3.12-1: Roadside stall code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Land use	
<p>PO1 Roadside stalls are very small-scale, rural activities providing ancillary economic benefits to farms and small holdings while staying consistent with rural character, views and vistas.</p>	<p>AO1.1 Only 1 Roadside stall is provided for any site.</p> <p>AO1.2 Goods offered for sale are produced from rural activities on the site on which the Roadside stall is located.</p> <p>AO1.3 The Roadside stall is less than 10m² GFA.</p> <p>AO1.4 The Roadside stall operates only during day-light hours.</p> <p>AO1.5 Advertising devices associated with the Roadside stall:</p> <ol style="list-style-type: none"> a. are limited to 2 advertising devices; b. are located on the same site as the Roadside stall; c. have a maximum face area of 0.7m² each.
Access, parking and movement	
<p>PO2 The safe and efficient movement of vehicles is protected and maintained having regard to:</p> <ol style="list-style-type: none"> a. the amount and type of vehicle traffic on adjoining roads; b. the characteristics of the road frontage and the construction standards of the road itself; c. any impacts on driver visibility. <p><i>Editor's note—The Queensland Government Roadside Vending on State-controlled Roads — Technical Assessment Guide may help in interpreting this requirement for some roads.</i></p>	<p>AO2.1 The existing, primary access for the site is used to access the Roadside stall.</p> <p>AO2.2 Vehicles visiting the Roadside stall are directed to access the Roadside stall through the existing, primary access for the site and are provided with enough area on the premises to park.</p> <p>AO2.3 No vehicles associated with the Roadside stall, park or stop on road reserve.</p> <p>AO2.4 The vehicle access has a clear sight distances as follows:</p> <ol style="list-style-type: none"> a. 60km/hr road — 200m or greater; or b. 80km/hr road — 300m or greater; or c. 100km/hr road — 600m or greater.

Where involving new building work

<p>PO3 The height, scale and bulk of buildings:</p> <ul style="list-style-type: none"> a. contribute positively to the character of the zone; b. reflects the role of the zone in which they are located; c. presents an attractive built form; d. transitions sympathetically to adjoining lots or surrounding sensitive land uses by building height and setbacks. 	<p>AO3.1 Development meets the following requirements for the listed zones:</p>	
	Zone	Maximum Building Height
	Emerging community zone; Rural residential zone; Rural zone.	2.5m
	In all other zones, no acceptable outcome is nominated.	

9.3.13 Rural uses code

9.3.13.1 Application

1. This code applies to development for which the Rural uses code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Animal husbandry;
 - b. Animal keeping;
 - c. Aquaculture;
 - d. Intensive animal industry;
 - e. Intensive horticulture;
 - f. Rural industry;
 - g. Wholesale nursery;
 - h. Winery.

Note—This code does not apply to a Winery in the Industry zone. Where a Winery occurs in the Industry zone the Industry use code applies.

Editor's note—A mushroom farm does not involve the manufacturing of substrate. Manufacturing substrate for mushroom growing is defined as High impact industry.

9.3.13.2 Purpose

1. The purpose of the code is to ensure that Rural uses are located, designed and operated to avoid or minimise impacts on the rural scenic areas, important agricultural areas, amenity and environmental values, and are provided with appropriate infrastructure.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Rural uses are established on sites that have an area to accommodate all infrastructure associated with the use and to provide separation distances to manage adverse effects on rural amenity and the environment.
 - b. Intensive animal industry maintains the landscape character.
 - c. Intensive animal industry is located, designed and managed to protect sensitive land uses.
 - d. Rural uses avoid creating adverse effects such as environmental harm or environmental nuisance.
 - e. Rural uses protect the amenity of adjacent sensitive land uses and are not located where dust, noise, odour, light and noise generated by the use could negatively impact on surrounding sensitive land uses.
 - f. Matters of environmental significance are protected from the adverse environmental impacts of the development.
 - g. Rural uses are located and operated to protect and maintain existing water quality values.
 - h. Development is provided with a standard of infrastructure that reflects the operational needs and capacity of the development.
 - i. Rural uses are located on sites with access to a road network that can safely and efficiently carry the traffic predicted to be generated by the development.
 - j. Development ensures roads are of a standard that can safely and efficiently carry traffic generated by the development that has regard to the type and frequency of existing traffic movement on roads.

Editor's note—Before undertaking development a Soil Conservation Plan search under the Soil Conservation Act is recommended before development application is made, as failure to understand the presence and meaning of plans can cause significant issues (e.g. erosion, impacts on infrastructure and legal conflicts). Consideration should also be given to Soil conservation guidelines for Queensland.

9.3.13.3 Assessment benchmarks

Table 9.3.13-1: Rural uses code — Assessment benchmarks for accepted and assessable development

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Editor's note—Applicants seeking approval for Aquaculture or Intensive animal industry should refer to the relevant national guidelines. Applicants should consult with the Department of Agriculture and Fisheries regarding environmentally relevant activities before submitting a development application.

Editor's note—Under the Animal Management (Cats and Dogs) Act, an animal that is less than 12 weeks (about 3 months) old is not considered a cat or a dog.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site characteristics	
<p>PO1 Development is located on a site that is suitable for the purpose and is located and of sufficient area to:</p> <ol style="list-style-type: none"> accommodate the use (including all buildings, structures and waste disposal areas involved in the use); provide separation areas to property boundaries and other in rural uses; does not locate in areas likely to prejudice planned future residential activities. 	<p>*AO1.1 Development is located on a site consistent with the measures in:</p> <ol style="list-style-type: none"> Table 9.3.13-3: Minimum site area for development; Table 9.3.13-4: Separation distances for operations. Table 9.3.13-5: Separation distances for ancillary facilities. <p>For Aquaculture or Intensive animal industry only:</p> <p>*AO1.2 The site is separated from an existing Aquaculture or Intensive animal industry by a minimum of 1km.</p> <p>AO1.3 Aquaculture is located in the:</p> <ol style="list-style-type: none"> Industry zone or Rural zone where inside a building or covered facility; or Rural zone otherwise.
Amenity	
<p>PO2 The development is positioned, designed, constructed and managed to:</p> <ol style="list-style-type: none"> minimise adverse effects on visual amenity; avoid and manage adverse impacts on the amenity on surrounding sensitive land uses. 	<p>*AO2.1 Development is consistent with the separation distances in Table 9.3.13-4: Separation distances for operations.</p> <p><i>Note—Operational areas including enclosures, tanks, ponds, stockfeed storage areas, composting areas, waste disposal areas, rearing and weaning sheds. Operational areas exclude supporting uses such as Dwelling house, Caretaker’s accommodation and Rural workers accommodation.</i></p> <p>AO2.2 The design and positioning of mechanical equipment (including fans, pneumatic feed systems and other equipment) minimises the generation of mechanical noise and the likelihood of odour, dust and off-site vibration.</p> <p><i>Note—Where the buffer distances conflict with 9.4.6 Landscaping code this outcome prevails over the minimum buffer requirements. Buffers may include mapped vegetation on:</i></p> <ol style="list-style-type: none"> OM3A Biodiversity — Ecological areas overlay; OM3B Biodiversity — Wildlife habitat overlay; OM3C Biodiversity — Waterways and Wetlands overlay. <p>AO2.3 Equipment, machinery, access crossover and internal roads likely to generate noise, off-site vibration or dust are located to minimise noise to adjacent premises including but not limited to loading and unloading.</p> <p>*AO2.4 Indoor animal enclosures within 50m of a sensitive land use include acoustic reduction measures integrated into buildings including, but not limited to:</p> <ol style="list-style-type: none"> walls constructed of concrete masonry or solid concrete; ceiling insulation; thick window glazing, double glazing, or acoustically sealed windows; acoustically sealed doors. <p>*AO2.5 Any enclosure in which an animal is kept is maintained in a clean and sanitary condition.</p> <p>*AO2.6 The area in which an animal is kept is appropriately sized so that the animal is comfortably kept.</p>

	<p>*AO2.7 A person responsible for the supervision of the animals is accommodated on the site.</p> <p>*AO2.8 Indoor enclosures (i.e. excluding yards) have impervious reinforced concrete floors that are gravity drained to allow the collection and treatment of wastewater by an on-site wastewater treatment system.</p> <p>*AO2.9 For kennels and catteries:</p> <ol style="list-style-type: none"> animals are kept in enclosures at all times, and between the hours of 6.00 pm and 7.00 am are kept inside buildings; animal runs are fenced to a minimum height of 1.8 m and are designed to prevent escape of animals by climbing, jumping or digging.
<p>Wastewater treatment systems</p>	
<p>PO3 Wastewater is captured, treated and disposed to avoid adverse effects on water quality values from:</p> <ol style="list-style-type: none"> the release of sediment, nutrients, chemicals or other pollutants; the changed stormwater quality and hydrological processes. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based management plan, or an environmental engineering management plan prepared by a suitably qualified person.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Solid waste management</p>	
<p>PO4 Solid wastes (including animal waste) must be managed, stored and disposed of in a manner that does not result in contamination or environmental degradation of soils or on water quality values.</p> <p><i>Note—Compliance with this Performance Outcomes may be demonstrated by an operations plan that addresses waste management, prepared by a suitably qualified person and consistent with industry guidelines.</i></p> <p><i>Editor's note—Referral to Seqwater for third party advice may be undertaken for this Performance Outcome.</i></p>	<p>*AO4.1 The stockpiling of waste litter, manure and other organics is undertaken as follows:</p> <ol style="list-style-type: none"> on surfaces constructed with permanent impervious underlay to prevent leaching (groundsheets will only be accepted where stockpiling is for less than 4 days); located outside of an effluent irrigation area; located 500mm above the defined flood level; sized to accommodate the times for disposal collection; designed with run-off diversion drainage upstream of the storage area to prevent stormwater movement through the area; bunded to capture stormwater run-off in a 50% AEP and directs it to an on-site treatment and disposal area; covered with weatherproof material or stored within a shed. <p>*AO4.2 Indoor enclosures have impervious reinforced concrete floors that are gravity drained to allow the collection and treatment of wastewater by an on-site wastewater treatment system.</p>
<p>PO5 Development ensures that composting operations protect the environment and do not create an adverse environmental impact or nuisance (such as, rodent plagues or insect infestations) or harm to human health.</p> <p><i>Note—Composts that are manufactured off site may be used if storage is limited to prevent excessive odour.</i></p>	<p>AO5.1 Where in an Industry zone, composting of organic matter is not undertaken on-site.</p> <p><i>Note—Where composting material more than 200 tonne a year, approval for environmentally relevant activity 53 Organic material processing is required.</i></p> <p>AO5.2 Outside compost storage areas are maintained in an aerobic state to minimise odour generation.</p>
<p>Water supply</p>	
<p>PO6 Development is supplied with a reliable and secure</p>	<p>*AO6.1 Development is provided with a reliable water supply,</p>

<p>water supply for animal health and sanitation, dust control, feed preparation, or dilution of effluent water for irrigation (where applicable).</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a water supply report prepared by a suitably qualified person that shows sufficient quality and quantity of water is available.</i></p>	<p>which has the capacity to store a minimum two weeks supply for:</p> <ol style="list-style-type: none"> drinking water for the animals; water for cleaning and maintenance.
Vehicle movement	
<p>PO7 Development obtains access from a road and transport route which:</p> <ol style="list-style-type: none"> can safely carry the number, type and frequency of vehicles generated by the development; has a pavement design, standard and width that can carry the additional number, type and frequency of vehicles generated by the development; does not result in dust nuisance, spillage or the deterioration of roads. <p><i>Note—Compliance with the Performance outcomes may be demonstrated by a road maintenance plan prepared by a suitably qualified person.</i></p>	<p>AO7.1 Access to the site is via a fully constructed sealed road which connects to the constructed road network.</p>
Landscaping	
<p>PO8 Densely planted screen landscaping is provided to the boundaries of adjoining or surrounding sensitive land uses to minimise environmental nuisance.</p>	<p>AO8.1 Where located in the Rural zone:</p> <ol style="list-style-type: none"> existing native vegetation is retained; odour generating activities provide 20m wide dense screen landscaping between the odour generating activity and surrounding sensitive land uses; processing activities provide 10m wide dense screen landscaping between the processing activity and surrounding sensitive land uses. <p><i>Note—Where the landscaping distances conflict with 9.3.6 Landscaping code this outcome prevails over the minimum landscaping width requirements. Dense screen landscaping may include mapped vegetation on:</i></p> <ol style="list-style-type: none"> OM3A Biodiversity — Ecological areas overlay; OM3B Biodiversity — Wildlife habitat overlay; OM3C Biodiversity — Waterways and Wetlands overlay.

Table 9.3.13-2: Rural uses code — Intensive animal industry and Aquaculture — Additional assessment benchmarks for assessable development

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO9 On-site carcass disposal maintains physical, chemical and biological integrity of water quality values.</p> <p><i>Editor's note—Referral to Seqwater for third party advice may be undertaken for this Performance Outcome.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO10 Development is designed to avoid or mitigate environmental nuisance on surrounding development and sensitive land uses caused by odour.</p> <p><i>Note—Compliance with Performance Outcomes may be demonstrated through the preparation of an odour impact assessment prepared by a suitably qualified person consistent with Appendix A of Planning and environment guideline for establishing meat chicken farms (Guide 1 — Assessment guide) where any reference for 600,000 birds is to be taken to be read as 300,000</i></p>	<p>AO10.1 Development is located and designed to meet the following separation distances:</p> <ol style="list-style-type: none"> 250m between the odour impact source and a sensitive land use, or a place known or likely to become a sensitive land use in the future, in a Rural zone; or 500m between the odour impact source and a sensitive land use, or a place known or likely to become a sensitive land use in the future, in a non-Rural zone. <p><i>Note—The odour source for a tunnel-ventilated shed is taken to be</i></p>

<p>birds.</p>	<p>10m from the exhaust end of each shed. The separation distance is the shortest distance from the odour source to the curtilage of the sensitive land use. Separation distances also apply to other permanent or semipermanent odour sources on-farm, such as manure or litter stockpiles and compost sites.</p> <p>AO10.2 Poultry farms with less than 300,000 birds meet the separation distances using the calculated S-factor formula consistent with Appendix A of Planning and environment guideline for establishing meat chicken farms (Guide 1 — Assessment guide).</p> <p><i>Note—Where the separation distance required by the S-factor formula cannot be achieved, a site-specific plume dispersion modelling must be undertaken to determine the any adverse effects on sensitive land uses.</i></p> <p>AO10.3 Poultry farms with 300,000 birds or greater, meet the separation distances between the odour impact source and a sensitive land use, determined by a site-specific plume dispersion model.</p> <p>AO10.4 Where the separation distances cannot be met, the development is located, designed and managed to ensure that odour concentrations are not more than:</p> <ol style="list-style-type: none"> odour units, 1-hour average, 99.5th percentile and within 250m of the existing or approved sensitive land use; and 1 odour unit, 99.5%, 1 hour average for an existing or approved sensitive land use in a non-Rural zone.
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Aquaculture	
<p>PO11 Aquaculture conserves the productive capacity of ALC Class A & B soils and does not permanently alienate or fragment the land.</p>	<p>AO11.1 Aquaculture is located on a site outside of ALC Class A & B soils mapped on OM1 Agricultural land overlay.</p> <p>AO11.2 Upon cessation of Aquaculture production, the soil profile of the Aquaculture facility is rehabilitated, as close as practical, to pre-Aquaculture development conditions.</p>
<p>PO12 Ponds, tanks, containers, aquaria and drainage systems are designed, constructed and operated to avoid leakage.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a risk assessment consistent with Queensland Government Guidelines for constructing and maintaining Aquaculture containment structures.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO13 Aquaculture avoids adverse impacts on ground and surface water through appropriate positioning, design and operation.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a site-based management plan, or an environmental engineering management plan prepared by a suitably qualified person consistent with the Seqwater Development Guidelines: Water Quality Management in Drinking Water Catchments.</i></p> <p><i>Editor's note—Referral to Seqwater for third party advice may be undertaken for this Performance Outcome.</i></p>	<p>AO13.1 Aquaculture:</p> <ol style="list-style-type: none"> water is fully recirculated within the facility; water is managed on site such that it will not reach a waterway by an overland flow path or stormwater flows; ponds are constructed consistent with the <i>Queensland Government Guidelines for constructing and maintaining Aquaculture containment structures.</i>

Table 9.3.13-3: Minimum site area for development

USE	NUMBERS	MINIMUM SITE AREA (HECTARES)
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Animal keeping		
Catteries		5
Kennels		10
Aquaculture		
Rural zone	None specified	20
Industry zone	None specified	0.5
Intensive animal industry		
Cattle (SCU)	1-149 150+	50 150
Pigs (SPU)	400 +	50
Sheep, Goats, Alpaca and Llama (SSU)	1,000+	50
Poultry (i.e. chickens, ducks, geese, guinea fowl or turkeys)	1,000+	20
Game birds (i.e. pheasants, partridges, quail, pigeons)	1,000+	5
Ostrich and Emu	150+	20
Rural Industry & Winery	None specified	5

Table 9.3.13-4: Separation distances for operations

TYPE OF OPERATION	MINIMUM BOUNDARY SETBACK FOR STRUCTURES & BUILDING (M) (EXCLUDES FENCES)	SEPARATION DISTANCE TO SENSITIVE LAND USE ON SURROUNDING LAND (M)	SEPARATION DISTANCE TO EMERGING COMMUNITY ZONE; LOW DENSITY RESIDENTIAL ZONE; RURAL RESIDENTIAL ZONE & TOWNSHIP ZONE (M)
Animal keeping			
Catteries	20	25	50
Kennels	20	250	500
Aquaculture			
Aquaculture — ponds	20	250	500
Aquaculture — tanks	10	25	50
Intensive animal industry	50	250	a. 250 if poultry farm up to 1,000 birds b. 2,000 otherwise
Rural Industry & Winery	20	250	500

Note—Where the setback distances conflicts with Section 9.4.2 Building design code this outcome prevails over the minimum setback requirements. Section 9.4.2 Building design code should be used where a setback distance is not specified in any other relevant code.

Table 9.3.13-5: Separation distances for ancillary facilities

ANCILLARY ACTIVITY	MINIMUM BOUNDARY SETBACK (M)	SEPARATION DISTANCE TO SENSITIVE LAND USE ON SURROUNDING LAND (M)
Enclosures; holding areas; pens and yards; or Loading and unloading areas.	10	25
Dairy bails and yards; or Manure storage area; or Effluent disposal ponds.	10	250

Composting material.	10	500
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9.3.14 Sales office code

9.3.14.1 Application

1. This code applies to development for which the Sales office code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Provisions in this code are assessment benchmarks for applicable accepted and assessable development.

9.3.14.2 Purpose

1. The purpose of the Sales office code is to ensure the siting, layout, design and operation of a Sales office does not adversely affect the existing and future character and amenity of the zone.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Sales offices are located and operated such that they are compatible with the amenity of the zone and are provided with adequate and safe vehicular access and parking.
 - b. Sales offices operate for a temporary duration only to reflect the legitimate need for the display and sale of development.

Editor's note—A prize home being open to the public for a period not exceeding 8 weeks is identified as a Temporary use (see section 1.7 Local Government Administrative Matters).

9.3.14.3 Assessment benchmarks

1. All the Acceptable outcomes in this code are applicable to accepted development.

Table 9.3.14-1: Sales office code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Location	
PO1 A Sales office is located in relation to the land or building being displayed for sale or as a prize home.	*AO1.1 The Sales office is located on, or adjoins, the land or building being displayed for sale or as a prize home.
PO2 A Sales office is located, designed and sited to ensure its appearance is consistent with the developing character of the neighbourhood around it.	*AO2.1 Where a Sales office is intended to become a permanent Dwelling house in the future, building setbacks for the Sales office are consistent with AO3.1 of the section 9.3.3 Dwelling house code.
Amenity	
PO3 The Sales office is of a small scale and temporary nature such that it does not adversely affect the amenity of the area.	<p>*AO3.1 The use is limited to a maximum period of:</p> <ol style="list-style-type: none"> a. 2 years, where the use involves the display of land or buildings for sale; or b. 6 months, in the case of land or buildings that can be won as a prize home. <p>*AO3.2 The use operates between 8.00am and 6.00pm.</p> <p>*AO3.3 No more than 2 employees work in the Sales office.</p> <p>*AO3.4 Any temporary building, structure or advertising device associated with the Sales office is removed within 14 days of the use ceasing, and the site is left in a clean and tidy condition.</p> <p>*AO3.5 Fencing adjoining a street or public open space does not exceed 1.2 metres in height.</p>
Parking and access	
PO4 Adequate vehicle access and parking is provided and designed to facilitate ease of use.	*AO4.1 The use is not located at the end of cul-de-sac.

	<p>*AO4.2 Car parking and manoeuvring areas are designed and constructed to be consistent with the AS2890.1 Parking facilities.</p> <p>*AO4.3 The Sales office has direct vehicular access to a constructed road.</p> <p>*AO4.4 Car parking is provided on-site at the rate of:</p> <ul style="list-style-type: none">a. 2 spaces where the Sales office has the appearance of a Dwelling house; orb. 1 space for every 25m² GFA. <p>AO4.5 Only 1 driveway crossover is provided.</p>
Infrastructure and services	
<p>PO5 The Sales office is provided with a level of infrastructure and services consistent with its location and intended function.</p>	<p>*AO5.1 Where the network service infrastructure is available, a Sales office is connected to:</p> <ul style="list-style-type: none">a. a lawful point of discharge;b. pressurised reticulated water and sewerage networks. <p>*AO5.2 Where the network service infrastructure is unavailable, a Sales office is connected to:</p> <ul style="list-style-type: none">a. a minimum water supply dedicated of 45,000 litres with a minimum 10,000 litre reserve for firefighting purposes;b. an on-site wastewater treatment system that is consistent with the Queensland Plumbing and Wastewater Code.

9.3.15 Service station and Car wash code

9.3.15.1 Application

1. This code applies to development for which the Service station and Car wash code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.
3. The uses subject to this code are:
 - a. Car wash;
 - b. Service station.

Editor's note—A Car wash may be identified as a Temporary use (see section 1.7 Local Government Administrative Matters), where:

- a. a manual Car wash;
- b. for no more than 1 day every 3 months.

9.3.15.2 Purpose

1. The purpose of the Service station and Car wash code is to provide for development to meet the needs of the local community, visitors and travellers, while minimising the risks to people and property.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development is established in locations where there are no adverse impacts on sensitive land uses and the site is of sufficient size to facilitate the efficient and safe operation of vehicles with no over spill of impacts beyond the site and internal circulation.
 - b. Development is designed so that it has minimal impacts on the natural environment and the amenity of the local area.
 - c. Buildings and structures are sited and designed to reflect the character and amenity of the local area.

9.3.15.3 Assessment benchmarks

Table 9.3.15-1: Service station and Car wash code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Site suitability	
<p>PO1 The site has a frontage, configuration and area which can accommodate:</p> <ol style="list-style-type: none"> a. the buildings and associated storage areas; b. fuel delivery and service vehicles; c. vehicle access and on-site manoeuvrability; d. landscaping; e. any ancillary activities. <p><i>Note—Compliance with this Performance Outcomes may be demonstrated by a site-based management plan prepared by a suitably qualified person.</i></p>	<p>AO1.1 The site has a minimum net developable area of 1,500m² and:</p> <ol style="list-style-type: none"> a. where not located on a corner lot—has a minimum frontage of 50m; or b. where located on a corner lot—has a minimum frontage of 30m to each road. <p><i>Note—Where a Service station provides a convenience retail use the site area should be more than the minimum specified above.</i></p> <p>AO1.2 Where adjoining an existing residential use or residential zone, all buildings, structures and hardstand areas are setback at least 5m from the lot boundary.</p> <p>AO1.3 A minimum of 10% of the site is landscaped, including all boundaries.</p>
Design and amenity	
<p>PO2 Buildings and structures are sited to allow for vehicle manoeuvrability, and in the case of a Service station enough on-site area for fuel delivery.</p>	<p>AO2.1 Service station inlets and bulk fuel storage tanks are located on the site so that a B-double fuel delivery vehicle can stand level within the site, when unloading fuel and allow for the unrestricted movement of other vehicles on the site.</p> <p>AO2.2 Fuel pumps, Car wash bays and facilities including air and water points are:</p> <ol style="list-style-type: none"> a. orientated to minimise vehicle conflicts associated with

	<p>manoeuvring on site;</p> <p>b. located so that vehicles using or waiting to use the facilities are standing within the site and in locations which do not restrict the movement of other vehicles on the site.</p> <p>AO2.3 The design and layout of a Service station is consistent with:</p> <p>a. AS.1940 Storage and Handling of Flammable and Combustible Liquid;</p> <p>b. AS.1596 Storage and Handling of LP Gas.</p> <p>AO2.4 Any other outdoor ancillary uses do not restrict car parking, driveways or manoeuvring areas.</p>
<p>PO3 Service stations provide appropriate facilities and services for the convenience and safety of customers.</p>	<p>AO3.1 Toilets facilities are to be accessible to all customers during trading hours.</p> <p>AO3.2 Service stations with more than 10 fuel pumps provide a minimum of 1 electric vehicle charge station to service all potential customer needs.</p> <p>AO3.3 Publicly accessible parts of the Service station, including the point of sale and the entrance to any external toilets, are well lit and clearly visible from areas of activity within the site (such as petrol pumps) as well as from the street.</p>
<p>PO4 Services stations, Car wash and ancillary facilities are located and designed so that:</p> <p>a. the visual impact (including the scale and bulk) of the buildings or structures is minimised;</p> <p>b. an adequate buffer can be provided to any adjoining sensitive land use;</p> <p>c. potential amenity impacts on the adjacent premises are avoided, e.g. noise, odour, risk and lighting.</p>	<p>AO4.1 Buildings and Car washing areas are located at least:</p> <p>a. 10m from any road frontage;</p> <p>b. 3m from side and rear boundaries.</p> <p>AO4.2 Fuels pumps are located at least 8m from any boundary with a road</p> <p>AO4.3 Building height is a maximum of 8.5m.</p> <p>AO4.4 Air hose facilities and electric vehicle charging stations are located at least 5m from a road frontage and 3m from side and rear boundaries.</p> <p>AO4.5 A 2m high solid screen fence is provided along the side and rear boundaries.</p> <p>AO4.6 Car wash facilities are located to avoid creating spray drift where adjacent to a sensitive land use.</p> <p>AO4.7 Car washing facilities are setback a minimum of 5m from a sensitive land use.</p> <p>AO4.8 To maintain amenity, where adjoining a sensitive land use:</p> <p>a. a 2m high acoustic fence is constructed along the boundary;</p> <p>b. screen landscaping is provided within the buffer area.</p>
<p>PO5 Development is designed and constructed to prevent the release of contaminants to surface water or groundwater, through the incorporation of:</p> <p>a. spill and leakage prevention measures from underground tanks, above-ground tanks and pipework;</p> <p>b. leak detection systems for tanks and pipework;</p> <p>c. stormwater and spill management systems for fuel dispensing and uncovered forecourt areas.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO6 The storage and handling of petroleum products avoids</p>	<p>AO6.1 The storage of petroleum products in bulk (more than</p>

<p>risks to people, property and the environment by:</p> <ol style="list-style-type: none"> being located and sited to minimise the risk to sensitive land uses; incorporating separation distances within the site to minimise risks; including spill containment systems so that the effects of any hazards are contained within the site boundary and do not affect groundwater quality; ensuring storage areas are ventilated; protecting against impacts (i.e. spills). <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a site-based management plan that addresses waste management prepared by a suitably qualified person and is consistent with the hierarchy of waste management measures outlined in the Waste Management and Resource Recovery Strategy:</i></p> <ol style="list-style-type: none"> waste prevention or avoidance; waste recycling or reuse; waste treatment; then waste disposal. 	<p>1,000L) above ground uses:</p> <ol style="list-style-type: none"> self-bunded containers that meet AS.1692 Steel Tanks for Flammable and Combustible Liquids; or single-skin containers installed within an impervious bunded compound that: <ol style="list-style-type: none"> is sufficiently impervious to the type of liquid stored to retain and recover all potential spills; has a net capacity to contain spills 1.5 times the bunded container or aggregate quantity of containers where operated as a single unit; has enough area to hold the containers and their contents in the event that the containers collapse. <p>AO6.2 Petroleum products stored below ground are stored in containers that are non-corrodible, double walled with an interstitial space between and meet the requirements of:</p> <ol style="list-style-type: none"> AS.1692: Steel Tanks for Flammable and Combustible Liquids and/or ULC 1316: Standard for Fibre Reinforced Underground Tanks for Flammable and Combustible Liquids.
Access, parking and movement	
<p>PO7 Movement to and from the site is provided to minimise disruption to the flow of traffic on adjoining roads and minimise pedestrian-vehicle conflicts within and external to the site.</p> <p><i>Note—Compliance with this Performance Outcomes may be demonstrated by a Transport Impact Assessment consistent with Planning Scheme Policy 10 Transport impact assessment.</i></p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO7.1 A minimum of 2 vehicle crossovers are provided.</p> <p>AO7.2 All vehicles are able to enter and exit the site in a forward direction.</p> <p>AO7.3 Vehicle crossovers are:</p> <ol style="list-style-type: none"> at least 9m wide; no closer than 14m from any other vehicle crossover (including those external to the site) or road intersection; no closer than 3m from any lot boundary. <p>AO7.4 Where the site is located at the intersection of two roads, separate entrances and exits are provided to one or more of the adjoining roads and clearly marked for their intended purpose.</p> <p>AO7.5 A safe footpath or walkway is provided from the road frontage to the main entrance of the Service station building.</p>

9.3.16 Telecommunications facility code

9.3.16.1 Application

1. This code applies to development for which the Telecommunications facility code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.3.16.2 Purpose

1. The purpose of the code is to ensure Telecommunications facilities are designed and operated to protect the safety of the public, avoid environmental harm and nuisance and protect scenic amenity.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Telecommunications facilities achieve a high level of integration with the natural and built environment to protect the character and scenic amenity by managing design, height, setbacks and screening of the facility.
 - b. Telecommunications facilities are co-located or share an existing site with other infrastructure unless it is demonstrated this cannot occur.
 - c. Telecommunications facilities are designed and operated to protect the safety of the public and avoid causing environmental harm or nuisance.

9.3.16.3 Assessment benchmarks

Table 9.3.16-1: Telecommunications facility code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Amenity	
<p>PO1 Telecommunications facilities integrate with the landscape or urban setting having regard to:</p> <ol style="list-style-type: none"> a. urban heritage and character; b. natural landscapes and topographical features; c. significant views and vistas; d. minimising impacts upon adjacent premises. 	<p>AO1.1 Telecommunication facilities are:</p> <ol style="list-style-type: none"> a. located underground; or b. co-located with other telecommunications facilities to reduce the cumulative visual impacts of multiple facilities; or c. located in or on an existing building or structure; d. not located on the exterior of a heritage place; e. where possible and practical, located in areas where the predominant land uses are telecommunication facilities, industrial or commercial uses; f. designed to facilitate future co-location. <p>AO1.2 Freestanding tower facilities do not project more than 10m above an existing tree line or ridgeline.</p> <p>AO1.3 Telecommunications facilities are visually integrated with the adjacent premises by being:</p> <ol style="list-style-type: none"> a. concealed by colours and materials which blend into the landscape and ensuring ancillary buildings and fences are of matte appearance; or b. integrated within an existing building or structure by: <ol style="list-style-type: none"> i. not increasing the bulk of the building or structure; or ii. being co-located with existing communication facilities.
<p>PO2 The visual impacts of telecommunications towers are minimised by landscaping or existing vegetation.</p>	No acceptable outcome is nominated.
<p>PO3 Telecommunications facilities are located to minimise any impact on:</p> <ol style="list-style-type: none"> a. residential and public amenity; b. values of open space areas. 	<p>AO3.1 Free standing Telecommunication facilities are set back from sensitive land uses a distance at least equal to the height of the facility (1:1 — height to setback).</p> <p>AO3.2 Freestanding tower facilities are set back from all</p>

	<p>boundaries a minimum of 20m.</p> <p>AO3.3 Facilities are located more than 20m from:</p> <ul style="list-style-type: none"> a. children’s play spaces; b. cycle ways; c. formal active recreation areas; d. formal seating areas associated with any of the above uses.
Public safety	
<p>PO4 Public access to the site is prevented.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO4.1 The site is secured by a minimum of 2m high fencing to prevent unauthorised or accidental public access to the site.</p> <p>AO4.2 Public warning and information signs are erected on a boundary or perimeter security fence complying with workplace health and safety requirements.</p>
Environmental impacts	
<p>PO5 Development is designed and operated to ensure noise and vibration does not cause an environmental nuisance or an adverse impact on the amenity of adjoining or adjacent sensitive land uses.</p>	<p>AO5.1 Development is consistent with the noise objectives set out in the <i>Environmental Protection (Noise) Policy</i>.</p>

9.3.17 Tourism uses code

9.3.17.1 Application

1. This code applies to development for which the Tourism uses code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Nature-based tourism;
 - b. Party house;
 - c. Resort complex;
 - d. Short-term accommodation;
 - e. Tourist attraction;
 - f. Tourist park.

Editor's note—A bed and breakfast is included within the definition of Home-based business.

9.3.17.2 Purpose

1. The purpose of the code is to ensure tourism uses meet the needs of tourists, provide an acceptable level of amenity for tourists and surrounding sites, and adverse impacts on the adjacent premises and environment are mitigated.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Tourism uses are of a high-quality design which responds to the site and local characteristics and has a built form that is integrated with surrounding development.
 - b. Tourism uses are of a scale and intensity that is compatible with the preferred character of the zone and predominant use of the local area.
 - c. Tourism uses provide high quality utilities and services that correspond with the scale, setting, the types of accommodation supplied and guests' expected length of stay.
 - d. Tourism uses protect the amenity and privacy of surrounding residents and uses.
 - e. Tourism uses protect and maintain the ecological, cultural significance and visual values of the site and adjacent premises.
 - f. Tourist uses establish in locations and on land with physical characteristics suitable for the development.
 - g. Tourist uses are designed in a manner that promotes social interaction, safety, convenient services and facilities, amenity and protects privacy.

Editor's note—The operation of a Tourist park is a prescribed activity under Council's local laws. The subordinate local laws specify operational requirements for caravan parks and camping grounds. Approval under the local law must be obtained before the operation of the caravan park or camping ground commences.

Editor's note—A recommended reference document is Guidelines on Good Design for Caravan Parks and Relocatable Home Parks prepared by the Queensland Department of Local Government and Planning, in partnership with Caravan Industry Australia and Queensland's Qparks.

9.3.17.3 Assessment benchmarks

Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.3.17-1: Tourism uses code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Land use	
PO1 Tourism uses: <ol style="list-style-type: none"> a. are developed and operated at a scale and density that retains the character and amenity of the site and zone, and complement the environmental or landscape setting of the site; b. are consistent with the existing or intended built form for the relevant zone and character of the local area; c. do not adversely impact on the privacy, amenity and operation of other uses. 	*AO1.1 Tourism uses (including all buildings and caravan and camping sites) are not located within: <ol style="list-style-type: none"> a. 200m of the Industry zone; or b. 1km of an Intensive animal industry; or c. a designated separation area of a Key Resource Area; or d. within 100m of a boundary if in the Rural zone or Conservation zone; or e. 20m from a boundary with a sensitive land use or land in a residential zone.

	<p>AO1.2 In a rural area, buildings take the form of small, separate buildings and incorporate architectural styles, materials and colours that allow the buildings to blend in with the natural and rural landscape.</p> <p>AO1.3 Buildings are less than 500m² GFA.</p> <p>AO1.4 Cabins are less than 60m² GFA.</p> <p>*AO1.5 Each caravan or camping site has a minimum site area of 100m².</p> <p>*AO1.6 There is a minimum 3m separation distance between each cabin, caravans site and camping site.</p> <p>*AO1.7 Tourism uses are not located:</p> <ol style="list-style-type: none"> in a cul-de-sac; or on a rear access lot; or on a lot accessed via an easement. <p>*AO1.8 The maximum length of stay for guests of a tourism use is 3 months in any 12 month period.</p> <p>*AO1.9 In an urban area, 1.8m high screen fencing is provided along the boundary of the land with a sensitive land use or land in a residential zone.</p>
<p>Site Location</p>	
<p>PO2 Tourism uses are located on a site that has enough area and width to:</p> <ol style="list-style-type: none"> accommodate the scale and form of buildings; privacy and amenity for guests and adjacent sensitive land uses; adequate open space that is of a size suitable to meet the needs of its expected users; results in safe and efficient vehicle access, parking and manoeuvring areas; provide for landscaping, setbacks and buffers to mitigate conflict with sensitive land use and rural uses on adjacent premises. <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a concept plan prepared by a suitably qualified person.</i></p>	<p>*AO2.1 Nature-based tourism is located on a site that has a minimum area of 10ha.</p> <p>*AO2.2 Short-term accommodation and Resort complexes located in a rural area have a minimum site area of 10ha.</p> <p>*AO2.3 Tourist parks located in:</p> <ol style="list-style-type: none"> an urban area have a minimum net developable area of 8,000m²; a rural area, have a minimum site area of 10ha.
<p>PO3 Development does not require excessive modification of natural ground levels and responds to the natural features of the site.</p>	<p>No acceptable outcome nominated.</p>
<p>Communal facilities</p>	
<p>PO4 A sufficient number of conveniently located and appropriately designed communal facilities, including toilet, shower and laundry facilities, are provided for guests.</p> <p><i>Note-Fewer facilities may be acceptable where an area has been designated for self-contained motorhomes and caravans.</i></p>	<p>AO4.1 A communal area or building is provided for meals and communal facilities.</p> <p>*AO4.2 Communal facilities are connected to drainage, electricity, potable water, and a sewerage or wastewater treatment system.</p> <p>*AO4.3 Where there are no more than 5 sites for caravans or camping, the following minimum facilities are provided:</p> <ol style="list-style-type: none"> 2 toilets; 1 shower and handbasin; if guests are able to stay more than 3 nights - 1 washing machine, dryer and laundry tub.

	<p>AO4.4 Where there are more than 5 sites for caravans or camping, or there are cabins that are not self-contained, the following minimum facilities are provided:</p> <ul style="list-style-type: none"> a. 4 toilets and 1 urinal for every 20 sites or cabins (or part thereof); b. 2 showers and handbasins are provided for every 20 sites or cabins (or part thereof); c. 1 washing machine, dryer and laundry tub for every 20 sites or cabins (or part thereof); d. 1 disability toilet and shower facility that is consistent with <i>AS1428 Code of Practice for Design Rules for Access by the Disabled</i> and denoted as 'unisex'. <p>*AO4.5 Within communal facilities, individual toilets, showers and baths are screened to provide privacy to the user, with inside locks.</p> <p>*AO4.6 Toilet and showering facilities are constructed of impervious and durable materials, so that they can be kept in a clean and sanitary condition.</p> <p>*AO4.7 Toilet and showering facilities have adequate lighting and are properly ventilated.</p> <p>*AO4.8 Communal shower and laundry facilities are located:</p> <ul style="list-style-type: none"> a. no further than 100m from any caravan, tent or cabin (if cabin is not self-contained) site; b. at least 6m from of all caravan, tent and cabin (if cabin is not self-contained) sites.
<p>PO5 The disposal of wastewater does not result in environmental nuisance or contamination of surface water or groundwater.</p>	<p>AO5.1 Where more than 10 sites for caravans are provided, at least 1 communal effluent release point is to be provided for the disposal of effluent from self-contained caravans.</p>
<p>PO6 Areas dedicated to storage, vehicle washdown, waste collection and disposal (including dump points), clothes drying or other utilities do not:</p> <ul style="list-style-type: none"> a. detract from the local amenity of the location and zone; b. cause nuisance to park guests; or c. pollute stormwater. 	<p>AO6.1 Areas used for storage, vehicle washdown, waste collection and disposal, dump points, clothes drying and other utilities are:</p> <ul style="list-style-type: none"> a. located at least 50m from a property boundary; b. screened so as not to be visible from adjoining properties and roads.
<p>PO7 Tourist accommodation includes ancillary services and facilities for the enjoyment and convenience of guests that:</p> <ul style="list-style-type: none"> a. supports active and passive recreation opportunities; b. provides a comfortable and attractive outlook and contribute to site amenity. 	<p>AO7.1 Active and passive recreation space is provided at a minimum of 20% of the site area with a minimum width of 15m.</p> <p>AO7.2 Recreational facilities are provided for guests' use including a BBQ area and outdoor recreation area.</p> <p>AO7.3 Active recreation space:</p> <ul style="list-style-type: none"> a. is centrally positioned within the site; b. does not affect the amenity and privacy of surrounding residents; c. provides equitable access and accessibility to common and circulation areas; d. includes areas of hard and soft landscaping (e.g. gardens, turfed areas, pathways). <p>*AO7.4 For Nature-based tourism, guests can participate in low impact non-motorised nature based recreational pursuits (such as bushwalking, kayaking, bicycle riding or observing wildlife).</p>

	AO7.5 Nature-based tourism provides for environmental or cultural heritage interpretation and education.
Access, parking and movement	
PO8 The site is accessed via a road that is of a standard to adequately cater for the traffic generated by the use without causing traffic hazards, damage to the road or dust nuisance to persons or property not connected with the use.	*AO8.1 Access to the site is via: a. a constructed road, if: i. in the Rural zone or Conservation zone; ii. there is a maximum of 20 guests; or b. a fully constructed sealed road connected to the sealed road network.
PO9 Pedestrian movement is supported with safe, convenient and accessible internal walkways to and from: a. communal open space areas; b. internal facilities; c. external roads.	AO9.1 Internal walkways, link individual sites to communal facilities within the development and include wayfinding signage and lighting.
PO10 Development provides a vehicle site access, manoeuvring and car parking areas: a. are adequate for emergency vehicles; b. are safe, convenient and accessible so that caravans can be easily manoeuvred onto and from individual sites from internal roads.	*AO10.1 Each individual site/cabin/suite is provided with a car parking space that is near the individual site. AO10.2 No individual site/cabin/suite has direct vehicle access to a public road. Vehicular access to individual sites/cabins/suites is from an internal road only. AO10.3 Visitor parking is: a. provided near the reception or Office; b. provided with direct access to the entry driveway; c. signed. AO10.4 Development provides unrestricted road access for firefighting vehicles and appliances consistent with 9.4.5. Infrastructure and services code.
Solid waste	
PO11 Development has a dedicated storage for solid waste on site that: a. meets relevant health requirements; b. is cost effective and practical; c. meets the needs for the efficient collection and disposal of waste at regular intervals.	*AO11.1 A waste bin is provided within 30m of any camp site.

9.3.18 Workers' accommodation code

9.3.18.1 Application

1. This code applies to development for which the Workers' accommodation code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.
3. The uses subject to this code are:
 - a. Caretaker's accommodation;
 - b. Rural workers' accommodation;
 - c. Workforce accommodation.

9.3.18.2 Purpose

1. The purpose of the Workers' accommodation code is to ensure uses are:
 - a. designed, located and operated to maintain and protect the character and amenity of the area;
 - b. to support the operation of the primary use on the site they are located.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. The accommodation is small scale and does not compromise the primary use of the site.
 - b. The accommodation has accessible private open space to meet the daily needs of the worker.
 - c. The accommodation assists in the operation of, is subservient to and supports the primary use of the site for centre, industry or rural activities.
 - d. The accommodation has facilities to suit the workers' length of occupation.
 - e. The accommodation supports employment without affecting rural production or commercial activities.
 - f. The building provides a comfortable and attractive living environment and ensures adequate privacy from the public.

9.3.18.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.3.18-1: Workers' accommodation code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Land use characteristics	
PO1 The accommodation: <ol style="list-style-type: none"> a. is immediately associated with the non-residential use on the same site; b. is consistent with the scale of the primary operations; c. fulfils a genuine need to house workers on the subject site. 	*AO1.1 The accommodation is occupied by: <ol style="list-style-type: none"> a. a permanent caretaker employed to provide management, maintenance, security, or other services supporting the primary use; or b. seasonal workers (for up to 6 months) to provide support activities to the primary use. *AO1.2 Caretaker's accommodation includes a self-contained dwelling with a maximum gross floor area of 100m ² . *AO1.3 Rural workers' accommodation: <ol style="list-style-type: none"> a. is on a lot that has an area of 25ha or greater; b. has no more than 20 workers at any given time. *AO1.4 Accommodation uses the existing vehicle access and a new vehicle access is not created.
PO2 The accommodation is physically and visually subservient to the primary use on the subject site.	*AO2.1 No more than 1 Caretaker's accommodation is provided on site. AO2.2 Workforce accommodation is located within 3km of the place of work.

Building design and amenity	
PO3 The accommodation integrates with the prevailing character of the urban area or rural landscape.	<p>AO3.1 In a rural area, buildings take the form of small, separate buildings clustered together.</p> <p>*AO3.2 Caretaker's accommodation has its own pedestrian access, separate from the main use, when contained in the same building.</p> <p>*AO3.3 Caretaker's accommodation shares vehicle access with the main use.</p>
PO4 Workers are provided with amenities consistent with the nature of their employment as permanent or seasonal workers.	<p>*AO4.1 Seasonal workers are provided with shared living facilities including:</p> <ul style="list-style-type: none"> a. sleeping quarters; b. cooking facilities; c. toilet and showering; d. laundry and clothes drying area. <p>*AO4.2 Permanent workers and caretakers are provided with private open space for their exclusive use and:</p> <ul style="list-style-type: none"> a. has a minimum area of 30m² of which a minimum of 12m² is covered; b. has a minimum dimension of 4m; c. is immediately accessible from a living area; and d. on land with a slope less than 10%. <p>*AO4.3 Caretaker's accommodation located above the ground floor level provides private open space as a balcony or a roof area.</p> <p>*AO4.4 Workers are provided with recreation and entertainment activities.</p>
PO5 An acceptable residential amenity is provided for workers, including a separation from noise and odour generating activities.	<p>*AO5.1 Bedrooms and living areas do not adjoin but face away from noise generating activities conducted on the site.</p> <p>*AO5.2 The accommodation is located and oriented away from any waste storage areas on the site.</p>
Workforce accommodation	
PO6 Workforce accommodation is for a temporary use and does not become a permanent feature.	<p>AO6.1 Accommodation is provided in the form of removable buildings.</p> <p>AO6.2 Buildings and structures are removed within three months of the primary use ceasing.</p>
PO7 The agricultural and environmental ability of the site is reinstated to ensure that the:	AO7.1 The site is rehabilitated following cessation of the Workforce accommodation or Rural workers' accommodation.
PO8 When located in a rural area, development:	No acceptable outcome is nominated.

9.4 Works codes

9.4.1 Advertising devices code

9.4.1.1 Application

1. This code applies to development for which the Advertising devices code or the Works codes are identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.4.1.2 Purpose

1. The purpose of the Advertising devices code is to:
 - a. support the legitimate need for businesses to advertise their products and services;
 - b. protect the desired character and amenity of Lockyer Valley;
 - c. protect scenic landscape areas and cultural heritage;
 - d. avoid visual clutter along principal approaches and tourist routes;
 - e. maintain the safety of pedestrians and motorists.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Advertising devices protect visual amenity and the scenic qualities of the area, including views and vistas.
 - b. Advertising devices minimise the likelihood of driver distraction.

Editor's note—Advertising devices that border a State-controlled road should be consistent with Department of Transport and Main Roads' Roadside Advertising Manual.

9.4.1.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.4.1-1: Advertising devices code —Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Location and design	
<p>PO1 Advertising devices:</p> <ol style="list-style-type: none"> a. do not obscure, block or otherwise interfere with other approved or lawfully established Advertising devices; b. are not prominent in the visual landscape or contribute to visual clutter; c. protect views and vistas; d. maintain a high standard of scenic amenity along Lockyer Valley's principal approaches and tourist routes. <p><i>Editor's note—Further approvals from the State Assessment and Referral Agency may be required where Advertising devices border a State-controlled road.</i></p>	<p>*AO1.1 Advertising devices are positioned so they:</p> <ol style="list-style-type: none"> a. do not physically obstruct the passage of pedestrians, cyclists or vehicles; b. do not visually obstruct vehicles or cyclists' traffic sight lines; c. do not obscure a traffic sign or street sign; d. eliminate reflection nuisance from: <ol style="list-style-type: none"> i. low sunlight reflection; ii. headlight reflection. <p>*AO1.2 Advertising devices located near an intersection are consistent with Department of Transport and Main Roads' Roadside Advertising Manual, Technical Volume, Appendix B.</p> <p>*AO1.3 Advertising devices attached to mechanical devices or mannequins do not occur on sites bordering a State-controlled road.</p> <p>AO1.4 Billboards are not located in the:</p> <ol style="list-style-type: none"> a. Community facilities zone; b. Conservation zone c. Emerging community zone; d. Open space zone; e. Residential zones;

	<ul style="list-style-type: none"> f. Rural residential zone; g. Sport and recreation zone.
<p>PO2 Advertising devices:</p> <ul style="list-style-type: none"> a. are consistent with the existing and future planned character of the zone; b. respect traditional character where located on or adjoining a heritage place; c. are consistent with the scale, proportion, bulk and other characteristics of buildings, structures, landscaping and other Advertising devices on the site; d. are of a scale, proportion and form that are suited to the building, streetscape or other setting in which they are located; e. are spaced evenly within the landscape, or where there are a group of signs on a single site, they are spaced evenly along the frontage of the site; f. do not mimic a traffic control device; g. are not in a location or of a size or shape which contributes to visual clutter. 	<p>For pylon signs:</p> <p>*AO2.1 Pylon signs:</p> <ul style="list-style-type: none"> a. are located on a site with an area of more than 1,000m²; b. have a maximum height of 7.5m above natural ground level; c. have minimum vertical clearance above natural ground level of more than 2.5m; d. have a maximum width of 2.5m; e. have a maximum display area of 10m²; f. are not double-sided or the back of the sign is not visible from a public space; g. have a minimum setback of 3m from boundaries; h. are located near the vehicle access; i. allows for all businesses operating on the site to be displayed. <p>*AO2.2 The number of pylon signs is not more than:</p> <ul style="list-style-type: none"> a. where the site has a frontage to an arterial road, sub-arterial road or collector road—no more than 1 sign for each 500m of frontage to those roads; b. where the site has a frontage to roads other than those in a. above: <ul style="list-style-type: none"> i. for a site with a frontage less than 50m—1 sign; ii. for a site with a frontage more than 50m and less than 100m—2 signs; iii. for a site with a frontage 100m or more —1 sign for each 100m of road frontage. <p>For billboards:</p> <p>AO2.3 Billboards:</p> <ul style="list-style-type: none"> a. are only located on land in the Rural zone a minimum of 1km from an urban area or Rural residential zone; b. are located no closer than 1km from any existing billboard on the same side of the road or 500m from any existing billboard on the opposite side of the road; c. are not located on a lot that already has a billboard; d. have a maximum height of 10m above natural ground level; e. have minimum vertical clearance above natural ground level of more than 2.5m; f. have a maximum surface area of: <ul style="list-style-type: none"> i. 20m² a side in the Rural zone; ii. 10m² a side in all other zones; g. not located in a road reserve; h. not a flashing, revolving or internally illuminated sign. <p><i>Editor's note—The distances are to be measured along the road which the billboard faces.</i></p>
Illuminated signs	
<p>PO3 Illuminated signs do not create glare or light nuisance.</p> <p><i>Editor's note—Further approvals from the State Assessment and Referral Agency may be required where Advertising devices border a State-controlled road.</i></p>	<p>*AO3.1 Illuminated changeable message signs, pylon signs or billboards are consistent with the Department of Transport and Main Roads' Roadside Advertising Manual, Technical Volume, Appendix D.</p> <p>*AO3.2 Illuminated signs are consistent with Australian Standard AS.4282 <i>Control of the obtrusive effects of outdoor lighting</i>.</p>

***AO3.3** Illuminated signs are separated a minimum of 1km on the same road frontage and 500m on different road frontages.

9.4.2 Building design code

9.4.2.1 Application

1. This code applies to development for which the Building design code or the Works codes are identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.4.2.2 Purpose

1. The purpose of the Building design code is to ensure development complements local landscape, climate, character, community identity and historical features.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Building design intensity, scale and form reflects and reinforces the character of the street.
 - b. Development setbacks provide a streetscape and landscape that is attractive and provides privacy and amenity.
 - c. Buildings are designed for a subtropical climate and provide low-energy, low-cost living.
 - d. Development is consistent with the standards for building height and building form within various areas of the region (e.g. centres, etc.).

9.4.2.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.4.2-1: Building design code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Sustainable design and climatic comfort	
<p>PO1 Development and buildings are responsive to the site's characteristics including topography, orientation, existing vegetation and prevailing winds to create a sustainable building designed to be consistent with subtropical design and Crime Prevention through Environmental Design.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the Subtropical Design in South East Queensland — A Handbook for Planners, Developers and Decision Makers, prepared by the Centre for Subtropical Design and State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	No acceptable outcome is nominated.
<p>PO2 In Plainland, a mix of architectural styles creates a contemporary sub-tropical character through built form and landscaping.</p>	No acceptable outcome is nominated.
Building scale and form	
<p>PO3 The height, scale and bulk of buildings:</p> <ol style="list-style-type: none"> a. contribute positively to the character of the street; b. reflects the role of the zone in which they are located; c. presents an attractive built form; d. transitions sympathetically to adjoining premises or surrounding sensitive land uses by building height and setbacks. <p><i>Note—Suitability of building heights will be assessed on the appearance from and impact on the streetscape and adjacent sensitive land uses. Transitioning of building heights to be compatible with existing or proposed heights in affected areas will be required.</i></p>	<p>*AO3.1 Buildings meet the scale requirements in Table 9.4.2-2: Building scale and bulk requirements.</p> <p>*AO3.2 Buildings address the street by having their main entrance on the street elevation. Building entrances are clearly visible from the street.</p>

<p>PO4 Development located on a corner lot:</p> <ul style="list-style-type: none"> a. provides a transition between streets; b. reinforces the street edge; c. has strong visual elements that feature building entries; d. provides definition to the public realm at intersections; e. provides continuity in form, materials and detail to both frontages. 	<p>*AO4.1 Buildings on corners address both street frontages.</p> <p>*AO4.2 Windows and pedestrian entries are located to address each street frontage.</p>
<p>Requirements for Commercial and Community Activities</p>	
<p>PO5 Development reinforces the traditional small country town character by incorporating built form that:</p> <ul style="list-style-type: none"> a. contributes to a vibrant town centre identity; b. reflects the low density and low-rise built form; c. provides active uses and buildings that connect to the street; d. maximises pedestrian use; e. maintains and reinforces the traditional and character elements of the streetscape; f. is respectful and sympathetic to any Local heritage place and retains and sensitively integrates historical places in context; g. maintains a mix of land uses with small-scale building footprints; h. avoids and where it cannot be avoided minimises, vehicle crossovers to minimise pedestrian-vehicle conflicts. 	<p>No acceptable outcome is nominated.</p>
<p>PO6 Development presents attractive and visually interesting facades to all streets that contributes to the desired character of the zone through:</p> <ul style="list-style-type: none"> a. its connection with the street and open space; b. providing opportunities for casual surveillance; c. clearly defined building entrances; d. incorporating elements that have a human scale; e. visually integrating service and utility cabinets. <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>*AO6.1 Building entrances are clearly visible from the street or outdoor squares or plazas that constitute the focal point of the centre rather than to car parking areas.</p> <p>AO6.2 A minimum of 75% of the ground floor façade is as glazed non-reflective windows, doors and shopfronts.</p> <p>AO6.3 Ground floor windows are no more than 900mm above ground level.</p> <p>*AO6.4 Service and utility cabinets are visually integrated into buildings.</p> <p>*AO6.5 Awnings are provided over the full width of the footpath.</p> <p>AO6.6 Blank walls and facades are setback a minimum of 3m to allow for screen landscaping.</p> <p>*AO6.7 The underside of awnings has a flat ceiling to minimise nesting by birds and other animals.</p>
<p>PO7 Development creates a safe and comfortable pedestrian environment.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>*AO7.1 Buildings provide continuous shade over footpaths along all building frontages by:</p> <ul style="list-style-type: none"> a. awnings; b. verandas; or c. integrated awning and verandas.
<p>PO8 Roof forms provide a clean exterior form where plant and equipment are integrated into the roof design.</p>	<p>AO8.1 Rooftop plant and equipment is:</p> <ul style="list-style-type: none"> a. contained within roof form; b. grouped together in one area; c. concealed from public view.
<p>Requirements for Principal centre, Major centre and Local centre zones</p>	
<p>PO9 Ground floor of buildings incorporate active frontages including mid-street block walkways.</p>	<p>No acceptable outcome is nominated.</p>

PO10 Public open spaces such as plazas and parks are co-located with public transport hubs and stops.	No acceptable outcome is nominated.
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Table 9.4.2-2: Building scale and bulk requirements

Note—For domestic outbuildings, the Queensland Development Code requirements apply.

ZONE	MAXIMUM BUILDING HEIGHT	MINIMUM BUILDING SETBACKS	MAXIMUM SITE COVER
Community facilities zone	10m where adjoining a Centre zone or Industry zone; 8.5m in all other circumstances	Where adjoining a Centre or Industry zone: 0m from the boundary it adjoins. Where not adjoining a Centre zone: a. 6m from the primary street frontage, b. 4.5m from any secondary street frontage; c. 6m from any common boundary with a residential use, or residential zoned land.	Not specified
Conservation zone	8.5m	25m from all boundaries	Not specified
Emerging community zone	8.5m	Supported by a Structure Plan unless a Dwelling house	Supported by a on Structure Plan unless a Dwelling house
Industry zone	8.5m where within 20m of residential zone or sensitive land use; 12.5m in all other circumstances	a. 10m from all road frontages. b. 2.5m from all other boundaries. Where adjoining residential zone or sensitive land use: 6m from the boundary closest to the residential zone or sensitive land use.	70%
Local centre zone	12.5m	0m from all boundaries.	50%
Low density residential zone	8.5m	a. 6m from the primary street frontage and rear boundaries; b. 4.5m from any secondary street frontage; c. 2.5m from side.	50%
Low-medium density residential zone	12.5m	a. 6m from the primary street frontage and rear boundaries; b. 4.5m from any secondary street frontage; c. From the side boundary: i. 3m, where the height of the building is less than 6m; ii. 5m, where the height of the building is 6m or more.	50%
Major centre zone	15m	0m from all boundaries.	70%
Mixed use zone	12.5m	From all boundaries: a. 3m, where the height of the building is less than 6m; b. 5m, where the height of the building is 6m or more.	70%
Open space zone	8.5m	6m from all boundaries.	Not specified
Principal centre zone	15m	0m from all boundaries.	70%
Rural residential zone	8.5m	a. 6m from the road frontage and rear	15%

		boundary; b. 9m collectively from the side boundaries with one side boundary setback being 6m.	
Rural zone	10m	10m from all boundaries.	Not specified
Special industry zone	12.5m	a. 25m from all boundaries; or b. consistent with AS.2187, whichever is the greater.	10%
Sport and recreation zone	8.5m	6m from all boundaries.	10%
Township zone	8.5m	<p>For Commercial, Community and Entertainment activities:</p> <p>a. 0m from the road frontage; b. 2.5m from all other boundaries.</p> <p>For Residential activities:</p> <p>a. same as the Low density residential zone.</p> <p>For Industry; Infrastructure, Rural, Sport and recreation, Tourist activities:</p> <p>a. 10m from the road frontage; b. 2.5m from all other boundaries.</p>	50%

9.4.3 Earthworks, filling and excavation code

9.4.3.1 Application

1. This code applies to development for which the Earthworks, filling and excavation code or the Works codes are identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

Editor’s note—This code does not regulate earthworks, excavation or filling associated with prescribed farming activities, or irrigation infrastructure or emergency work.

9.4.3.2 Purpose

1. The purpose of the Earthworks, filling and excavation code is to ensure earthworks, filling and excavation activities protect and maintain the environment and other property, and provide a safe and secure work environment.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Earthworks are designed and constructed to be structurally stable and safe.
 - b. All on-site work provides land stability (including differential settlement or expansion in high risk soils).
 - c. Earthworks incorporate best practice drainage and erosion and sediment controls to:
 - i. improve any flood or drainage hazards for upstream or downstream premises;
 - ii. protect and improve the character or scenic landscape of the site or adjacent premises so that they are not adversely affected;
 - iii. protect water quality and minimise water contamination, environmental harm and nuisance;
 - iv. protect and improve public infrastructure or services, so they are not adversely affected.
 - d. The natural environment, built environment and infrastructure are protected from the adverse effects of high risk soils and former mining activities;
 - e. Sensitive land uses and incompatible land uses are protected from the impacts of previous activities that may cause risk to people or property on land where former mining activities and related hazards (e.g. disused underground mines, tunnels and shafts) have occurred.
 - f. Earthworks for basin or dam construction mitigates and manages the potential harm caused by failure.

Note—Former mining activities and related hazards (e.g. disused underground mines, tunnels and shafts) are common in the Lockyer Valley. A pre-development ground inspection and check of GeoResGlobe is recommended as part of due diligence and general environmental duty under the Environmental Protection Act.

Editor’s note—The Environmental Protection Act, regulates the depositing of sediment and other water contaminants. Methods to prevent sediment washing or moving into roadways, stormwater pipes and waterways from building sites, can be found in the SEQ Healthy Waterways - Water by Design program’s Erosion and Sediment Control factsheets. Fines and legal action may occur if controlling stormwater pollution from building sites does not occur.

Editor’s note—In accordance with the Environmental Protection Act and the General environmental duty, all reasonable and practicable measures must be taken to prevent or minimise environmental harm. Development must be designed to suit the soil type in the location it is sited. Consideration should therefore be given to Soil conservation guidelines for Queensland.

Editor’s note—Where earthworks is assessable development referral to Seqwater for third party advice may be undertaken for development that will result in ground disturbance and increase the quantity of sediment movement.

Editor’s note—Uncontaminated fill must be free of declared pests such as fire ants.

9.4.3.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.4.3-1: Earthworks, filling and excavation code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
PO1 The positioning and design of earthworks: a. mitigate and manage soil loss caused by sheet, rill or	* AO1.1 Earthworks, excavation or filling do not change overland flow paths or floodways in a way that results in off-

<p>gully erosion;</p> <p>b. mitigate and manage sediment and water contamination due to releases from the site;</p> <p>c. maximise stormwater harvesting while minimising adverse impacts on the stormwater system;</p> <p>d. manage concentrated stormwater flows to ensure the stormwater system has sufficient capacity and is structurally stable before and after each rainfall event;</p> <p>e. ensure all site surfaces are effectively stabilised before development starts;</p> <p>f. avoid negative character and amenity issues.</p> <p><i>Note—An ESCP is to be prepared by a suitably qualified and experienced professional consistent with best practice such as IECA, Best Practice Erosion and Sediment Control.</i></p>	<p>premises impact.</p> <p><i>Note—Off-premises impacts means an impact on people, property, or the environment outside the site with the works.</i></p> <p>*AO1.2 Earthworks are minor filling or excavation works, only.</p> <p>*AO1.3 The total volume of earthworks, excavation or filling is less than:</p> <p>a. 50m³ where the site is in the Rural or Conservation zone;</p> <p>b. 20m³ in any other zone.</p> <p>*AO1.4 Earthworks, excavation or filling, do not result in:</p> <p>a. cut or fill batters with heights or depths of more than 1m;</p> <p>b. retaining walls with a height of more than 1m from the ground level;</p> <p>c. slopes or batters that are steeper than 1V:6H.</p> <p>*AO1.5 Earthworks, excavation or filling is not undertaken:</p> <p>a. within the defined flood level;</p> <p>b. on a slope more than 15%;</p> <p>c. on a site that is a Local or State heritage place.</p>
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Stability

<p>PO2 Earthworks, excavation or filling improves or maintains the effective stability of the site and does not undermine, or cause subsidence on adjoining roads or surrounding lots.</p> <p><i>Note—Compliance with this Performance Outcome, may be demonstrated by a report prepared by RPEQ consistent with Planning Scheme Policy 5 Geotechnical assessment and a Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i></p> <p><i>Note—An ESCP is to be prepared by a suitably qualified and experienced professional and consistent with best practice such as IECA, Best Practice Erosion and Sediment Control.</i></p>	<p>AO2.1 Filled areas are compacted consistent with:</p> <p>a. AS.3798 Guidelines on earthworks for commercial and residential developments;</p> <p>b. AS.2870 Residential slabs and footings — Construction requirements;</p> <p>c. AS.1289 Methods of testing soils for engineering purposes.</p> <p>AO2.2 Benched lots that are filled are designed, constructed and certified to Level 1 requirements.</p> <p>AO2.3 Sites with existing areas of landslide or erosion are effectively stabilised before development occurs.</p> <p>AO2.4 Completed earthworks provide an effectively stabilised surface (e.g. using turf, established grass seeding, mulch or sprayed stabilisation techniques) to control erosion and sediment and dust from leaving the premises.</p> <p>AO2.5 All fill batters steeper than 1V:6H on residential lots are fully turfed to prevent scour and erosion.</p> <p>AO2.6 Retaining walls are designed consistent with AS.4678 Earth-retaining structures.</p> <p>AO2.7 Retaining walls including footings, surface drainage and subsoil drainage are contained within the site where the earth is to be retained.</p> <p>*AO2.8 Retaining walls are not constructed of boulder rocks or timber.</p> <p>AO2.9 Retaining walls on public land or adjoining the road reserve are constructed from durable materials with a service life of 50 years and include a concrete mowing edge a minimum width of 200mm along the toe of all retaining walls.</p> <p>AO2.10 If a retaining wall is more than 1m in height, then:</p>
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	<p>a. the retaining wall is setback a minimum of 1.5m from the lot boundary;</p> <p>b. all terracing from 1m of a boundary retaining wall is 1V:1.6H;</p> <p>c. the distance between each successive retaining wall (back of lower wall to face of higher wall) is no less than 1m horizontally to allow for the incorporation of planting areas;</p> <p>d. safety fencing is provided.</p> <p>*AO2.11 Where fencing is positioned above a retaining wall, it is positioned, designed, or landscaped to reduce the visual appearance and bulk of the entire structure.</p>
<p>PO3 Development that results in lots with an average finished slope that is more than 10% ensures that:</p> <p>a. earthworks provide finished ground levels that facilitate development of the lot for the intended purpose and ancillary areas (e.g. areas of useable private open space, domestic outbuildings, etc.) and minimise the need for retaining walls; and</p> <p>b. earthworks are undertaken in a way that maintains amenity outcomes for future users and when viewed from a public road, park or adjoining development.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a bulk earthworks plan prepared by a suitably qualified person.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO4 Earthworks, excavation or filling in areas with high risk soils:</p> <p>a. avoids starting or worsening erosion and land degradation;</p> <p>b. avoids the exposure of cleared land for more than three months.</p> <p><i>Note—Land degradation is defined in the schedule 1, Table SC1.2 -1 Administrative definitions.</i></p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i></p>	<p>AO4.1 Erosion and sediment control measures in areas of high risk soils:</p> <p>a. are in place before beginning any earthworks, filling or excavation;</p> <p>b. are of a standard and design that manages the characteristics of the soils;</p> <p>c. include the rapid re-establishment of groundcover to provide an effectively stabilised surface to disturbed areas;</p> <p>d. include a management program to ensure groundcover is supported until it is self-sustaining.</p>
<p>PO5 Earthworks are undertaken to ensure that ground disturbance is staged into manageable areas.</p> <p><i>Note—An ESCP is to be prepared by a suitably qualified and experienced professional consistent with best practice such as IECA, Best Practice Erosion and Sediment Control.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Amenity</p>	
<p>PO6 Earthworks, excavation or filling does not harm amenity by causing excessive dust, noise or visual damage to the landscape.</p>	<p>AO6.1 Earthwork areas are grassed or landscaped upon completion of works consistent with Planning Scheme Policy 6 Infrastructure design.</p> <p>AO6.2 During construction, the following measures are implemented:</p> <p>a. Regular water spraying of exposed areas to suppress dust;</p> <p>b. dust stabilised or sealed internal roads;</p> <p>c. protective covering of exposed areas that are left for more than two weeks;</p> <p>d. disturbed areas are revegetated using preferred species in Planning Scheme Policy 6 Infrastructure design.</p>

	<p>AO6.3 Earthworks, excavation or filling occurs only between 6:30am to 6:30pm Monday to Saturday excluding public holidays.</p>
<p>PO7 Earthworks, excavation or filling works does not cause environmental harm or nuisance to matters of environmental significance or scenic landscape amenity because of light, noise, dust, sedimentation, contamination, gaseous emissions, odour or vibrations to adjacent premises beyond the boundaries of the site.</p>	<p>AO7.1 Where earthworks, excavation or filling occurs:</p> <ul style="list-style-type: none"> a. noise generating equipment is shielded or includes acoustic reduction measures, so the development is consistent with the acoustic quality objectives for sensitive receptors set out in the <i>Environmental Protection (Noise) Policy</i>; b. no dust emissions, other air emissions or odours extend beyond the boundaries of the site or development is consistent with the air quality objectives of the <i>Environmental Protection (Air) Policy</i>; c. stormwater harvesting is used to meet the temporary and long term irrigation demands for landscaped areas consistent with Planning Scheme Policy 7 Landscaping; d. ESC measures are designed and constructed consistent with Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 9 Stormwater management.
<p>PO8 Construction uses best practice principles to deliver development in a manner that minimises disruption to adjacent sensitive land uses and:</p> <ul style="list-style-type: none"> a. minimises the time to complete the earthworks; b. does not result in environmental nuisance; c. ensures the site and surrounding roads are kept clear of any debris, sediment, machinery and materials; d. ensures the safety of pedestrians, cyclists and vehicles is managed; e. manages traffic movement on access roads and within the site. 	<p>AO8.1 Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.</p> <p>AO8.2 Development protects sensitive land uses from dust and noise during construction or earthworks.</p> <p>AO8.3 Stockpiles and spoil piles are covered.</p> <p>AO8.4 Development for earthworks, excavation or filling demonstrates that heavy vehicles hauling material to and from the site:</p> <ul style="list-style-type: none"> a. will occur for no more than 4 weeks; b. use a route that: <ul style="list-style-type: none"> i. allows heavy vehicles, using major roads to access the site and avoids minor roads or residential streets; or ii. involves minor roads or residential streets where it cannot be avoided and heavy vehicles use the shortest and most direct route that causes the least amount of nuisance. <p><i>Note—Where a temporary diversion of traffic is required, a work in road permit may be required from the relevant authority.</i></p> <p><i>Note—A traffic control plan prepared consistent with the Manual of Uniform Traffic Control Devices (MUTCD) will be required for any works that will affect access, traffic movements or traffic safety in existing roads.</i></p> <p>AO8.5 Earthworks, excavation or filling occurs only between 6:30am to 6:30pm Monday to Saturday, excluding public holidays.</p> <p>AO8.6 Development involving earthworks, excavation or filling does not cause ground-borne vibration beyond the boundary of the site.</p> <p>AO8.7 Any material dropped, deposited or spilled on the road because of construction is to be cleaned consistent with an Erosion and sediment control plan.</p>
<p>Fill material</p>	

<p>PO9 The type, composition, placement and source of any fill material is appropriate and adequate to support the proposed development consistent with sound geotechnical engineering standards.</p>	<p>AO9.1 Fill material is uncontaminated solid clean earth, free of putrescible or waste material, vegetation, high risk soils, building or construction material or other contaminants.</p>
<p><i>Note—Soil and rocks are to be tested in accordance with AS.1289 Methods of testing soils for engineering purposes and AS.4133 Methods of testing rocks for engineering purposes.</i></p>	<p><i>Editor's note—Uncontaminated fill must be declared pests such as fire ants.</i></p>
<p>Location of earthwork</p>	
<p>PO10 The position and design of earthworks, excavation or filling minimises impacts on the natural landform that may cause contamination or interfere with the flow of a waterway or water supply source.</p>	<p>No acceptable outcome is nominated.</p>
<p><i>Note—Compliance with this Performance Outcome may require a Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i></p>	
<p>Drainage, hydraulics and flooding</p>	
<p>PO11 Earthworks, excavation or filling does not cause:</p> <ol style="list-style-type: none"> an actionable nuisance, or worsening of stormwater, flooding or drainage on the site or on upstream, downstream and/or adjacent premises; changes to flow patterns and the velocity and turbulence of runoff; a reduction in the hydrological and hydraulic capacity of the waterway or floodway; an increase in flood inundation outside the site; a reduction in the flood storage capacity in the floodway. 	<p>AO11.1 Earthworks, excavation or filling is consistent with Planning Scheme Policy 6 Infrastructure design and does not:</p> <ol style="list-style-type: none"> concentrate flows onto adjoining lots; change or redirect flows onto surrounding lots; create new points of discharge onto surrounding lots; cause ponding on the site or on surrounding lots.
<p>Contaminated land</p>	
<p>PO12 Earthworks, excavation or filling protects the environment and community health from exposure to contaminated land and contaminated material from former developments, including but not limited to mining and landfill activities.</p>	<p>AO12.1 Development involving land that is on the Environmental Management Register or the Contaminated Land Register disposes of contaminated waste in an approved manner under the <i>Environmental Protection Act</i>.</p>
<p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a geotechnical assessment report consistent with the Queensland Auditor Handbook for Contaminated Land.</i></p>	
<p>Construction management</p>	
<p>PO13 Disposal of waste generated from construction activities:</p> <ol style="list-style-type: none"> is managed in a manner not to cause environmental harm; is consistent with relevant legislation; and does not occur on site. 	<p>AO13.1 Vegetation waste involving development sites of more than 2 hectares is chipped or burnt in an approved pit burner.</p>
	<p><i>Editor's note—Chipping is the preferred method of vegetation disposal. Chipped vegetation can be used as soil cover for exposed areas to help sediment control.</i></p>
	<p>AO13.2 Small quantities of waste involving development sites of less than 5 hectares are taken to a suitable landfill facility.</p>
	<p>AO13.3 Development involving contaminated waste is disposed of in an approved manner under the <i>Environmental Protection Act</i>.</p>
	<p>AO13.4 All unconsolidated fill, builder's rubble, or other waste is removed from the site before the completion of works.</p>
<p>Protection of infrastructure and services</p>	

<p>PO14 Earthworks, excavation or filling protects the continuing operation and maintenance of infrastructure services, public assets, utilities and easements.</p>	<p>AO14.1 Development is designed to maintain the location of existing infrastructure, including depth of cover to underground infrastructure.</p> <p>AO14.2 Where disturbance to existing infrastructure is unavoidable, development ensures that any change or relocation of services or public utilities meets the standard design specifications of the responsible service authorities.</p> <p>AO14.3 Earthworks, excavation or filling does not occur in easements benefitting Council or a public sector entity.</p> <p><i>Note—Public sector entity is defined in schedule 2 of the Planning Act.</i></p> <p>AO14.4 Existing street trees are kept and protected during construction.</p> <p>AO14.5 Street trees damaged by construction work are replaced.</p> <p><i>Note—AS.4970 Protection of trees on development sites provides measures to protect trees during construction.</i></p>
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Retaining Walls

<p>PO15 Retaining walls are:</p> <ol style="list-style-type: none"> designed and constructed to be fit for purpose; capable of easy maintenance; are not visually intrusive and provides a positive streetscape connection. 	<p>AO15.1 Retaining walls are designed consistent with AS.4678 Earth-retaining structures.</p> <p>AO15.2 Retaining walls including footings, surface drainage and subsoil drainage are contained within the site where the earth is to be retained.</p> <p>*AO15.3 Retaining walls are not constructed of boulder rocks or timber.</p> <p>AO15.4 Retaining walls on public land or adjoining the road reserve are constructed from durable materials with a service life of 50 years and include a concrete mowing edge a minimum width 200mm, along the toe of all retaining walls.</p> <p>AO15.5 If a retaining wall is to be more than 1m, then:</p> <ol style="list-style-type: none"> the retaining wall is setback a minimum of 1.5m from the lot boundary; all terracing from 1m of a boundary retaining wall is 1V:1.6H; the distance between each successive retaining wall (back of lower wall to face of higher wall) is no less than 1m horizontally to allow for the incorporation of planting areas; retaining walls over 1m in high have safety fencing. <p>*AO15.6 Where fencing is positioned above a retaining wall, it is positioned, designed, or landscaped to reduce the visual appearance and bulk of the entire structure.</p>
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High risk soils

<p>PO16 High risk soils are identified and managed to:</p> <ol style="list-style-type: none"> minimise the release of sediments and contaminants into the environment; protect infrastructure, natural and built environments from the adverse effects. <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a Salinity investigation and management</i></p>	<p>AO16.1 Development does not:</p> <ol style="list-style-type: none"> excavate, fill or otherwise remove soil or sediment identified as high risk soils; permanently or temporarily extract groundwater in an area of high risk soils. <p>AO16.2 Where development disturbs high risk soils, works are managed by providing a High risk soils management plan</p>
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<p><i>plan consistent with the Queensland Government Salinity Management Handbook.</i></p> <p><i>Note—A condition may be included on any approval requiring monitoring and certification that the works have not increase the risk of soil and groundwater salination in areas with high risk soils.</i></p>	<p>to:</p> <ol style="list-style-type: none"> a. protect the natural environment, buildings and infrastructure; and b. neutralise the salinity, acidity or dispersive nature of the soils to ensure the release of sediments and contaminants does not occur. <p>AO16.3 Development demonstrates that the following have been considered through a site-based management plan for the type of high risk soil and uses best practice methods:</p> <ol style="list-style-type: none"> a. measures to reduce salt and groundwater expression where within 500m of a salinity expression area; b. measures to reduce cutting or benching the site where on a site with dispersive or erosive soils; c. total life-cycle costs for public infrastructure (for example, roads and service infrastructure); d. outline the design considerations for future structures and buildings as a result of any lot reconfiguration.
Basins and dams	
<p>PO17 The design and construction of dams in the Rural zone protect:</p> <ol style="list-style-type: none"> a. the hydrology; b. overland flow paths and patterns; c. effluent disposal areas of adjacent premises and infrastructure (including road reserves) sites from landslide or dam wall failure. 	<p>AO17.1 In the Rural zone, dams are constructed or retain where they are:</p> <ol style="list-style-type: none"> a. located on lots that are 10ha or more; b. on slopes that are 10% or less on OM11 Steep land overlay; c. outside of a category 3 waterway mapped on OM12A Waterways and water resource catchment - Ecosystems overlay; d. outside the 800m bulk supply storage buffer and water supply buffer on OM12B Waterways and water resource catchment - Water resource catchment overlay; e. setback from all boundaries (from the toe of the dam wall) a minimum of 10m from all lot boundaries.
<p>PO18 Existing dams in urban areas and the Rural residential zone are removed unless repurposed for stormwater management purposes.</p> <p><i>Note—Compliance with this Performance outcome may require a management plan by suitably qualified engineer in accordance with:</i></p> <ol style="list-style-type: none"> a. <i>Planning Scheme Policy 9 Stormwater management;</i> b. <i>Queensland Dam Safety Management Guideline;</i> c. <i>Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i> 	<p>AO18.1 Development in urban areas and the Rural residential zone removes all dams unless it can be repurposed for the stormwater drainage network.</p> <p>AO18.2 The land affected by a dewatered dam shall be returned to a natural state by:</p> <ol style="list-style-type: none"> a. shaping the land to reform a naturalised channel where part of an overland flow path; or b. compaction of the soil to create flat land; c. consistent with a development approval. <p><i>Note—A fauna spotter catcher may need to conduct a pre-works survey and relocate wildlife where necessary before and during draining and/or filling of dams.</i></p>
<p>PO19 Basin and dam design ensures community safety is assured if a basin or dam fails or overtopping occurs.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a report prepared by an RPEQ consistent with:</i></p> <ol style="list-style-type: none"> a. <i>the Guideline for the construction or modification of category 2 and 3 levees;</i> b. <i>the guideline for Structures which are dams or levees constructed as part of environmentally relevant activities;</i> c. <i>the State Guideline for failure impact assessment of water dams.</i> <p>Editor's note—The Department of Resources has published a guide for dam owners <i>Small Dam Safety: Information for Queensland small dam owners consideration should be given to the guide where a</i></p>	<p>AO19.1 A preliminary geotechnical assessment of the suitability of the basin or dam site in terms of soil and slope stability has been carried out by an appropriately experienced and quality geotechnical engineer to confirm the basin or dam site is suitable and stable.</p> <p>AO19.2 The basin or dam embankment is constructed with a clay core and cut-off trench to prevent seepage through the embankment. The cut-off trench is taken down a minimum of 600mm into impervious soil and back filled with clay that is thoroughly compacted.</p> <p>AO19.3 The top water surface in the private basin or dam is setback a minimum:</p> <ol style="list-style-type: none"> a. 30m from the irrigation area of a household sewage treatment plant (secondary treatment);

<p><i>planning application is not triggered.</i></p>	<p>b. 50m from the irrigation area of a septic trench (primary treatment).</p> <p>AO19.4 The freeboard between the top water level and the top of the embankment is not less than 1m.</p> <p>AO19.5 Basins and dams with an embankment height up to 3m have a minimum embankment crest width of 2.5m.</p> <p>AO19.6 Basins and dams have a spillway bypass with enough flow capacity to prevent floodwater overtopping the basin or dam embankment.</p> <p>AO19.7 Basin and dam spillways have surface protection to prevent erosion, scour and slumping during all flood events.</p> <p>AO19.8 Basin and dam batter slopes are no steeper than the following:</p> <ul style="list-style-type: none"> a. outer slope of wall — 1V:4H (25% slope); b. all internal slopes — 1V:6H (16.67% slope).
<p>PO20 Dam management processes are in place to maintain the integrity of the dam structure and maintain water quality.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a report prepared by RPEQ that demonstrates a maintenance program that addresses:</i></p> <ul style="list-style-type: none"> a. inflow water filtration; b. embank integrity including solutions for seepage and managing pests (e.g. rabbits); c. spillway clearance and flows; d. water quality measures including methods to minimise sedimentation, salt and algae. <p>Editor's note—The Department of Resources has published a guide for dam owners <i>Small Dam Safety: Information for Queensland small dam owners consideration should be given to the guide where a planning application is not triggered.</i></p>	<p>AO20.1 Basins and dams have an overflow facility which:</p> <ul style="list-style-type: none"> a. has enough capacity to fully contain the flows from a 10% (1 in 10) AEP storm event over the entire catchment of the water impoundment; b. is positioned so that the flows from a 10% (1 in 10) AEP storm event over the entire catchment of the water impoundment do not surcharge over any basin or dam wall; c. is lined with velocity dissipation, flow dispersion and erosion protection mechanisms able to withstand the dynamic forces of a 10% (1 in 10) AEP storm event over the entire catchment of the basin or dam; d. is wide enough to provide for sheet flow; e. directs flows towards existing flow paths. <p>AO20.2 Basins and dams with the following features are designed, constructed and inspected by a suitably qualified and experienced RPEQ:</p> <ul style="list-style-type: none"> a. an embankment height more than 3m at any point; or b. a top water level surface area more than 5,000m²; or c. have an impoundment volume more than 5ML; or d. where a basin or dam break would threaten the lives of downstream population.

9.4.4 Environment and amenity code

9.4.4.1 Application

1. This code applies to development for which the Environment and amenity code or Works codes are identified as an assessment benchmark in the assessment benchmark column of the tables of assessment in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.4.4.2 Purpose

1. The purpose of the Environment and amenity code is to ensure development protects environmental values, maintains the community's well-being, public health and safety, and prevents or mitigates environmental emissions.
2. The purpose of the code will be achieved with the following overall outcomes:
 - a. Development ensures adjacent lands and environmental values are protected by preventing or minimising emissions that have the potential to cause environmental harm resulting from the release of contaminants, particularly noise, odour, light, dust and particulates;
 - b. Development maintains neighbouring amenity and lifestyle values;
 - c. Development works in a way that protects the health of the community both on and outside the site;
 - d. Development manages waste and recyclables to protect the health and amenity of people and the environment;
 - e. Development minimises on site and adjacent residents' exposure to air, light and noise pollution and dust.
 - f. Sensitive land uses do not create reverse amenity impacts on existing lawful uses and do not encroach upon or adversely affect their operation or long-term viability.

9.4.4.3 Assessment benchmarks

Table 9.4.4-1: Environment and amenity code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
General amenity	
<p>PO1 The use of vehicles associated with the development does not affect the safe or convenient use of the road network, and minimises noise and dust impacts associated with vehicles and traffic.</p>	<p>AO1.1 Loading or unloading activities are undertaken within the site to minimise light and noise on surrounding sensitive land uses.</p> <p>AO1.2 Development provides that all vehicles associated with the use can be parked on the site.</p> <p>AO1.3 Development has direct access to the sealed road network.</p>
<p>PO2 Development involving a sensitive land use near an existing lawful use that generates noise, dust, odour or other emissions, is located and designed to not impede the operation of the existing lawful use.</p> <p><i>Editor's note—Development design principles may include:</i></p> <ol style="list-style-type: none"> a. <i>moving open space and roads to increase separation distances;</i> b. <i>using screen landscaping as a visual and particulate barrier;</i> c. <i>lower housing densities adjacent to impact sites;</i> d. <i>building design, including air conditioning and noise attenuation (e.g. double glazing); and</i> e. <i>providing barriers to impacting sites.</i> 	<p>No acceptable outcome is nominated.</p>
Noise and vibration	
<p>PO3 Development is located, designed, constructed and operated to ensure that sensitive land uses are protected from noise emissions and noise does not cause environmental harm.</p> <p><i>Note—This Performance outcome also applies to noise emissions</i></p>	<p>AO3.1 Development operates between the hours of 7am and 10pm, including deliveries or achieves the Acoustic Quality Objectives for sensitive receptors listed within the <i>Environmental Protection (Noise) Policy</i>, schedule 1.</p> <p>AO3.2 Mechanical plant and equipment is attenuated by</p>

<p><i>generated by transport noise corridors designated on OM14 Transport noise corridors overlay and other sources such as Childcare centre play areas, communal areas, service areas, plant and equipment on sensitive land uses.</i></p>	<p>design, location and/or barriers to limit the negative impacts on the surrounding sensitive land uses, consistent with the satisfactory design sound level in AS/NZS.2107 Acoustics — Recommended design sound levels and reverberation times for building interiors.</p> <p>AO3.3 Car parking and vehicle movement areas are acoustically screened from adjoining residential dwellings and bedrooms, consistent with the satisfactory design sound level in AS/NZS.2107 Acoustics — Recommended design sound levels and reverberation times for building interiors.</p> <p><i>Note—Mechanical plant includes, but is not limited to, generators, motors, compressors and pumps such as air-conditioning, refrigeration or cold-room motors.</i></p>
<p>PO4 Development does not involve activities that would cause vibration related environmental harm or environmental nuisance to a sensitive land use.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a vibration impact assessment or the inclusion of vibration within an environmental impact report consistent with AS.2670 Evaluation of human exposure to whole of body vibration.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Air emissions — dust, particulates and odour</p>	
<p>PO5 Development is positioned, designed and operated to avoid the generation of odour, dust or particulate nuisance emissions of a level that have the potential to cause environmental harm to a sensitive land use.</p> <p><i>Editor's note—For Intensive animal industries, the Rural uses code has the assessment benchmarks for Air Emissions — Dust, Particulates and Odour.</i></p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing an environmental management plan prepared by a suitably qualified person in relation to odour, dust, or particulate nuisance impacts. The assessment is to be consistent with the Guideline - Odour impact assessment for developments, for modelled odour concentrations.</i></p>	<p>AO5.1 Development does not involve activities that would cause dust related environmental harm to adjacent premises.</p> <p>AO5.2 Development does not result in particle emissions that are more than any of the acceptable levels specified within the <i>Environmental Protection (Air) Policy</i>.</p> <p><i>Note—Where development is likely to create continuing significant dust or odour issues a 'site-based management plan' which addresses dust mitigation measures.</i></p> <p>AO5.3 Development ensures refuse and recycling storage areas are located a minimum 5m from sensitive land uses on the site or surrounding sites.</p>
<p>PO6 Air emission vents or stacks are positioned to ensure that surrounding sensitive land uses are not exposed to concentrated levels of air contaminants.</p>	<p>AO6.1 Exhaust stacks are located the maximum practical distance away from the boundary of a sensitive land use.</p> <p>AO6.2 Development, including any outdoor air intakes for the development, are separated from:</p> <ol style="list-style-type: none"> a. exhaust vent outlets where food or cooking odour is released, by a minimum of 6m; b. other exhaust vent outlets a minimum of 15m. <p>AO6.3 Where food or cooking odour is released, exhaust vents are discharged vertically and directed away from a sensitive land use consistent with AS.1668.2 The use of ventilation and air-conditioning in buildings — Mechanical ventilation in buildings.</p> <p>AO6.4 Exhaust vents discharging food or cooking odour are separated by the following distances:</p> <ol style="list-style-type: none"> a. minimum of 6m horizontally from any premises or road; b. minimum of 3m above a thoroughfare or roof with regular foot traffic; or c. minimum of 1m above the ridge of a pitched roof.

	<p>AO6.5 Mechanical equipment including fans and other equipment, are designed, installed and located to minimise the impacts of noise and vibration.</p> <p>AO6.6 Mechanical exhaust systems for kitchens, bathrooms, service areas and basements vent air directly outside and do not recirculate air from these locations.</p>
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Outdoor lighting and glare

<p>PO7 Development does not cause an environmental nuisance by light emissions on any person, activity or fauna, either directly or by reflection.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a lighting proposal and impact assessment prepared by a suitably qualified person in relation to light nuisance.</i></p>	<p>AO7.1 Development:</p> <ul style="list-style-type: none"> a. provides no outdoor lighting as part of the development; or b. provides only minor external lighting devices, located, designed and installed to: <ul style="list-style-type: none"> i. be consistent with and appropriate to the surrounding character and amenity; and ii. minimise the impact of direct and indirect light spillage on surrounding sensitive land uses; or iii. use of motion sensor lights or electronic controls to switch off lights when not required; c. provides external lighting which is consistent with the design, installation, operation and maintenance standards of the following standards: <ul style="list-style-type: none"> i. outdoor lighting is consistent with the requirements of AS.4282 Control of the obtrusive effects of outdoor lighting; ii. lighting of sporting fields and sporting courts is consistent with the requirements of AS.4282 Control of the obtrusive effects of outdoor lighting and a compliance statement by a lighting designer consistent with section 4 of the standard; iii. sporting fields and sporting courts do not operate lights past 10pm and no earlier than 5am. <p><i>Note—Methods to comply with outcome AO7.1 (b) may include:</i></p> <ul style="list-style-type: none"> a. providing covers or shading around lights that prevent direct light spill on neighbouring lots or roadways; or b. directing lights downwards to prevent direct light spill on neighbouring lots or roadways; and c. positioning and/or directing lights away from sensitive land uses; and d. enabling the brightness of lights to be adjusted to lower output levels where appropriate. <p><i>Note—The effects of outdoor lighting should be mitigated where:</i></p> <ul style="list-style-type: none"> a. a window of a habitable room of a nearby dwelling will be illuminated beyond maximum permissible values in AS.4282 Control of the Obtrusive Effects of Outdoor Lighting; b. outdoor lighting will illuminate communal open spaces.
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Solid waste management

<p>PO8 Development is designed, constructed and operated to ensure dedicated refuse and recycling storage and collection facilities are provided on site that:</p> <ul style="list-style-type: none"> a. are cost effective and practical; b. meet environmental health legislative requirements; c. meet the needs for the efficient collection and disposal of waste at regular intervals. d. prevent and minimise any odour, noise and visual nuisance to: <ul style="list-style-type: none"> i. surrounding land uses or public spaces; ii. groundwater and surface water quality. <p><i>Note—Compliance with this Performance outcome may be</i></p>	<p>AO8.1 All waste produced on site is stored in containers of enough volume and capacity to receive all waste generated by the development.</p> <p>AO8.2 Development ensures refuse and recycling storage areas are located a minimum 5m horizontally from sensitive land uses on the site and surrounding sites.</p> <p>AO8.3 A washdown area is provided for the cleaning of putrescible or wet waste. The washdown area is:</p> <ul style="list-style-type: none"> a. incorporated into the waste storage area, or is located such that waste containers can be easily moved to the washdown area;
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<p><i>demonstrated by providing a site-based environmental management plan that addresses waste management prepared by a suitably qualified person and is consistent with the hierarchy of waste management measures outlined in the Waste Management and Resource Recovery Strategy:</i></p> <ol style="list-style-type: none"> a. <i>waste prevention or avoidance;</i> b. <i>waste recycling or reuse;</i> c. <i>waste treatment; then</i> d. <i>waste disposal.</i> 	<ol style="list-style-type: none"> b. located near a tap; c. fenced by a 1.8m high soil screen fence where adjoining a sensitive land use; d. graded to a drainage point located within the washdown area; e. drained by a trapped gully connected to the sewer or on-site wastewater treatment system; f. located so stormwater or other surface water cannot flow into the washdown area <p>AO8.4 Waste and recyclables produced on site are disposed of consistent with the waste and resource management hierarchy specified in the Waste Reduction and Recycling Act.</p> <p><i>Editor's note—The waste and resource management hierarchy include the following principles, listed in the preferred order in which waste and resource management options should be considered:</i></p> <ol style="list-style-type: none"> a. AVOID unnecessary resource consumption; b. REDUCE waste generation and disposal; c. RE-USE waste resources without further manufacturing; d. RECYCLE waste resources to make the same or assorted products; e. RECOVER waste resources, including the recovery of energy; f. TREAT waste before disposal, including reducing the hazardous nature of waste; g. DISPOSE of waste only if there is no viable alternative. <p>AO8.5 A dedicated area for waste storage is provided on site that is:</p> <ol style="list-style-type: none"> a. in a building, an outbuilding, a covered structure or otherwise screened from public view and adjacent premises; b. on an imperviously sealed pad on which the bin or bins stand can be drained to an approved disposal system; c. provided with a dedicated water supply and are kept clean and maintained without causing nuisance. <p>AO8.6 Development stores all putrescibles waste in a manner that prevents odour nuisance and fly breeding and is disposed of at regular intervals.</p> <p><i>Note—Examples of acceptable outcomes may, either permanently or as required, include:</i></p> <ol style="list-style-type: none"> a. <i>storing putrescible waste at low temperatures; and/or</i> b. <i>increased frequency of collection to avoid the generation of odours.</i>
<p>PO9 Development is designed to ensure that waste storage and collection is safe, convenient and accessible for waste collection vehicles.</p>	<p>AO9.1 Development:</p> <ol style="list-style-type: none"> a. has an accessible road frontage (exclusive of driveways) for kerbside collection at a rate of 1m for each 240L wheeled bin service required; or b. provides bulk waste container/s which can be accessed on site by collection vehicles being able to enter and leave the site in forward direction; or c. provides an alternative storage and collection method for the safe collection of waste, consistent with the <i>Waste Reduction and Recycling Act</i>. <p>AO9.2 Development provides unobstructed access to the container for removal of the waste.</p> <p>AO9.3 Roads which includes private and public roads, are designed and constructed to provide access by waste collection vehicles to each tenancy or the container storage</p>

	areas.
<p>Construction waste reduction — applicable where:</p> <ul style="list-style-type: none"> a. creating 4 or more new lots; or b. creating 4 or more dwellings; or c. constructing or demolishing over 400m² GFA; or d. Intensive animal industry; or e. development with regulated waste. 	
<p>PO10 Development manages waste and recycling from the development to ensure resource recovery and waste minimisation.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a Waste Management Plan (WMP) for all stages of development that is consistent with the Waste Reduction and Recycling Act.</i></p>	<p>AO10.1 Development manages waste and recyclables at all stages (e.g. pre-construction, construction and post-construction) consistent with the waste and resource management hierarchy specified in the Waste Reduction and Recycling Act including:</p> <ul style="list-style-type: none"> a. optimisation of resource recovery; b. waste minimisation and disposal procedures; c. management of: <ul style="list-style-type: none"> i. construction and demolition waste; ii. organic waste; iii. hazardous waste; d. continuing waste and resource recovery measures to be provided once the development is operational; e. access and infrastructure required to allow waste and recycling services to be effectively provided; and f. review process for the Waste Management Plan to allow for continuing flexibility, adaptability and innovation.
<p>Wastewater (other than domestic wastewater)</p>	
<p>PO11 Wastewater treatment and disposal activities prevent:</p> <ul style="list-style-type: none"> a. discharging wastewater unless demonstrated not to compromise the drinking water supply environmental values. b. harm to the natural hydrological cycle; c. harm to soil, groundwater, or surface water salinity; d. the leaching of nutrients and/or pesticides into surface water, groundwater or off-site areas that may be at risk (particularly areas down slope); e. leaks. <p><i>Note—Drinking water supply environmental values are referenced within schedule 1 of the Environmental Protection (Water and Wetland Biodiversity) Policy.</i></p>	<p>AO11.1 Development that generates wastewater ensures that the wastewater is collected and held on-site and is:</p> <ul style="list-style-type: none"> a. lawfully disposed to sewer; or b. transferred off-site for treatment/disposal to an appropriately licensed facility; or c. reused on-site in a closed-cycle treatment system, irrigation scheme, industrial processes, washing, cleaning or other purpose; or d. treated to meet the drinking water supply environmental values. <p><i>Note—Where development involves the release of wastewater, a Wastewater Management Plan (WWMP) is to be prepared by a suitably qualified person. Plans are to provide an assessment of all risks and associated mitigation strategies for preventing adverse impact on the quality of drinking water and may require a water quality monitoring program.</i></p>
<p>PO12 Where treated wastewater is irrigated to land:</p> <ul style="list-style-type: none"> a. soil testing is conducted to inform the design of the irrigated area; b. it is located and sized to suit the amount of wastewater to be irrigated; c. irrigation is confined to a dedicated area of land on-site; d. it is outside of a mapped on OM13 High risk soils overlay; e. irrigation practices do not harm groundwater, and on-site surface water quality are used. <p><i>Note—Developments involving the irrigation of wastewater may be able to demonstrate consistency with this Performance Outcome by MEDLI Modelling Report demonstrating the nominated land area for wastewater irrigation is suitably located and sized to accommodate design wastewater loads, storages are suitably sized to accommodate design wastewater loads and proposed irrigation practices will not damage water quality. It is recommended the modelling incorporate predictions based on both a 10-year and 20-year planning horizon.</i></p>	<p>No acceptable outcome is nominated.</p>

<p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i></p> <p><i>Note—A condition may be included on any approval requiring monitoring and certification that the works have not increase the risk of soil and groundwater salination in areas with high risk soils.</i></p>	
Construction management	
<p>PO13 Construction uses best practice principles to deliver development in a manner that minimises disruption to adjacent sensitive land uses and:</p> <ol style="list-style-type: none"> a. minimises the time to complete the earthworks; b. does not result in environmental nuisance; c. ensures the site and surrounding roads are kept clear of any debris, sediment, machinery and materials; d. ensures the safety of pedestrians, cyclists and vehicles is managed; e. manages traffic movement on access roads and within the site. 	<p>AO13.1 Development ensures that no dust emissions extend beyond the boundary of the site, including dust from construction vehicles entering and leaving the site.</p> <p>AO13.2 Development protects sensitive land uses from dust and noise during construction or earthworks.</p> <p>AO13.3 Stockpiles and spoil piles are covered.</p> <p>AO13.4 Development for earthworks, excavation or filling demonstrates that heavy vehicles hauling material to and from the site:</p> <ol style="list-style-type: none"> a. will occur for no more than 4 weeks; b. use a route that: <ol style="list-style-type: none"> i. allows heavy vehicles, using major roads to access the site and avoids minor roads or residential streets; or ii. involves minor roads or residential streets where it cannot be avoided and heavy vehicles use the shortest and most direct route that causes the least amount of nuisance. <p><i>Note—Where a temporary diversion of traffic is required, a work in road permit may be required from the relevant authority.</i></p> <p><i>Note—A traffic control plan prepared consistent with the Manual of Uniform Traffic Control Devices (MUTCD) will be required for any works that will affect access, traffic movements or traffic safety in existing roads.</i></p> <p>AO13.5 Earthworks, excavation or filling occurs only between 6:30am to 6:30pm Monday to Saturday, excluding public holidays.</p> <p>AO13.6 Development involving earthworks, excavation or filling does not cause ground-borne vibration beyond the boundary of the site.</p> <p>AO13.7 Any material dropped, deposited or spilled on the road because of construction is to be cleaned consistent with an Erosion and sediment control plan.</p>

9.4.5 Infrastructure and services code

9.4.5.1 Application

1. This code applies to development for which the Infrastructure and services code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. Measures in this code are the benchmarks for applicable accepted and assessable development.

9.4.5.2 Purpose

1. The purpose of the Infrastructure and services code is to ensure that development is:
 - a. connected to all available infrastructure and services in the area;
 - b. located and designed to provide infrastructure and services in a logical and orderly manner and sequenced to provide the safe operation, cost effective delivery and effective extension of infrastructure networks.
2. The purpose of the code will be achieved with the following overall outcomes:
 - a. Development is connected to all services available in the area and is located and designed to maximise the safe operation, cost effective delivery and effective extension of existing and planned infrastructure.
 - b. Infrastructure and services are constructed to acceptable standards that maximise the whole of lifecycle cost of the works and infrastructure provided.
 - c. Development is provided in a logical and orderly manner and sequenced to provide the cost-effective delivery of infrastructure to service development.
 - d. Development locates infrastructure to provide increased access to facilities and services and allow productivity improvements.
 - e. Infrastructure and services protect and maintain ecological values, water quality, landscape character and amenity while supporting the achievement of ecological sustainability.
 - f. The design and capacity of stormwater and drainage works protect and improve water quality and maintain the hydraulic regime.
 - g. Sewerage, water supply, telecommunications and electricity services are provided to a standard consistent with the zone in which development is located.
 - h. Firefighting infrastructure is suitable to the land tenure and location of the land while providing unimpeded access for firefighting vehicles and access to water supply in a safe, efficient and effective manner.
 - i. The operation of existing infrastructure and services is not compromised or damaged by adjoining or adjacent construction activities.

9.4.5.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table/s.

Table 9.4.5-1: Infrastructure and services code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
General	
<p>PO1 Development provides for infrastructure, services and utilities that are planned, designed, constructed and maintained in a manner that:</p> <ol style="list-style-type: none"> a. is efficient and cost effective over the life of the infrastructure; b. meets the needs of development; c. ensures access for maintenance purposes; d. avoids environmental harm and amenity impacts; e. supports community resilience during natural hazard events. <p><i>Editor's note—For clarity infrastructure, services and utilities means drainage, electricity, sewage disposal, stormwater management, telecommunications, waste disposal and water supply.</i></p>	<p>AO1.1 Consistent infrastructure, services and utilities are co-located in common trenching to minimise costs for underground services.</p> <p>AO1.2 Infrastructure, services and utilities are located and aligned to:</p> <ol style="list-style-type: none"> a. avoid locating in areas mapped on <ol style="list-style-type: none"> i. on OM3A Biodiversity — Ecological areas overlay; ii. on OM3B Biodiversity — Wildlife habitat overlay; iii. on OM3C Biodiversity — Waterways and Wetlands overlay; or b. where unavoidable, minimise adverse effects on those areas and include appropriate post—construction rehabilitation; c. minimise earthworks.

	<p>AO1.3 Infrastructure, services and utilities that may fail in a natural hazard event are:</p> <ol style="list-style-type: none"> a. designed and constructed of hazard resilient materials; b. located outside of the natural hazard area.
<p>Infrastructure easements</p>	
<p>PO2 Public infrastructure on private land, that services other properties, is protected by easement/s that are sufficient for the provider's requirements and in favour of the responsible utility provider.</p>	<p>AO2.1 Where no easement/s exists for public infrastructure on private land that services other properties, a new easement/s is created for the infrastructure provider to their requirements for access and maintenance purposes.</p>
<p>Protection of existing infrastructure</p>	
<p>PO3 Development and Operational work near existing infrastructure (e.g. roads, stormwater drainage) protects the infrastructure from physical damage and allows continuing access for maintenance purposes.</p>	<p>AO3.1 Development and Operational work near existing infrastructure is consistent with Planning Scheme Policy 6 Infrastructure design.</p> <p>*AO3.2 The costs of any changes or repairs to existing infrastructure are met by the developer.</p>
<p>Water supply</p>	
<p>PO4 Development has a water supply that is adequate, safe and reliable to meet the needs of the use, including for firefighting purposes.</p> <p><i>Note—Refer to Urban Utilities Netserv plan to determine the requirements for reticulated water supply.</i></p>	<p>*AO4.1 Reticulated water supply networks are designed and constructed consistent with the supplier's standards of services.</p> <p>*AO4.2 Development:</p> <ol style="list-style-type: none"> a. in a reticulated water supply network area is connected to the pressurised reticulated water supply; or b. outside a pressurised reticulated water supply service catchment area, or where there is no reticulated water supply service, provides water tanks for potable water supply with a minimum capacity of: <ol style="list-style-type: none"> i. 45,000 litres for the everyday use; ii. 22,500 litres for firefighting.
<p>PO5 Development maximises water efficiency on site by incorporating rainwater collection and reuse measures for non-potable purposes such as irrigation of landscaping.</p> <p><i>Note—Refer to Urban Utilities Netserv plan to determine the requirements for reticulated water supply.</i></p>	<p>*AO5.1 For activities groups other than residential activities, a rainwater storage is provided for non-potable purposes.</p> <p><i>Editor's note—The Queensland Development Code includes provisions for the installation of rainwater tanks and the reuse of stormwater.</i></p>
<p>Fire services on private land — Developments involving community title</p>	
<p>PO6 Fire hydrants are installed and located to provide emergency vehicles access to water safely, effectively and efficiently.</p> <p><i>Note—Development involving community title, the locations for all transformers, fire hydrants, booster assemblies and meter boxes are located within common property.</i></p>	<p>AO6.1 Fire hydrant placement and technical requirements within common private title are consistent with:</p> <ol style="list-style-type: none"> a. AS.2419.1 Fire hydrant installations; b. QFES: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots. <p><i>Editor's note—Design and technical requirements for infrastructure from third party providers are to be integrated, into the overall design, built form and landscaping requirements for the development.</i></p>
<p>PO7 Road widths and construction within the development are adequate for emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether any or all on-street parking spaces are occupied.</p>	<p>No acceptable outcome is nominated.</p>
<p>Sewerage and wastewater treatment systems</p>	
<p>PO8 Development is connected to the reticulated sewerage network or a wastewater treatment system that is designed, constructed and managed in a way that:</p> <ol style="list-style-type: none"> a. is commensurate to the level of demand generated by the development; 	<p>*AO8.1 Development in a reticulated sewerage network service catchment area, is connected to the sewerage network.</p> <p>*AO8.2 Development outside a reticulated sewerage network</p>

- b. meets the needs of the place and locality;
- c. protects public health and safety;
- d. protects the environmental values of the drinking water catchment;
- e. avoids environmental harm.

Note—Refer to Urban Utilities Netserv plan to determine the requirements for reticulated sewerage network services.

Note—Developments involving the irrigation of wastewater may be able to demonstrate consistency with this Performance Outcome by MEDLI Modelling Report demonstrating the nominated land area for irrigation is suitably located and sized to accommodate design wastewater loads, storages are suitably sized to accommodate design wastewater loads and proposed irrigation practices will not result in any adverse impact on water quality. It is recommended the modelling exercise incorporate predictions based on both a 10-year and 20-year planning horizon and incorporate a minimum of three irrigation concepts.

Note—Drinking water supply environmental values and water quality objectives in Environmental Protection (Water and Wetland Biodiversity) Policy, schedule 1 Document for Lockyer Creek.

Editor's note—Referral to Seqwater for third party advice may be undertaken for development where it is not connected to reticulated sewer for this Performance Outcome.

Note—Compliance with this Performance Outcome may be demonstrated by providing a wastewater site analysis and wastewater treatment report that shows the type, size and location of the wastewater treatment system and effluent disposal area, the extent of any vegetation clearing is required to achieve the disposal and dispersal area and the extent of any earthworks required to achieve the effluent disposal.

service catchment area, has the combined total peak capacity of wastewater treatment of less than 21 equivalent persons and an on-site wastewater treatment system is provided that is consistent with the Queensland Plumbing and Wastewater Code.

Note—Where there is a conflict between Acceptable outcomes for PO8, the highest setback is always applied.

***AO8.3** On-site wastewater treatment systems are located:

- a. outside of the designated flood hazard area mapped on OM7 Flood hazard overlay;
- b. outside mapped areas on:
 - i. on OM3A Biodiversity — Ecological areas overlay;
 - ii. on OM3B Biodiversity — Wildlife habitat overlay;
 - iii. on OM3C Biodiversity — Waterways and Wetlands overlay;
- c. on a slope less than 10%.

***AO8.4** On-site wastewater treatment systems are outside waterways and wetlands mapped on OM12A Waterways and water resource catchment - Ecosystems overlay and as follows:

- a. 50m setback from a natural spring or bores that serves as a potable water supply;
- b. 400m from the full supply level of a dam or lake;
- c. 400m from the bulk water supply storage buffer OM12B Waterways and water resource catchment - water resource catchment overlay;
- d. meet the criteria of Table 9.4.5-2: Minimum separation distances and locational measures for effluent disposal areas.

***AO8.5** Where the combined total peak design capacity of wastewater treatment is less than 21EP, the design of the system achieves a Low or Medium Risk classification consistent with Seqwater's Land Use Risk Tool for on-site sewage facilities.

AO8.6 New lots can accommodate an area for on-site domestic wastewater management systems consistent with AO8.3 and AO8.4.

Note—A wastewater site analysis prepared by a suitably qualified professional may assist in demonstrating the above outcome.

AO8.7 Development outside a reticulated sewerage network service catchment area, with a combined total peak capacity of wastewater treatment of 21EP or more, the system is located and designed in the following manner:

- a. at or above the 0.5% (1 in 200) AEP flood event;
- b. the hydraulic capacity of the system is five times the average dry weather flow (ADWF);
- c. no direct discharge of wastewater to a waterway or water supply source occurs, unless during a bypass event that is more than the peak hydraulic capacity and wastewater is screened and disinfected before release;
- d. where treated wastewater will be used in irrigation, application is:
 - i. confined to a dedicated area of land suitably located and sized and using irrigation practices that will not adversely affect groundwater and surface water quality
 - ii. located at or above the 0.5% (1 in 200) AEP flood

	event.
Electricity and telecommunications supply	
<p>PO9 Development is provided with safe, adequate and reliable electricity and telecommunications that:</p> <ol style="list-style-type: none"> meet the immediate and long-term needs of the community; is consistent with the character and amenity of the area. 	<p>*AO9.1 Development is connected to electricity and telecommunications:</p> <ol style="list-style-type: none"> in an urban area or a Rural residential zone; in a rural area, where within 500m of an existing reticulated supply. <p>AO9.2 In an urban area or a Rural residential zone, underground electricity infrastructure is provided, or existing electricity infrastructure is relocated underground where:</p> <ol style="list-style-type: none"> in a Centre zone; or in the Mixed use zone; or five or more lots are created; or a new road is extended or created; or there is existing underground power near the development site.
Stormwater and drainage	
<p>PO10 Development is connected or directed to a stormwater installation that is connected to the stormwater drainage network. Where stormwater drainage connections traverse an adjoining premises, it is managed to prevent water seepage, concentration of run-off or ponding on the adjoining premises, and allows for future maintenance.</p> <p><i>Note—Development is to be connected to the Council's drainage network in accordance with section 77 of the Local Government Act. It is an offence under the section 80 of Local Government Act, to restrict or redirect stormwater.</i></p>	<p>*AO10.1 Development is designed and constructed to ensure stormwater from lot-based installations is connected to the stormwater drainage network or other lawful point of discharge.</p> <p>*AO10.2 Stormwater flow is not impeded, redirected or polluted.</p> <p>*AO10.3 The owner of an adjoining premises provides written permission for a stormwater drainage connections through an adjoining property before it is constructed.</p> <p>AO10.4 Easements are provided over stormwater infrastructure to allow access and maintenance.</p>
<p>PO11 Development reduces stormwater run-off by minimising impervious areas and maximising site vegetation to absorb water on site.</p>	<p>AO11.1 Development incorporates water sensitive urban design measures to manage stormwater including maximising the stormwater harvesting while minimising adverse impacts on the stormwater system.</p> <p>AO11.2 Development incorporates permeable pavements on low trafficked areas such as internal walkways and car parks.</p> <p><i>Note—Permeable pavements are not considered impervious area or landscaping and:</i></p> <ol style="list-style-type: none"> are excluded from the maximum site cover; do not form part of the minimum landscape requirements.
<p>PO12 Development limits changes and ground disturbance to the site topography to retain natural drainage lines, channels, waterways and corridors as much as possible.</p>	<p>AO12.1 Natural drainage lines, channels, waterways and corridors to be used for stormwater drainage are:</p> <ol style="list-style-type: none"> incorporated into the open space network; designed to be consistent with Planning Scheme Policy 6 Infrastructure design. <p>AO12.2 Stormwater drains that traverses private lots are contained in a dedicated drainage easement.</p>
<p>PO13 Stormwater management outcomes demonstrate no adverse impact on stormwater flows or the drainage of adjacent premises external to the subject site.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a site-based stormwater management plan (SWMP) prepared by a suitably qualified person. The SWMP achieves stormwater control measures for discharge during</i></p>	<p>AO13.1 Stormwater from development is drained either:</p> <ol style="list-style-type: none"> within the capacity of the downstream drainage system such that no actionable nuisance occurs; or mitigated to pre-development conditions.

operational phases of development designed to be consistent with the Queensland Urban Drainage Manual (QUDM).

Table 9.4.5-2: Minimum separation distances and locational assessment benchmarks for effluent disposal areas

FEATURE	WATERWAY 1 TO 2, SPRING OR BORE^(A)	WATERWAY 3 OR MORE^(A)	WETLAND^(A) OR WATER SUPPLY BUFFER^(B) OR BULK WATER SUPPLY STORAGE BUFFER^(B)
Development involving Primary treated effluent disposal	50m	100m	400m
Development involving Secondary treated effluent disposal	30m	30m	200m
Development involving Advanced Secondary treated effluent disposal	10m	10m	50m

Note—

- A. Refer to OM12A Waterways and water resource catchment - Ecosystems overlay for the location of Waterways 1 to 2, Waterways 3 or more, wetlands and springs.*
- B. Refer to OM12B Waterways and water resource catchment - Water resource catchment overlay for Water supply storage areas.*
- C. Refer to OM7 Flood hazard overlay for the location of a defined flood event.*
- D. Refer to OM11 Steep land overlay for the locations of slopes that are 10% or less.*

9.4.6 Landscaping code

9.4.6.1 Application

1. This code applies to development for which the Landscaping code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.4.6.2 Purpose

1. The purpose of the Landscaping code is to ensure landscaping:
 - a. creates a safe, comfortable and attractive environment;
 - b. is environmentally responsive and achieves sustainable design outcomes;
 - c. meets expected user requirements and the functional needs of the use;
 - d. improves the appearance of development and positively contributes to the streetscape, publicly accessible places and adjacent premises;
 - e. does not compromise the safety of road users or the efficiency of the road network;
 - f. minimises or mitigates impacts of development on the amenity of adjacent premises;
 - g. retains existing vegetation and matters of environmental significance;
 - h. effectively buffers incompatible or sensitive land uses; and
 - i. is designed for ease of maintenance and longevity.
2. The purpose of the code will be achieved with the following overall outcomes:
 - a. Development integrates landscaping into its design, ensuring buildings and structures sit within the landscape rather than dominating it.
 - b. Landscaping improves the environment for people living and working on the site by providing visual relief, shade, buffering, beauty and passive heating and cooling.
 - c. Landscaping incorporates stormwater management with on-site detention and the efficient infiltration of stormwater and assists with microclimate management and energy conservation.
 - d. Development provides on-site landscaping with deep planting areas for the protection and establishment of shade trees.
 - e. Plantings compliment the development on the same site and on surrounding sites.
 - f. Hard landscape features use natural materials such as timber or rock over manufactured materials.
 - g. Where buffering is required, plantings are of enough density and height to effectively contribute to the required buffer.
 - h. Existing native vegetation and landform are protected and incorporated into the landscaped areas on the site.
 - i. Landscaped areas are designed consistent with the principles of Crime Prevention through Environmental Design to provide safe places.
 - j. Public infrastructure is protected during and after planting of landscaping, to limit damage and allow access for maintenance.
 - k. Vegetation restoration and rehabilitation of native wildlife habitat and riparian areas protects and improves ecological and biodiversity values.
 - l. Landscaping species are chosen and established in a manner that promotes longevity and ease of maintenance, such that species:
 - i. are those naturally occurring in the area;
 - ii. suit local soil, climate, aspect and the site situation;
 - iii. contribute to the habitat of local wildlife.

Note—Landscaping plans and documents are to be consistent with Planning Scheme Policy 7 Landscaping.

9.4.6.3 Assessment benchmarks

Table 9.4.6-1: Landscaping code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Landscape design	
<p>PO1 Landscape design contributes to and creates a high quality landscape character for the site and street by including sub-tropical design elements.</p> <p><i>Note—Sub-tropical Design in South East Queensland — a</i></p>	<p>AO1.1 Landscaping is positioned to shade walls, windows and outdoor areas from afternoon (western) sun.</p> <p>AO1.2 Landscaping facilitates winter sun access to living areas, north facing windows and public spaces.</p>

<p><i>handbook for Planners, Developers and Decision Makers provides guidance about the use of landscaping in a sub-tropical climate.</i></p>	<p>AO1.3 Landscaping, including fences and walls, allows exposure of living and public areas to prevailing summer breezes and protection against winter winds.</p>
<p>Vegetation retention</p>	
<p>PO2 Landscaping design incorporates (as far as practicable):</p> <ol style="list-style-type: none"> existing landscape features (e.g. overland flow paths and views); integrates existing site attributes that are consistent development including natural landform, existing vegetation, site views, availability of water and drainage; protects and frames significant views, vistas and areas of high scenic quality; protects trees and vegetation of ecological, recreational, aesthetic and cultural value. 	<p>No acceptable outcome is nominated.</p>
<p>PO3 Significant vegetation, including street trees, is retained and incorporated into the design.</p>	<p>AO3.1 Buildings, structures and Operational work involving disturbance of soils, occurs outside the drip line of trees.</p> <p>AO3.2 Existing street trees are retained and protected before, during and after construction.</p> <p>AO3.3 Mature vegetation on the site that is removed or damaged during construction is replaced with advanced species.</p>
<p>Plant selection</p>	
<p>PO4 Landscaping design includes:</p> <ol style="list-style-type: none"> plants that are regional native species, drought resistant, low maintenance; plants that are not declared or environmental weeds, plants that not toxic to people and animals. 	<p>AO4.1 Species selection is to comply with the preferred species listed in the technical design and construction standards in Planning Scheme Policy 7 Landscaping.</p> <p>AO4.2 Weeds, declared pests and invasive species are:</p> <ol style="list-style-type: none"> removed before any construction works occur on-site; managed within the site and road frontages before, during and after construction to minimise the risk of re-infestation.
<p>PO5 Landscaping includes plant sizes that are consistent with the scale and form of development, screening, buffering and shading.</p>	<p>AO5.1 Selection of plant sizes is to comply with the technical design and construction standards in Planning Scheme Policy 7 Landscaping.</p>
<p>Safety and security</p>	
<p>PO6 Landscaping:</p> <ol style="list-style-type: none"> provides a safe travel environment for pedestrians, cyclists and vehicles; reduces the potential for crime and vandalism, allows for passive surveillance of public areas; maintains sight lines to and from the road at site entrances, pedestrian crossings and intersections for safe ingress and egress by vehicles and pedestrians. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a concept landscaping design consistent with Planning Scheme Policy 7 Landscaping and State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO6.1 Street trees have a mature minimum clear trunk height of 2.5m.</p> <p>AO6.2 Street understorey planting is a maximum of 0.7m in height above the road pavement, where located immediately adjacent to pathways, entries, parking areas, street corners, street lighting and driveways.</p> <p>AO6.3 Dense vegetation over 1.2m in height is avoided within the road reserve.</p> <p>AO6.4 Security lighting is provided at footpaths, internal walkways, building entries and parking areas.</p>
<p>Management and maintenance</p>	
<p>PO7 Landscape areas allow:</p> <ol style="list-style-type: none"> efficient and cost effective maintenance to ensure success and longevity; for the natural renewal of vegetation communities; 	<p>No acceptable outcome is nominated.</p>

<p>c. low-maintenance asset with a minimal whole-of-life cost; d. management to occur within a safe working environment.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a landscaping maintenance plan consistent with Manual of Uniform Traffic Control Devices and the Work Health and Safety Act.</i></p>	
<p>Services and utilities</p>	
<p>PO8 Landscaping does not compromise the function and accessibility of public infrastructure, utilities, services and easement/s.</p>	<p>AO8.1 Root barriers are installed around critical infrastructure where infrastructure is located adjoining tree planting zones and complies with the technical design and construction standards in Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 7 Landscaping.</p>
<p>AO9 Public areas are provided with night lighting to maintain the safety and security of people and property.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO9.1 Lighting in public areas complies with the technical design and construction standards in Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 7 Landscaping.</p>
<p>PO10 Landscaping is used to assist wayfinding and navigation by defining:</p> <ul style="list-style-type: none"> a. the site's entry and exit points; b. public and private open space; c. connections between parking areas and buildings or other activity areas; d. any active transport networks within or through the site. 	<p>No acceptable outcome is nominated.</p>
<p>Stormwater and water conservation</p>	
<p>PO11 Landscaping integrates best practice stormwater management and water sensitive urban design to:</p> <ul style="list-style-type: none"> a. maximise stormwater harvesting; b. maximise efficient use of water; c. maximise opportunities for water infiltration; d. minimise areas that require permanent irrigation; e. minimise adverse impacts on the stormwater system. 	<p>AO11.1 Stormwater and water conservation measures comply with the technical design and construction standards in Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 7 Landscaping.</p>
<p>Site stability</p>	
<p>PO12 Landscaping:</p> <ul style="list-style-type: none"> a. maintains an effectively stabilised surface; b. minimises the use of engineered retaining walls or structures; c. manages concentrated stormwater flows to ensure stormwater and overland flow paths have sufficient capacity and are structurally stable. 	<p>AO12.1 Effective stability measures comply with the technical design and construction standards in Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 7 Landscaping.</p>
<p>Natural and built shade</p>	
<p>PO13 Shade in the form of shade trees or structures, is provided in public and communal spaces, including but not limited to:</p> <ul style="list-style-type: none"> a. car parking areas where uncovered or open; b. adjacent to driveways and internal roadways; c. public open space. 	<p>AO13.1 Landscaping is provided to car parking areas as follows:</p> <ul style="list-style-type: none"> a. trees are planted in median areas throughout parking areas; b. at least 1 shade tree is provided for every 4 parking spaces; c. shade trees are provided with 15m² of deep soil and permeable surface for each tree; and d. planted areas are protected by wheel stops or bollards where adjoining parking spaces. <p>AO13.2 Landscaping is used to create shade and cooling around buildings.</p>

	<p>AO13.3 Landscaping minimises solid surface areas that reflect or store heat and maximises vegetation and soft landscaping.</p> <p>AO13.4 Landscaping does not shade solar collector devices during the middle 6 hours of the day.</p> <p>AO13.5 Pathways in public open space are designed for maximum shade opportunities, with shade trees positioned at 6m centres.</p>
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Street landscaping

<p>PO14 Street landscaping is provided:</p> <ul style="list-style-type: none"> a. to improve the quality of of existing streetscapes; b. to provide natural shade trees at regular intervals; c. provide a high level of amenity and improved liveability; d. to maintain and establish the character of existing and proposed streetscapes, respectively; e. provide for the installation of utilities by service providers; f. with species that are consistent with the landscape and intended character of the zone. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a street tree analysis and landscape master plan showing the streetscape treatments of the proposed streetscape.</i></p>	<p>AO14.1 Street landscaping meets the technical design and construction standards in Planning Scheme Policy 7 Landscaping.</p> <p>AO14.2 Street landscaping includes:</p> <ul style="list-style-type: none"> a. trees that have a clear trunk of at least 2.5m high at maturity; b. small shrubs with a maximum height of 1.2m at maturity; c. ground covers. <p>AO14.3 Advanced street trees (that have a clear trunk of at least 1.2m high at planting) are provided:</p> <ul style="list-style-type: none"> a. in the centre zones, every 10m along road frontages provided; b. in other urban areas and Rural residential zones, street trees are provided every 15m along the frontages of the site; c. with a minimum 15m² of deep soil and protected permeable surface for each tree. <p>AO14.4 Street trees are positioned so the trunk is centred a minimum of:</p> <ul style="list-style-type: none"> a. 1m from the back of kerb; b. 2m from stormwater inlets and power poles. <p>AO14.5 New development in centre zones, incorporates street furniture to promote a convenient, comfortable and attractive pedestrian environment.</p>
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On-site landscaping

<p>PO15 On-site landscaping:</p> <ul style="list-style-type: none"> a. contributes to a sense of place; b. is functional; c. improves the visual appearance of the development; d. reflects the subtropical nature of the region. 	<p>AO15.1 On-site landscaping is more than 10% of the site area.</p> <p>AO15.2 Fences and screens to street frontages are a minimum of 50% transparent and comply with the standards specified in Planning Scheme Policy 7 Landscaping.</p> <p>AO15.3 Where buildings are not built to the street boundary, landscaped strips a minimum of 2m wide are provided along the street frontages of the site.</p>
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On-site car parking

<p>PO16 On-site car parking protects and improves the privacy or amenity of adjoining or adjacent residents and sensitive land uses.</p>	<p>*AO16.1 Where vehicle movement or parking is located on a boundary adjoining a sensitive land use, or land in a residential zone or the Rural residential zone a 2m high acoustic fence is provided for the full length of the subject boundary and is constructed with no gaps.</p> <p>*AO16.2 Shade trees with a mature height of 8m are planted within the landscaping.</p>
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Screen landscaping

<p>PO17 Screen landscaping:</p> <ul style="list-style-type: none"> a. provides separation between incompatible land uses or between major infrastructure elements (such as State-controlled roads) and incompatible land uses; b. visually separates and conceals built structures such as large wall expanses, mechanical plant, parking areas, fences, utilities open storage and waste storage areas. 	<p>AO17.1 Screen landscaping meets the technical design and construction standards in Planning Scheme Policy 7 Landscaping.</p>
<p>Restoration areas</p>	
<p>PO18 Restoration buffers:</p> <ul style="list-style-type: none"> a. replicate the structure of the previous natural habitat and corridor elements; b. use methods that encourage regeneration and self-sustaining ecosystems; c. use regional native species suited to restore the ecosystem; d. maximise environmental outcomes while minimising continuing maintenance. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a restoration management plan consistent with Planning Scheme Policy 1 Biodiveristy.</i></p>	<p>No acceptable solution is nominated.</p>
<p>PO19 Restoration areas for wildlife habitat and corridors:</p> <ul style="list-style-type: none"> a. include understorey vegetation, ground surface habitat logs, rock piles and melon holes; b. retain old trees (including dead trees) with hollows for local native fauna habitat, where trees will not provide a public safety risk; c. retain natural leaf litter where for local fauna; d. select species that provide a range of foliage, fruit and flower suitable for local native fauna; e. retain koala trees and facilitate koala movement in koala habitat areas; f. provide wildlife nesting boxes, fauna bridges, ropeways, arboreal road crossings, fauna underpasses and traffic calming. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a restoration management plan consistent with Planning Scheme Policy 1 Biodiveristy.</i></p>	<p>No acceptable solution is nominated.</p>
<p>Open space</p>	
<p>PO20 Equipment and embellishments provided in open space:</p> <ul style="list-style-type: none"> a. is appropriately located; b. use materials that are fit for purpose, durable and safe; c. are designed for a range of age groups and physical abilities. 	<p>AO20.1 Fences and screens bordering public open space allows for casual surveillance opportunities and are designed to blend with adjacent landscape features.</p> <p>AO20.2 Dense shrubs over 1.2m in height are not used in open space areas, unless part of a restoration area.</p> <p>AO20.3 Signage in open space and communal open space is:</p> <ul style="list-style-type: none"> a. limited to Park naming signs, estate signs, way finding signs and symbols, education and interpretive signs and warning or safety signs; b. durable and easy to maintain. <p>AO20.4 Open space equipment and embellishments meet the technical design and construction standards in Planning Scheme Policy 7 Landscaping.</p>

9.4.7 Stormwater management code

9.4.7.1 Application

1. This code applies to development for which the Stormwater management code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for assessable development.

9.4.7.2 Purpose

1. The purpose of the Stormwater management code is to ensure that development (including community infrastructure) is planned, designed, constructed and operated to manage stormwater and wastewater in ways that protect the environmental values specified in the *Environmental Protection (Water and Wetland Biodiversity) Policy*.
2. The purpose of the code will be achieved through the following overall outcomes:
 - a. Development protects and improves the environmental values of receiving waters.
 - b. Development avoids or minimises ground disturbance to natural drainage, erosion risk, salinity and landscape features and mitigates any impacts from disturbance to receiving waters to maintain environmental values.
 - c. Stormwater is managed to maintain or re-create natural hydrological processes and minimise impacts from sediment run-off regimes.
 - d. Environmental values of receiving waters are protected from adverse effects arising from the creation or expansion of created waterbodies and waterways.
 - e. Development adopts best practice water-sensitive urban design and total water-cycle management approaches to facilitate water quality objectives for the local receiving waters.
 - f. Hydrologic regimes are maintained to pre-development conditions to maintain waterway stability, protect ecology and groundwater dependent ecosystems, maintain suitable fish passage and mitigate flood risk to people and property;
 - g. Life-cycle costs of water quality infrastructure are considered and minimised.

Note—Compliance with this code may be demonstrated by a Stormwater Management Plan consistent with Planning Scheme Policy 9 Stormwater management.

Editor's note—Referral to Seqwater for third party advice may be undertaken for development that will result in ground disturbance and impact the quantity and quality of stormwater flows.

9.4.7.3 Assessment benchmarks

Table 9.4.7-1: Stormwater management code — Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Stormwater treatment	
PO1 Stormwater is treated before being discharged into a natural or non-tidal artificial waterway.	AO1.1 Stormwater is treated to achieve the stormwater management design objectives in: <ol style="list-style-type: none"> a. Table 9.4.7-2: Construction phase — stormwater management design objectives; b. Table 9.4.7-3: Construction phase — stormwater management design objectives for temporary drainage works; c. Table 9.4.7-4: Construction phase — stormwater management design objectives for emergency spillways on temporary sediment basins; d. Table 9.4.7-5: Post construction phase — stormwater management design objectives.
Stormwater management	
PO2 Development avoids or minimises harm to environmental values of receiving waters by providing effective stormwater management systems. <i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater Management Plan prepared</i>	AO2.1 Development avoids impacts to high risk soils. AO2.2 Development minimises disturbance to: <ol style="list-style-type: none"> a. natural drainage; b. overland flow paths; c. high risk soils;

<p><i>to be consistent with Planning Scheme Policy 9 Stormwater management and address the potential increased risk of salination by a Salinity Investigation consistent with the Queensland Government Salinity Management Handbook.</i></p>	<p>d. groundwater levels; e. landscape features; and f. vegetation.</p> <p>A02.3 Stormwater management systems are located on the development site unless otherwise specified in the Local Government Infrastructure Plan.</p> <p>A02.4 Development ensures there is enough net developable area to accommodate an effective stormwater management system.</p> <p>A02.5 Stormwater management systems are located outside of wetlands, waterways and buffer areas mapped on OM12A Waterways and water resource catchment overlay.</p> <p>A02.6 Where stormwater management systems are unable to be located outside of wetlands, waterways and buffer areas mapped on OM12A Waterways and water resource catchment overlay, the existing channel bed and bank erosion is effectively stabilised and any increase in channel bed and bank erosion is prevented. Operationally, the system can operate under the full range of flows, from frequent to rare, without compromising the operation or expected life of the system, eg. water quality systems.</p>
<p>PO3 Construction of development avoids or minimises adverse effects including but not limited to:</p> <ul style="list-style-type: none"> a. sediment mobilisation; b. water contamination; c. stormwater quality; d. hydrological processes. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing an ESCP consistent with objectives listed in Table 9.4.7-2: Construction Phase — Stormwater Management Design Objectives and International Erosion Control Association, Best Practice Erosion and Sediment Control.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO4 To protect drinking water quality objectives, erosion and sediment control measures are provided at each phase of the works (including but not limited to, before, during and after construction) to manage stormwater flows and capture sediment consistent with current best practice standards.</p> <p><i>Note—Drinking water supply environmental values and water quality outcomes of Lockyer Creek water resource catchment can be found under the Environmental Protection Policy (Water and Wetland Biodiversity) Policy, Schedule 1 Document for Lockyer Creek, including all tributaries of the creek.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>PO5 Development avoids environmental harm from stormwater discharge on water quality and waterway hydrology of receiving waters.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater Management Plan consistent with Water by Design Guidelines including:</i></p> <ul style="list-style-type: none"> a. <i>Total water cycle management planning guidelines for South East Queensland;</i> b. <i>Framework for the Integration of Flood and Stormwater into Open Space;</i> c. <i>Bioretention Technical Design Guidelines;</i> d. <i>Wetland Technical Design Guidelines;</i> e. <i>Waterbody management guidelines;</i> f. <i>Construction and Establishment Guidelines: Swales Bioretention</i> 	<p>No acceptable outcome is nominated.</p>

<i>Systems and Wetlands.</i>	
<p>PO6 Development prevents erosion in receiving waters by limiting changes in run-off volume and peak flows to achieve the waterway stability objectives listed in Table 9.4.7-5: Post Construction Phase — Stormwater Management Design Objectives.</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater Management Plan consistent with Water by Design Guidelines including:</i></p> <ol style="list-style-type: none"> a. Total water cycle management planning guidelines for South East Queensland; b. Framework for the Integration of Flood and Stormwater into Open Space; c. Stormwater harvesting guidelines. d. Bioretention Technical Design Guidelines; e. Wetland Technical Design Guidelines; f. Waterbody management guidelines; g. Construction and Establishment Guidelines: Swales Bioretention Systems and Wetlands. 	No acceptable outcome is nominated.
<p>PO7 Development protects in-stream ecology by maintaining pre-development low-flow discharge regimes consistent with the local receiving waters.</p>	No acceptable outcome is nominated.
Wastewater treatment systems (other than domestic wastewater)	
<p>PO8 Development avoids harming drinking water quality, ecological processes, riparian vegetation, waterway integrity and downstream ecosystem health from wastewater discharge (where other than contaminated stormwater or sewage).</p> <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a wastewater management plan (WWMP) prepared by a suitably qualified person and should include but not be limited to:</i></p> <ol style="list-style-type: none"> a. wastewater type; b. climatic conditions; c. water quality objectives; d. soil conditions and natural hydrology; and e. best practice environmental management. 	<p>AO8.1 Development manages wastewater consistent with a waste management hierarchy that:</p> <ol style="list-style-type: none"> a. avoids wastewater discharges to waterways; or b. if wastewater discharge to waterways cannot be avoided, minimises wastewater discharge to waterways by reuse, recycling, recovery and treatment for disposal to sewer, surface water and groundwater. <p><i>Note—Development is designed to achieve the prescribed water quality objectives for Waterways consistent with the Environmental Protection (Water and Wetland Biodiversity) Policy, schedule 1 Document for Lockyer Creek.</i></p> <p>AO8.2 Wastewater discharge to waterways is managed to avoid or minimise the release of nutrients of concern to minimise the occurrence, frequency and intensity of algal blooms.</p> <p><i>Note—Nutrients of concern include nutrients or other trace elements that can facilitate the growth of algae and include nitrogen, phosphorous, iron, or organic matter (dissolved organic carbon).</i></p> <p>AO8.3 Wastewater discharge has pH between 6.5 and 8.0 to avoid mobilisation of acid, iron, aluminium and metals.</p> <p>AO8.4 Wastewater discharge is flocculated to:</p> <ol style="list-style-type: none"> a. remove any dissolved iron before release; b. ensure visible iron floc is not present in any discharge; c. ensure precipitated iron floc is contained and disposed of. <p>AO8.5 Wastewater discharge and precipitates that cannot be contained and treated on-site are removed and disposed of through trade waste or another lawful method.</p>
Non-tidal artificial waterways	
<p>PO9 Non-tidal artificial waterways are designed to integrate multiple functions, including:</p> <ol style="list-style-type: none"> a. amenity, aesthetics, landscaping and recreation; 	No acceptable outcome is nominated.

<ul style="list-style-type: none"> b. flood management; c. stormwater management; d. water conservation and reuse; e. protection of water environmental values; f. ecological values; g. community health; and h. pest management. 	
<p>PO10 The location of non-tidal artificial waterways:</p> <ul style="list-style-type: none"> a. avoids groundwater recharge areas, natural wetlands and any associated buffer areas; b. incorporates low lying areas of a catchment connected to an existing waterway; c. minimises disturbing soils or sediments; d. avoids changing the natural hydrological regime in high risk soils and increasing nutrients beyond that specified in Table 9.4.7-5: Post Construction Phase — Stormwater Management Design Objectives. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Salinity Investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i></p> <p>Editor's note—A suitably qualified registered professional engineer Queensland (RPEQ) with specific experience in establishing non-tidal artificial waterways are required to demonstrate compliance with the requirement.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO11 Non-tidal artificial waterways are designed, constructed and managed to avoid harming ecological processes, water quality, flood capacity, waterway integrity and ecosystem and human health.</p> <p><i>Note—Non-tidal artificial waterways to be retained in private ownership must have an adaptive management plan that responds to legislative change to minimise environmental impacts.</i></p> <p>Editor's note—A suitably qualified registered professional engineer of Queensland (RPEQ) with specific experience in establishing non-tidal artificial waterways are required to demonstrate compliance with the requirement.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO12 The design and location of non-tidal artificial waterways:</p> <ul style="list-style-type: none"> a. use natural channel design principles to minimise erosion, flooding and maintenance while maximising ecological and aesthetic values of waterways; b. are consistent with any existing natural waterways; c. are designed to ensure surface water hydrological regimes are maintained. <p><i>Note—Compliance with this Performance Outcome may be demonstrated by providing a Stormwater Management Plan consistent with:</i></p> <ul style="list-style-type: none"> a. <i>Brisbane City Council Natural Channel Design Guidelines</i> b. <i>Water by Design Guidelines</i> including: <ul style="list-style-type: none"> i. <i>Bioretention Technical Design Guidelines;</i> ii. <i>Wetland Technical Design Guidelines;</i> iii. <i>Waterbody management guidelines.</i> iv. <i>Construction and Establishment Guidelines: Swales Bioretention Systems and Wetlands.</i> c. <i>Engineers Australia, Australian Run-off Quality: A guide to Water Sensitive Urban Design</i> d. <i>International Erosion Control Association, Best Practice Erosion and Sediment Control</i> 	<p>No acceptable outcome is nominated.</p>

<p>PO13 Development of non-tidal artificial waterways avoids and minimises changes to the existing surface water natural hydrological regime so that:</p> <ol style="list-style-type: none"> there is no change to the reference high-flow and low-flow duration frequency curves, low-flow spells frequency curve and mean annual flow to and from waterways because of the development; any relevant flows into waterways are consistent with the relevant water quality objectives for the local receiving waters; the collection and re-use of stormwater occurs so there is no increase in the velocity or volume of stormwater flows entering a waterway. 	<p>No acceptable outcome is nominated.</p>
<p>PO14 Development maintains the existing groundwater hydrological regime.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a hydrological assessment prepared by a suitably qualified professional to demonstrate no adverse impact on the groundwater hydrological regime.</i></p>	<p>AO14.1 Development does not change the existing groundwater hydrological regime by lowering or raising the water table and hydrostatic pressure outside the bounds of variability of existing predevelopment conditions.</p> <p>AO14.2 Development does not result in the ingress of saline water into freshwater aquifers.</p>
<p>Stormwater harvesting and reuse</p>	
<p>PO15 Stormwater harvesting systems are designed to minimise maintenance costs and the requirement for specialised equipment or maintenance techniques and are provided with a continuing funding source.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a design consistent with Water by Design Guidelines Stormwater harvesting guidelines.</i></p>	<p>AO15.1 Stormwater harvesting systems to be dedicated to Council as public assets, are designed to be consistent with the Planning Scheme Policy 6 Infrastructure design and Planning Scheme Policy 9 Stormwater management.</p>
<p>Stormwater quality and hydrology</p>	
<p>PO16 Stormwater is managed at the construction and post-construction stages to protect drinking water supply environmental values and facilitate the achievement of water quality objectives for receiving waters.</p> <p><i>Note—Drinking water supply environmental values are referenced within Environmental Protection (Water and Wetland Biodiversity) Policy, schedule 1 Document for Lockyer Creek.</i></p>	<p>AO16.1 At the construction stage, an ESCP demonstrates that stormwater achieves the design objectives listed in Table 9.4.7-2: Construction phase — Stormwater management design objectives.</p> <p>AO16.2 An ESCP demonstrates how stormwater quality will be managed at the construction stage consistent with an acceptable regional or local guideline so that target contaminants are treated to a design objective at least equivalent to Table 9.4.7-5: Post Construction Phase — Stormwater Management Design Objectives.</p> <p>AO16.3 Stormwater run-off generated during construction is captured and transferred off-site or captured and treated to any applicable re-use standards and reused on-site.</p>
<p>PO17 Development is designed and constructed to maintain surface water and groundwater balances that sustain the environmental values of water dependent ecosystems, including downstream aquatic, riparian, wetland and terrestrial ecosystems.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a groundwater recharge and discharge management plan prepared by a suitably experienced and qualified groundwater hydrologist. The groundwater recharge and discharge management plan must demonstrate that the development does not affect the groundwater balances beyond the lot boundaries.</i></p>	<p>AO17.1 The location and form of stormwater drains do not change the pre-development hydrology of receiving surface water or groundwater.</p>

Table 9.4.7-2: Construction phase — Stormwater management design objectives

Note—Drainage and erosion and sediment control should be appropriate to the risk posed by the activity considering the potential soil loss rate, monthly erosivity and average monthly rainfall.

ISSUE	DESIGN OBJECTIVE
Drainage control	
Drainage works	<ol style="list-style-type: none"> 1. Manage stormwater flows around or through areas of exposed soil to avoid contamination. 2. Manage sheet flows to avoid or minimise the generation of rill or gully erosion. 3. Provide stable concentrated flow paths to achieve the construction phase stormwater management design objectives for temporary drainage works. 4. Provide emergency spillways for sediment basins to achieve the construction phase stormwater management design objectives of: <ol style="list-style-type: none"> a. 10% AEP where the design life is less than 3 months; b. 5% AEP where the design life is 3-12 months; c. 2% AEP where the design life is more than 12 months.
Temporary drainage works <i>Note—Refer to International Erosion Control Association, Best Practice Erosion and Sediment Control for details on the application of the Construction Phase requirements.</i>	<ol style="list-style-type: none"> 1. Design life and design storm for temporary drainage works or structures: <ol style="list-style-type: none"> a. Disturbed area open for less than 12 months—50% AEP; or b. Disturbed area open for 12-24 months—20% AEP; or c. Disturbed area open for more than 24 months—10% AEP. 2. Works located immediately up-slope of an occupied premises that would be affected by the failure or overtopping of the structure—10% AEP. 3. Culvert crossing—minimum 1EY hydraulic capacity. 4. Design capacity excludes a minimum 150mm freeboard.
Erosion control	
Erosion control <i>Note—Refer to International Erosion Control Association, Best Practice Erosion and Sediment Control for details on the application of the Construction Phase requirements.</i>	<ol style="list-style-type: none"> 1. Stage clearing and construction works to minimise the area of exposed soil at any one time. 2. Effectively stabilise surface before rainfall occurs. 3. Before completion of works for the development and before removal of sediment controls, all site surfaces are effectively stabilised using methods which will achieve effective short-term stabilisation.
Erosion prevention <i>Note—Refer to International Erosion Control Association, Best Practice Erosion and Sediment Control for details on the application of the Construction Phase requirements.</i>	<ol style="list-style-type: none"> 1. Minimise exposure of high-risk soils at any time. 2. Divert water run-off from undisturbed areas around disturbed areas. 3. Determine the erosion risk rating using local rainfall erosivity, rainfall depth, soil-loss rate, or other acceptable methods. 4. Implement erosion control methods corresponding to the identified erosion risk rating.
Sediment control	
Sediment management	<ol style="list-style-type: none"> 1. Determine sediment control measures using: <ol style="list-style-type: none"> a. potential soil loss rate; or b. monthly erosivity; or c. average monthly rainfall. 2. Direct runoff from exposed site soils to sediment controls that are appropriate to the extent of ground disturbance and level of erosion risk. 3. All exposed areas more than 2,500m² are provided with sediment controls which are designed, implemented and kept to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e., 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less and pH in the range (6.5—8.0).
Design storm for sediment control basins	<ol style="list-style-type: none"> 1. Collect and drain stormwater from disturbed soils to sediment basin for a designed storm event with an 80th percentile five-day event or similar.
Sediment basin dewatering	<ol style="list-style-type: none"> 1. Site discharge during sediment basin dewatering: <ol style="list-style-type: none"> a. TSS less than 50 mg/L TSS; b. Turbidity no more than 10% receiving waters turbidity; c. pH 6.5—8.0.
Water quality	

Litter, hydrocarbons and other waste or contaminants	<ol style="list-style-type: none"> 1. Remove wind-blown litter and gross pollutants. 2. Avoid the release of oil and ensure there is no visible oil or grease sheen on released waters. 3. Dispose of waste containing contaminants at authorised facilities.
Waterway stability	
Bank scour and erosion prevention	1. Measures are installed before ground disturbance occurs and are integrated with ESC, or equivalent alternative measures are implemented during construction.
Stormwater management	
Changes to the natural waterway hydraulics and hydrology	1. For peak flow for the 10% AEP event, use constructed sediment basins to attenuate the discharge rate of stormwater from the site.
	2. Earthworks and ESC are to ensure that flooding (including stormwater) external to the development site is not worsened during construction.

Note—An effectively stabilised surface is defined as one that does not or is not likely to result in:

- a. soil loss caused by sheet, rill or gully erosion; or
- b. sedimentation; or
- c. water contamination.

Table 9.4.7-3: Construction phase — Stormwater management design objectives for temporary drainage works

TEMPORARY DRAINAGE WORKS	ANTICIPATED OPERATION DESIGN LIFE AND MINIMUM DESIGN STORM EVENT		
	< 12 MONTHS	12—24 MONTHS	> 24 MONTHS
Drainage structure	0.5EY	0.2EY	10% AEP
Where located immediately up-slope of an occupied premises that would be adversely affected by the failure or overtopping of the structure	10% AEP		
Culvert crossing	1EY		

Table 9.4.7-4: Construction phase — Stormwater management design objectives for emergency spillways on temporary sediment basins

DRAINAGE STRUCTURE	ANTICIPATED OPERATION DESIGN LIFE AND MINIMUM DESIGN STORM EVENT		
	< 3 MONTHS	3—12 MONTHS	> 12 MONTHS
Emergency spillways on temporary sediment basins	10% AEP	5% AEP	2% AEP

Note—Refer to International Erosion Control Association, *Best Practice Erosion and Sediment Control (as amended)* for details on the application of the Construction Phase requirements. Advice should be obtained from a suitably qualified person e.g. Certified Practitioner in ESC, or Registered Professional Engineer Queensland, with appropriate knowledge and experience in ESC design and implementation.

Table 9.4.7-5: Post construction phase — Stormwater management design objectives

REDUCTIONS IN MEAN ANNUAL LOAD FROM UNMITIGATED DEVELOPMENT				
Total Suspended Solids (TSS)	Total Phosphorus (TP)	Total Nitrogen (TN)	Gross Pollutants >5mm	Waterway Stability Management
85%	65%	45%	95%	Limit the peak 1EY event discharge within the receiving waters to the pre-development peak 1EY discharge

Note—Instead of modelling, the default bio-retention treatment area is to be consistent with load reduction targets for all Queensland regions is 1.5% of the contributing catchment area.

Note—Water stability objective applies if development drains to an unlined waterway within or downstream of the site where a risk of increased erosion exists due to changes in hydrology.

9.4.8 Transport, access and parking code

9.4.8.1 Application

1. This code applies to development for which the Transport, access and parking code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.4.8.2 Purpose

1. The purpose of the Transport, access and parking code is to ensure that:
 - a. the function, safety and efficiency of the transport network is protected or improved;
 - b. development provides safe and efficient access, servicing, parking and manoeuvring on-site.
2. The purpose of the code will be achieved with the following overall outcomes:
 - a. Development is designed to encourage walking and cycling wherever possible over the use of private vehicles.
 - b. Development provides an effective transport network that accommodates the volume, frequency and type of traffic expected to be generated by the development, including services for people with disabilities.
 - c. Development provides safe streets and active transport networks that are designed to discourage crime and anti-social behaviour.
 - d. Development provides highly permeable, safe and efficient transport networks and maximises connectivity between transport modes (i.e. roads, footpaths, cycleways and public transport routes), consistent with the OM14 Road hierarchy overlay.
 - e. Road layout improves the safe and effective connection to existing and planned future transport and traffic networks and surrounding lots.
 - f. Development provides safe, convenient, efficient and legible access, parking, servicing and associated manoeuvring areas for all users.
 - g. Development provides transport infrastructure that meets the standard of design and quality and is of a durable standard.
 - h. Development provides a high standard of urban design and prevents unacceptable off-site impacts caused by new transport infrastructure.
 - i. Development protects or improves the functioning of transport infrastructure.
 - j. Development provides for loading and unloading and manages this process to avoid adverse impacts.
 - k. Pedestrians (including people with a disability) and cyclists are provided with a high level of accessibility, safety and convenience within a development site and on-site facilities are integrated with external active transport networks to public transport nodes.
 - l. Opportunities for public transport are facilitated wherever practical.
 - m. Adverse impacts on the environment and sensitive receptors are avoided.
 - n. Development is facilitated in a logical and orderly location, form and sequence to provide cost-effective delivery of new transport infrastructure to service development.
 - o. Development achieves a high level of integration with transport infrastructure and supports public passenger transport and active transport as attractive alternatives to private transport.
 - p. Development is located and designed to mitigate adverse effects on development from environmental emissions generated by transport infrastructure;
 - q. The design of road and street networks provides a clear, legible and permeable network that provides maximum mobility and accessibility for pedestrians, cyclists and public transport.
 - r. Development provides parking and manoeuvring, which is integrated into the site.
 - s. Development protects the quality and amenity of surrounding land and the streetscape.
 - t. Development is not of a type or scale that would result in adverse effects on the safety and efficiency of transport infrastructure, corridors and networks.

Note—Transport assessments are to demonstrate consistency with the planning and design principles of walking network planning guidance.

9.4.8.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of the below table.

Table 9.4.8-1: Transport, access and parking code — Assessment benchmarks for accepted and assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
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Parking rates	
<p>PO1 On-site parking is provided to accommodate the amount and type of vehicle traffic expected to be generated by the development, including:</p> <ol style="list-style-type: none"> a. bicycles; b. motorcycles; c. motor vehicles (including parking for people with disabilities); d. service vehicles; e. any other vehicles that may be generated by the development (e.g. emergency vehicles). 	<p>*AO1.1 Development provides on-site vehicle and motorcycle parking spaces no less than the minimum rates in:</p> <ol style="list-style-type: none"> a. Table 9.4.8-4: Vehicle parking requirements; b. Table 9.4.8-5: Motorcycle parking requirements. <p><i>Editor's note—Calculations resulting in a fraction are rounded up to the next whole number.</i></p> <p>*AO1.2 Development provides accessible vehicle parking spaces on-site not less than the minimum rates in Volume One, NCC, Table D3.5: Carparking spaces for people with a disability.</p> <p><i>Note—Accessible parking spaces are not required where less than five (5) vehicle parking spaces are required for the proposed development.</i></p> <p>*AO1.3 Development provides weather protected on-site bicycle parking spaces not less than the minimum rates in Table 9.4.8-6: Bicycle parking requirement.</p> <p>Where in a centre zone and the existing use does not have any on-site car parking:</p> <p>*AO1.4 The number of spaces required for a new use of an existing building is subtracted from the number of spaces required for the old use to determine if any additional parking is required. Table 9.4.8-4: Vehicle parking requirements is used to calculate, the number of spaces for both the old and new use.</p> <p><i>Note—To calculate the total number of required car parking spaces = The required number of car parking spaces for the new uses' is subtracted from the required number of car parking spaces for the old uses. For example, e.g. a 70m² Shop is to be converted to 73m² Food and drink outlet that is using the footpath for outdoor dining. The existing use does not have any on-site car parking.</i></p> <p><i>The new use has a car parking rate 1 space for every 25m² of area this equals 2.92 spaces rounded up equals 3 car spaces. The old use has a car parking rate 1 space for every 25m² of area this equals 2.8 spaces rounded up equals 3 car spaces. Therefore, no additional car spaces are required for the change in use.</i></p> <p><i>Editor's note—The intent of this Acceptable outcome is to recognise existing development may have a lot shape or size that may not allow vehicle parking to be provided at the current rates.</i></p>
Parking space design	
<p>PO2 Vehicle parking spaces are designed and constructed consistent with relevant standards.</p>	<p>*AO2.1 Vehicle parking spaces are designed and constructed consistent with:</p> <ol style="list-style-type: none"> a. AS.2890.1 Off-street car parking; b. AS.2890.3 Bicycle Parking Facilities Requirements; c. AS.2890.6. Disability Access.
<p>PO3 Design of garages, driveways and vehicle parking infrastructure protects privacy and amenity of surrounding residents and sensitive land uses.</p>	<p>AO3.1 Where adjoining a sensitive land use, driveways, car parks and vehicle manoeuvring areas have acoustic screening along the boundaries that includes a 2m high acoustic fence.</p>
Access requirements	
<p>PO4 Access points are designed and constructed:</p>	<p>*AO4.1 Access is limited to one access crossover for each</p>

<ul style="list-style-type: none"> a. to operate safely and efficiently; b. to accommodate the predicted type and volume of vehicles; c. to provide for shared transport use (i.e. pedestrians, cyclists and vehicles); d. to facilitate traffic movement on the road adjoining the development; e. to provide clear pedestrian access from the road reserve to: <ul style="list-style-type: none"> i. the main building entrance; ii. the main car parking area; and iii. any dedicated set-down and pick-up area separate from the main car parking area; f. to protect or improve the operation of: <ul style="list-style-type: none"> i. existing intersections or future road or future intersection improvements; ii. existing and future on-street parking arrangements. iii. existing services within the road reserve adjoining the development. 	<p>site and is:</p> <ul style="list-style-type: none"> a. an existing access point; or b. an access point located, designed and constructed consistent with: <ul style="list-style-type: none"> i. AS.2890.1 Off-street car parking; ii. Planning Scheme Policy 6 Infrastructure design. <p><i>Note—Where development is for Dual occupancy or Service Station the use code prevails over AO4.1.</i></p> <p>*AO4.2 All vehicles are able to enter and exit the site in a forward direction.</p> <p>*AO4.3 Accesses, including driveways and access crossovers:</p> <ul style="list-style-type: none"> a. are not placed over an existing: <ul style="list-style-type: none"> i. telecommunications pit; ii. stormwater kerb inlet; iii. sewer maintenance hole; iv. water valve or hydrant; b. are designed to accommodate the footpath; c. adhere to minimum sight distance consistent with AS.2890.1 Off-street car parking. <p>*AO4.4 The surface of driveways and internal walkways exposed to the elements are:</p> <ul style="list-style-type: none"> a. permeable where on slopes of less than 10% to maximise on-site infiltration of stormwater; b. finished in non-slip surfaces. <p><i>Note—Permeable pavements are not considered impervious area or landscaping and:</i></p> <ul style="list-style-type: none"> a. are excluded from the maximum site cover; b. cautions for impervious areas. <p>*AO4.5 Driveways are:</p> <ul style="list-style-type: none"> a. designed to follow as close as possible to the existing contours but a longitudinal grade of less than 12.5% (1V:8H); b. constructed such that the transitional change in grade from the road to the lot is fully contained within the lot and not within the road reserve; c. designed to include all necessary associated drainage that intercepts and directs stormwater runoff to the road or stormwater drainage system; d. Rear access driveways are consistent with Table 9.5.1-5: Access strip requirements for rear access lots; e. consistent with Planning Scheme Policy 6 Infrastructure design.
<p>PO5 Access points are minimised through co-location to reduce vehicle transport and active transport interactions.</p>	<p>*AO5.1 Multi-tenanted and multi-lot developments include shared accesses, driveways and parking areas.</p> <p>*AO5.2 Where practical, accesses and driveways are located and integrated with adjoining development and reciprocal easements are created to reduce access points to a constructed road.</p>

Table 9.4.8-2: Transport, access and parking code — Additional assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Vehicle parking and garage design	
<p>PO6 On-site parking areas are located, designed and constructed to:</p>	<p>AO6.1 Car parking is:</p> <ul style="list-style-type: none"> a. located below ground in a basement or undercroft

<ul style="list-style-type: none"> a. provide for shared transport use (i.e. pedestrians, cyclists and vehicles); b. positively contribute to the streetscape, desired character and amenity of the area near the development. c. maintain or improve the quality of adjoining streetscapes or public spaces; d. maintain visual amenity, noise, odour, or light impacts on adjoining residents; e. convenient, safe and legible vehicle access and car parking for users; f. be integrated into the building where partially or fully above ground ; g. be landscaped to: <ul style="list-style-type: none"> i. provide shade for pedestrians; ii. reduce glare and heat at ground level; h. have visitor parking clearly visible, identifiable and located to allow ease of use. 	<ul style="list-style-type: none"> provided it does not project more than 1m above ground level or affect service infrastructure; or b. located at ground level at the rear of the site or behind a building and: <ul style="list-style-type: none"> i. separated and screened from view of the street and other public spaces with high quality landscaping; ii. not forward of the building line, unless for visitor parking only on one side of an entrance driveway and for the depth of one standard car and where a minimum 1m wide landscaping strip separates the parking space from the street frontage boundary; iii. has a minimum 2m wide landscaping to adjoining premises; iv. has landscaping that includes 1 shade tree for every 4 car spaces; or c. located partially or fully above ground and located behind the active street frontage and: <ul style="list-style-type: none"> i. is integrated within the building design with the building façade and materials extending to the car park area; ii. is sleeved in between or behind the use; iii. building services, pipes and ducts within the car park are not visible from the street, public spaces or adjoining premises. <p><i>Note—Car parking which extends 1m above ground level is counted as a storey in the maximum height and is subject to setback requirements.</i></p> <p>A06.2 Visitor or customer car parking is:</p> <ul style="list-style-type: none"> a. clearly signposted; b. lit at night; c. not located behind a security barrier. <p>A06.3 Safe internal walkways are provided through vehicle parking areas to:</p> <ul style="list-style-type: none"> a. minimise children crossing vehicle manoeuvring areas to reach buildings; b. minimise pedestrian-vehicle conflicts; and c. ensure pedestrians move along aisles rather than across aisles.
<p>PO7 Internal vehicle, cyclist and pedestrian pathways are:</p> <ul style="list-style-type: none"> a. delineated and identified with clear wayfinding and awareness signage and markings; b. establish clear and practical routes around the parking area; c. separate users in high conflict areas; d. discourage high speeds; e. connected to the external transport network, including external existing and future cycleways in a safe and efficient way. 	<p>A07.1 Internal vehicle, cyclist and pedestrian pathways are designed and constructed consistent with:</p> <ul style="list-style-type: none"> a. AS.2890.1 Off-street car parking; b. AS.2890.3 Bicycle Parking Facilities Requirements; c. Part 15: Direction signs, information signs and route numbering Queensland Manual of Uniform Traffic Control Devices (MUTCD).
On-street parking	
<p>PO8 On-street parking may be provided instead of on-site parking where:</p> <ul style="list-style-type: none"> a. development involves the re-use of an existing building; or b. development does not front a major transport corridor mapped on the OM14 Transport noise corridor overlay contained in schedule 2 Maps; c. located within the immediate frontage of the site d. designed and constructed consistent with the relevant standards; e. designed and constructed so as not to detract from the character and amenity of the surrounding streetscape. 	<p>No acceptable outcome is nominated.</p>

<p><i>Note—PO6 only applies to undertaking new on-street works. Existing on-street car parking spaces will not be considered as on-street parking works instead of on-site car parking.</i></p>	
<p>Frontage works</p>	
<p>PO9 Roads fronting the development provide a safe and effective transport network consistent with the OM15 Road hierarchy overlay and any other relevant planning studies.</p>	<p>AO9.1 The development provides all frontage works of a standard consistent with the ultimate road network for the area and consistent with Planning Scheme Policy 6 Infrastructure design including:</p> <ul style="list-style-type: none"> a. road widening; b. kerb and channel; c. area for parked vehicles; d. stormwater drainage; e. footpaths; f. cycleways; g. landscaping.
<p>End of trip facilities where more than 2,000m² GFA</p>	
<p>PO10 On-site end of trip facilities are incorporated into the design and protected from the weather for the following uses with more than 2,000m² GFA:</p> <ul style="list-style-type: none"> a. Educational establishment; or b. Hospital; or c. Indoor sport and recreation; or d. Office; or e. Outdoor sport and recreation; or f. Residences; or g. Shop or Shopping centre. 	<p>AO10.1 End of trip facilities are provided, designed and constructed consistent with:</p> <ul style="list-style-type: none"> a. AS.2890.3 Bicycle Parking Facilities Requirements; b. Queensland Development Code MP4.1; or c. AUSTRROADS Guide to Traffic Engineering Practice, Part 14 — Bicycles, Section 10; or d. Planning for Safe Transport Infrastructure at Schools — Technical guidance for the provision of effective and safe transport infrastructure at schools.
<p>Service vehicle requirements</p>	
<p>PO11 Access, internal circulation and on-site parking for service vehicles are designed and constructed to:</p> <ul style="list-style-type: none"> a. be consistent with AS.2890.1 and AS.2890.2; b. protect the amenity of adjacent sensitive land uses; c. be safe, convenient and accessible to pedestrians, cyclists and vehicles on the site. 	<p>AO11.1 Access driveways, vehicle manoeuvring and on-site parking for service vehicles are designed and constructed consistent with</p> <ul style="list-style-type: none"> a. AS.2890.1 Off-street car parking; b. AS.2890.2 Off-street commercial vehicle facilities. <p>AO11.2 Service and loading areas are contained within the site.</p> <p>AO11.3 The movement of service vehicles and service operations are designed so that they:</p> <ul style="list-style-type: none"> a. do not impede access to parking spaces; b. do not impede vehicle or pedestrian movement.
<p>Vehicle queuing requirements</p>	
<p>PO12 Vehicle queuing and passenger set down areas are provided to accommodate the demand generated by the development and without obstructing the flow of traffic or unduly conflicting with pedestrian movement or adjacent residential uses.</p>	<p>AO12.1 Development provides adequate area for on-site vehicle queuing to accommodate the demand generated by the development where drive through facilities or set-down and pick-up areas are provided, including but not limited to the following land uses:</p> <ul style="list-style-type: none"> a. Car wash (entry); or b. Community activities (passenger set-down); or c. Food and drink outlet (drive-through facilities); or d. Hardware and trade supplies (drive-through facilities); e. Hospital or Health care service (emergency entry); or f. Hotel (entry; drive-through facilities); g. Parking station (entry); or h. Recreation activities (passenger set-down); or i. Relocatable home park (entry and reception area); or j. Service station (entry); or k. Shopping centre (entry); or l. Short-term accommodation (reception area); or

	<p>m. Theatre (passenger set-down); or n. Tourist Park (entry and reception area).</p> <p>AO12.2 Drive through facilities are setback with landscaping from surrounding residential uses by a minimum 5m from the boundary to the internal driveway.</p> <p>AO12.3 Queuing and set down areas are designed and constructed consistent with AS.2890.1 Off-street car parking.</p> <p>AO12.4 Set down areas and porte-cocheres are designed at 90 degrees to, rather than parallel with, the street frontage to minimise the number of vehicle pedestrian conflicts.</p> <p>AO12.5 Development ensures that vehicle access, short-term parking, set down areas and porte-cocheres (excluding driveway splays to the kerb) and services and Utility installations are less than 40% of the street frontage width at the front boundary.</p> <p>AO12.6 Where development requires 30 car parks or more, appropriate area is also provided for private bus set down and pickup areas.</p>
Connection with public passenger transport facilities	
<p>PO13 Development provides direct and safe access for the use of public passenger transport facilities.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a Transport assessment that include public transport infrastructure consistent with the planning and design principles of the public transport infrastructure manual.</i></p>	<p>AO13.1 Through-site pathway connections to public passenger transport facilities are consistent with Austroads Guide to Road Design—Part 6A: Paths for walking and cycling.</p> <p>AO13.2 Pathway connections are always kept clear.</p> <p>AO13.3 Direct and legible active transport networks provide connections to existing and future public passenger transport facilities.</p> <p>AO13.4 Development incorporates landscaping, boundary treatments and lighting that improves the safety of pedestrians and cyclists accessing public passenger transport facilities by providing for casual surveillance.</p> <p>AO13.5 Shopping centres provide active frontages oriented towards public passenger transport facilities.</p>

Table 9.4.8-3: Transport, access and parking code — Additional assessment benchmarks for assessable Operational work

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Road construction	
<p>PO14 Road pavement surfaces are of a quality and durability suitable to:</p> <ul style="list-style-type: none"> a. the predicted traffic volumes and loads; b. provide all-weather access; c. the management of stormwater; d. the safe passage of vehicles, bicycles and pedestrians. 	<p>AO14.1 The detailed design and construction of roads is consistent with Planning Scheme Policy 6 Infrastructure design.</p>
<p>PO15 The pavement edge treatment is constructed to:</p> <ul style="list-style-type: none"> a. prevent edge fretting; b. allow water to drain; c. provide the level of control for vehicle movement; d. allow ready access to adjoining premises at suitable locations; e. contribute to the desired streetscape character of the 	<p>AO15.1 The detailed design and construction of road edge treatments is consistent with Planning Scheme Policy 6 Infrastructure design.</p>

zone.	
Active transport network construction	
PO16 Active transport networks are of a quality and durability suitable to: <ol style="list-style-type: none"> the predicted traffic volumes and loads; provide all-weather access; the management of stormwater; the safe passage of vehicles, bicycles and pedestrians; the maintenance of a reasonable, comfortable and attractive environment. 	AO16.1 The detailed design and construction of active transport networks is consistent with Planning Scheme Policy 6 Infrastructure design.

Table 9.4.8-4: Vehicle parking requirements

Note—

- Where the number of spaces required is not a whole number, the number of spaces to be provided is the next highest whole number.
- Should there be a conflict between parking rates, the higher parking rate applies.
- Any use not specified in the 'Use' column of this table shall provide enough spaces to accommodate the number of vehicles likely to be parked on-site at any one time.
- Where a residential use is located within 400m of public transport stop, variations to car parking rates may be considered.

USE	CAR PARKING RATE	SERVICE VEHICLE RATE
Adult store	1 space for every 25m ² GFA	1 SRV space
Agricultural supplies store	1 space for every 50m ² TUA; 1 C&T dedicated customer loading bay.	1 HRV space where less than 500m ² TUA; 1 AV space where more than 500m ² TUA.
Animal keeping	1 space for every employee; 3 short-term parking spaces are provided and marked.	Not required
Aquaculture; Intensive animal industry; Intensive horticulture.	1 space for each employee living off-site	As required to service the size and scale of development
Bar	1 space for every 20m ² GFA	1 SRV space
Bulk landscape supplies	1 space for every 200m ² of TUA with a minimum of 5 spaces; 1 C&T dedicated customer loading bay.	1 AV space
Car wash	Queuing for 4 cars	1 SRV space
Caretaker's accommodation	1 space (covered)	Not required
Childcare centre	1 space for every 5 children; 3 car set-down and pick-up area is provided near main entry; or 3 short-term parking spaces are provided and marked.	1 SRV space
Club	1 space for every 4 visitors or seats	1 SRV space; 1 MRV or 1 Small bus space; 1 RCV space.
Community care centre	1 space for every 20m ² GFA; 1 space for every 2 employees.	1 SRV space; 1 MRV or 1 Small bus space; 1 Ambulance.
Community residence	2 spaces for every Community residence; 1 space for every employee.	1 SRV space (may also be used as a disability space)
Community use	1 space for every 20m ² GFA; 1 space for every 2 employees.	1 SRV space
Dual occupancy	2 spaces for each dwelling with a minimum of 1 covered space for each dwelling; 1 visitor space for each Dual occupancy and may be	Not required

	provided in tandem with the resident spaces.	
Dwelling house	Consistent with the Queensland Development Code; 1 space for any secondary dwelling.	Not required
Dwelling unit	1 space (covered)	Not required
Educational establishment	Planning for Safe Transport Infrastructure at Schools — Technical guidance for the provision of effective and safe transport infrastructure at schools 1 electric vehicle charge station for every 15 car spaces	
Food and drink outlet	1 space for every 25m ² GFA; Queuing for 8 cars for any drive through.	1 SRV space where less than 500m ² GFA; 1 SRV space; 1 RCV space where more than 500m ² GFA.
Function facility	1 space for every 4 visitors; or 1 space for every 20m ² GFA, whichever is the greater.	1 SRV space
Funeral parlour	1 space for every 4 seats; 1 space for every employee.	1 SRV space; 1 RCV space.
Garden centre	1 space for every 50m ² TUA; 1 C&T dedicated customer loading bay.	1 HRV space where less than 500m ² TUA; 1 AV space where more than 500m ² TUA.
Hardware and trade supplies	1 space for every 50m ² TUA; 1 C&T dedicated customer loading bay.	1 HRV space where less than 500m ² TUA; 1 AV space where more than 500m ² TUA.
Health care service	1 space for every 20m ² GFA	1 SRV space; or 1 Ambulance where a general practitioner.
High impact industry; Low impact industry; Medium impact industry; Research and technology industry	1 space for every employee; or 1 space for every 100m ² GFA, whichever is the greater.	1 AV space
Home-based business	The requirement for a Dwelling house plus: 1 space for each non-resident employee; 1 space for each customer on the site at any given time.	Not required
Hotel	1 space for every guest room; 1 space for every 20m ² GFA; Queuing for 4 cars for any drive through.	1 SRV space; 1 MRV or 1 Small bus space; 1 RCV space.
Indoor sport and recreation	1 space for every 20m ² GFA; or 1 space for every 4 seats, whichever is the greater.	1 SRV space; 1 MRV or 1 Small bus space.
Multiple dwelling	1 space for each one-bedroom unit or two-bedroom unit; 2 spaces for every other type of unit; 1 visitor space for every 4 units; 1 electric vehicle charge station for every 15 car spaces.	1 SRV space where more than 10 units
Nature-based tourism	1 space for each caravan or cabin or tent site; 1 manager space.	1 MRV or 1 Small bus space
Nightclub entertainment facility	1 space for every 20m ² GFA	1 SRV space
Office	1 space for every 25m ² GFA 1 electric vehicle charge station for every 15 car spaces	1 SRV space where less than 1,000m ² GFA; 1 SRV space; 1 HRV space where more than 1,000m ² GFA.
Outdoor sales	1 space for every 100m ² TUA;	1 AV space;

	1 space for every employee.	1 RCV space.
Party house	1 space for every bedroom; 1 visitor space.	Not required
Place of worship	1 space for every 4 visitors or seats 3 car set-down and pick-up area is provided near entry.	1 SRV space
Relocatable home park	1 space for each dwelling (covered); 1 manager space (covered); 1 visitor space for every 10 dwellings; 3 car entry queuing.	1 SRV space; 1 MRV or 1 Small bus space.
Residential care facility	1 space for every 5 beds.	1 SRV space; 1 MRV or 1 Small bus space; 1 Ambulance space.
Retirement facility	1 space for each unit; 1 visitor space for every 4 units; 1 space for every 2 staff members; 1 electric vehicle charge station for every 15 car spaces.	1 SRV space; 1 MRV or 1 Small bus space; 1 Ambulance space.
Roadside stall		Not required
Rooming accommodation	1 space for every 4 beds; or 1 space for every bedroom where the bedrooms are self-contained or may be independently leased. 1 manager space (covered).	1 SRV space; 1 MRV or 1 Small bus space.
Rural industry	1 space for every employee living off-site.	1 AV space
Rural workers' accommodation	1 space for each unit; or 1 space for every 4 beds, whichever is the greater.	1 AV space
Sales office	2 spaces; or Where the Sales office is not a house, the Office rate applies.	Not required
Service industry	1 space for every 100m ² GFA	1 SRV space where less than 500m ² GFA; 1 AV space where more than 500m ² GFA.
Service station	1 space for every 25m ² GFA	Enough access and turning area for a B-Double
Shop	1 space for every 25m ² GFA	1 SRV space where less than 500m ² GFA; 1 SRV space; 1 RCV space where more than 500m ² GFA.
Shopping centre	1 space for every 20m ² GFA; 1 car and trailer space or every 2,000m ² GFA; car set-down and pick-up area is provided near entry; 1 electric vehicle charge station for every 15 car spaces.	1 SRV space; 1 RCV space where less than 500m ² GFA; 1 Van, 1 SRV space, 1 MRV or 1 small bus, 1 RCV space where more than 500m ² GFA.
Short-term accommodation	For Accommodation units: 1 space for each unit; 1 visitor space for every 10 units; For Backpacker accommodation: 1 space for every 4 beds; 1 manager space (covered).	1 SRV space; 1 HRV space.
Showroom	1 space for every 50m ² GFA; 1 C&T dedicated customer loading bay.	1 HRV space where less than 500m ² TUA; 1 AV space where more than 500m ² TUA

Theatre	1 space for every 4 visitors or seats 1 car set-down and pick-up area is provided near entry.	1 RCV space
Tourist park	1 space for caravan or cabin or tent site; 1 manager space (covered); 1 visitor space for every 10 sites; 1 car and trailer plus 1 car entry queuing.	1 SRV space; 1 HRV space; 1 RCV space.
Transport Depot	1 space for every heavy vehicle parked on-site; For on-site office, the Office rate applies.	Enough spaces for the intended use.
Veterinary service	1 space for every 20m ² GFA	1 SRV space
Warehouse	1 space for every employee; or 1 space for every 100m ² GFA, whichever is the greater.	Enough spaces for the intended use.
Wholesale nursery	1 space for every employee; For any ancillary retail area, the Garden Centre rate applies.	1 AV space
Winery	1 space for every employee living off-site; 1 space for every 25m ² GFA for retail area (cellar door).	1 AV space
Workforce accommodation	1 space for each unit; or 1 space for every 4 beds.	1 SRV space; 1 MRV or 1 Small bus space.
Any other use not listed in this table	Enough spaces to accommodate the number of vehicles likely to be generated by the use and parked on the site at any one time as demonstrated by a Transport assessment consistent with Planning Scheme Policy 10 Transport assessment.	

Table 9.4.8-5: Motorcycle parking requirements

Note—No motor cycle spaces are required if the activity group is not specified in this table.

ACTIVITY GROUP	MOTORCYCLE PARKING RATE
Commercial activities	1 space for every 100m ² GFA; 1 space for every 200m ² GFA for Agricultural supplies store; Garden centre; Hardware and trade supplies; Outdoor sales.
Community activities	1 space for every 100m ² GFA; Planning for Safe Transport Infrastructure at Schools — Technical guidance for the provision of effective and safe transport infrastructure at schools for Educational establishment.
Industry activities	1 space for every 200m ² GFA; Not required for Bulk landscape supplies.
Medium density residential activities	1 space for every 10 dwellings; units or beds (minimum of 1 space).
Sport and recreation activities	1 space for every 100m ² GFA.
Tourist activities	1 space for every 10 dwellings; units or beds (minimum of 1 space) for Short-term accommodation only.

Note—The term motorcycle includes motorcycles, motor scooters and mopeds.

Note—Under Planning Scheme Policy 6 Infrastructure design, motorcycle vehicle dimensions and manoeuvring requirements are to be consistent with Australian Standard AS.2890.2 — Off Street Parking — Commercial Vehicle Facilities.

Table 9.4.8-6: Bicycle parking requirements

Note—No bicycle spaces are required if the activity group is not specified in this table.

ACTIVITY GROUP	BICYCLE PARKING RATE
Commercial activities	Planning for Safe Transport Infrastructure at Schools — Technical guidance for the provision

Community activities	of effective and safe transport infrastructure at schools for Educational establishment. For all other uses: a. 1 space for every 100m ² up to 500m ² GFA; b. 1 space for every 500m ² more than 500m ² GFA.
Medium density residential activities	1 space for every 2 dwellings or units or beds (minimum of 1 space) if within a Centre zone or Residential Zone
Sport and recreation activities	1 space for every 50m ² up to 500m ² GFA; 1 space for every 500m ² more than 500m ² GFA.
Tourist activities	1 space for every 2 dwellings or units (minimum of 1 space) if Short-term accommodation not within the Rural residential zone or Rural zone.
Commercial activities Community activities	End of trip cycle facilities are required at the following rate where 5 or more bicycle parking spaces are calculated: a. 1 locker for every 2 bicycle parking spaces; b. 1 shower cubicle with ancillary change room for every 10 bicycle spaces and every part of 10 bicycle spaces. <i>Note—For example 11 bicycles spaces means 2 shower cubicles would need to be provided.</i>

Note—Bicycle spaces are required as well as vehicle and motorcycle spaces required for the specific use.

9.5 Other development codes

9.5.1 Reconfiguring a lot code

9.5.1.1 Application

1. This code applies to development for which the Reconfiguring a lot code is identified as an assessment benchmark in the assessment benchmark column in Part 5 Tables of Assessment.
2. All measures in this code are the assessment benchmarks for applicable assessable development.

9.5.1.2 Purpose

1. The purpose of the Reconfiguring a lot code is to ensure that development is consistent with the purpose and outcomes of the zone in which the site is located, and the impact on the amenity and environment is minimised.
2. The purpose of the code will be achieved with the following overall outcomes:
 - a. Development creates lots that are of a size and shape consistent for the zone and, where relevant, the precinct. Any lots created are of an appropriate size and shape having regard to Table 9.5.1-4: Minimum lot size and dimensions, and environmental values and natural hazard constraints.
 - b. Development creates lots that are responsive to the physical characteristics of the site, including the presence of natural hazards and valuable features.
 - c. Development creates a diverse mix of residential lots to cater for a variety of housing options.
 - d. Subdivision of land does not occur within the No further subdivision precinct, as identified on ZM2 Zone Precincts map, so as to not prejudice future urban growth.
 - e. Subdivision of land in the Rural residential zone is limited to the Small, Medium and Large precincts. Any lots created are of an appropriate size and shape having regard to Table 9.5.1-4: Minimum lot size and dimensions.
 - f. Development is cohesive and contained within a distinct boundary between the urban and the rural area. A distinct edge to the urban areas is provided by excluding unplanned expansion of the urban area, townships and rural residential areas.
 - g. Rear access lots are only provided when:
 - i. the number of rear access lots is minimised;
 - ii. no other road access is practicable;
 - iii. the operational safety and efficiency of the transport network is not compromised;
 - iv. future development and the use of surrounding lots are not compromised.
 - h. The development of land suitable for larger scale residential, rural residential and industrial development is comprehensively planned through structure planning.
 - i. Development in the Emerging community zone does not result in the fragmentation of land before its planned development for urban purposes and only occurs where consistent with an approved structure plan.
 - j. Subdivision that would result in decreased viability of the site or surrounding lots for rural purposes, or increases difficulties with land management or potential for conflict between adjoining land uses, is avoided.
 - k. Lots are provided with suitable road access having regard to their intended use. Access from lots protects and maintains the safety and efficiency of the transport network.
 - l. Development creates a transport network that is safe and efficient, and prioritises active transport over motor vehicles.
 - m. A grid or modified grid street pattern is used in the layout of new development to provide a highly permeable, legible and connected transport network.
 - n. Lots are provided with all infrastructure and services commensurate with the zone.
 - o. Development provides for the effective management of stormwater.
 - p. Buffers are provided between incompatible uses.
 - q. The risk to people and property from natural hazards is avoided or mitigated.
 - r. Development of residential estates creates safe, liveable and healthy neighbourhoods with usable Park and open space.
 - s. Natural features and environmental corridors such as creeks, gullies, waterways, wetlands, habitats and vegetation are protected, improved and rehabilitated through buffers that minimise the impact of existing and future land uses. Any unavoidable impacts are minimised through location, design, operation and management requirements.
 - t. Reconfiguration supports convenient, comfortable and attractive pedestrian environments for transport, recreation, leisure and exercise.
 - u. Development provides sufficient land area for and minimise conflict between various sport and recreation functions.

9.5.1.3 Assessment benchmarks

1. Assessment benchmarks for accepted development are shown with an asterisk (*) in the Acceptable outcomes column of

the below tables.

Table 9.5.1-1: Relevant assessment benchmarks for development

DEVELOPMENT TYPE	RELEVANT ASSESSMENT BENCHMARKS
Boundary realignment resolving an encroachment where accepted development	Table 9.5.1-2: Boundary realignment resolving a boundary encroachment - Assessment benchmarks for accepted and assessable development
Access easement	Table 9.5.1-3 — PO2
Subdivision by lease	Table 9.5.1-3 — PO3, PO6
Subdivision in the rural area using a gazetted road	Table 9.5.1-3 — PO4
All other Reconfiguring a lot	Table 9.5.1-3 — PO5 to PO36 (as relevant)

Table 9.5.1-2: Boundary realignment resolving a boundary encroachment - Assessment benchmarks for accepted development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
<p>PO1 A boundary realignment resolving a boundary encroachment improves ownership rights.</p> <p><i>Note—A registered identification plan prepared by a suitably qualified person demonstrates that the boundary realignment is required to resolve an existing encroachment may assist in demonstrating compliance with this Performance Outcome.</i></p>	<p>*AO1.1 Lots created by the boundary realignment contain all existing service and utility connections within the boundary of the lot they serve or easement/s are provided over existing service and infrastructure connections.</p>

Table 9.5.1-3: Reconfiguring a lot code - Assessment benchmarks for assessable development

PERFORMANCE OUTCOMES	ACCEPTABLE OUTCOMES
Access easements	
<p>PO2 Access easements and driveways:</p> <ul style="list-style-type: none"> a. are constructed to an appropriate standard; b. are safety; c. do not compromises the efficiency and safety of the transportation network; d. allow for underground services. 	<p>AO2.1 Access easements provide access to a constructed road that connects to the constructed road network.</p> <p>AO2.2 Driveways within an access easement, are designed and constructed in accordance with Table 9.5.1-5: Access requirements.</p> <p>AO2.3 An access crossover is constructed from the road network to the access easement.</p>
Subdivision by lease	
<p>PO3 Subdivision by lease is consistent with the current lawful use of the site.</p>	No acceptable outcome is nominated.
Subdivision in the Rural zone using an existing gazetted road as the boundary	
<p>PO4 Where a lot is severed by a road in the Rural zone, each new lot created can accommodate a Dwelling house, effluent disposal, vehicular access, and other improvements that are consistent with the purpose of the Rural zone.</p>	<p>AO4.1 In the Rural zone, new lots:</p> <ul style="list-style-type: none"> a. are at least 2.5ha in area; b. have access to a constructed road; c. have a flood free development envelope area suitable for a Dwelling house with a slope of less than 15%.
Boundary realignment in a rural area	
<p>PO5 Development results in at least one of the following:</p> <ul style="list-style-type: none"> a. improves land management for rural production or combines rural land into larger lots; or b. improves protection of environmental values, landscape features or cultural heritage features; or c. reduces the potential risk or exposure of people to bushfire, flood and/or landslip hazard while not increasing the disaster management response or recovery capacity 	<p>AO5.1 Realigned lots have a net developable area complying with Table 9.5.1-4: Minimum lot size and dimensions.</p> <p>AO5.2 Realigned lots:</p> <ul style="list-style-type: none"> a. contain all service and utility connections within the boundary of the lot they serve; b. have a vehicle access and crossover consistent with Planning Scheme Policy 6 Infrastructure design.

<p>and capabilities; or d. improves the separation distance of incompatible land uses; or e. improves access for a lot that had no access or an unsuitable access.</p>	<p><i>Note—Irregular shaped lots will not be accepted for boundary realignments where the original lots are regular in shape.</i></p>
<p>Existing buildings and structures</p>	
<p>PO6 Lots that contain existing buildings and structures (excluding fences) to be retained: a. are consistent with boundary setbacks for the zone in Table 9.4.2-2: Building scale and bulk requirements; b. are rectangular in shape; c. are consistent with current building boundary setbacks.</p> <p><i>Note—For domestic outbuildings, the QDC requirements apply.</i></p> <p><i>Note—This may require buildings or structures to be modified, relocated or demolished to meet setback standards, resolve encroachments and the like.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Layout</p>	
<p>PO7 The size and dimensions of lots created by subdivision are consistent with: a. Table 9.5.1-4: Minimum lot size and dimensions; b. the need to accommodate buildings, structures, vehicle access, parking and manoeuvring areas, open space, sport and recreation areas, landscaping and the area required for on-site wastewater treatment system where the lot is not connected to reticulated sewer; c. the physical characteristics of the site including where affected by an overlay.</p>	<p>AO7.1 The size and dimensions of lots created by subdivision comply with Table 9.5.1-4: Minimum lot size and dimensions.</p> <p>AO7.2 Where the size and dimension of lots are not specified in Table 9.5.1-4: Minimum lot size and dimensions, the proposed lots are suitable in size and dimension for their intended use.</p> <p><i>Note—The size and dimensions of a rear lot excludes the access strip.</i></p> <p>AO7.3 New lots are created only on that part of the site that is free from development constraints and existing site features are protected and retained in a single lot.</p>
<p>PO8 Development within residential zones provides for a diversity of lot sizes consistent with Figure 9.5.1-4: Mix of residential lot size and densities to improve housing choice and contribute to an interesting streetscape.</p>	<p>AO8.1 For residential subdivision within the Low density residential zone, a minimum of: a. 20% of the lots are 800m² or more; b. 20% of the lots are between 450m² to 600m².</p> <p>AO8.2 For residential subdivision within the Low-medium density residential zone, a minimum of 20% of the lots are between 350m² to 600m².</p> <p>AO8.3 Design of lot shapes and dimensions in urban areas are: a. regular in shape and dimensions; b. deliver street patterns that are rectilinear; c. contribute to cost savings in engineering and building construction; d. suit standard lot depths of 25m and 32m and standard widths in multiples of 2.5m and 5m.</p>
<p>PO9 Reconfiguration in the Conservation zone results in no additional lots, except where associated with an existing or approved community infrastructure.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO10 Development in the Emerging community zone is guided by a comprehensive structure planning that supports a consolidated settlement pattern and cost effective infrastructure.</p>	<p>No acceptable outcome is nominated.</p>
<p>PO11 Irregularly shaped lots (i.e. lots other than rectangular</p>	<p>No acceptable outcome is nominated.</p>

<p>shaped lots) are created only where:</p> <ol style="list-style-type: none"> the creation of a regularly shaped lot is impractical, e.g. at the change of road alignment or at the head of a cul-de-sac; the lot is suitable for its intended purpose; safe access to the lot can be provided; consistent with Table 9.5.1-4: Minimum lot size and dimensions. 	
<p>PO12 The street design and lot orientation facilitates construction of energy efficient buildings that respond to the local climate conditions by:</p> <ol style="list-style-type: none"> maximising solar access to the north; minimising the extent of external walls facing to the east and west; proportioning lots and building envelopes to accommodate energy efficient building orientation; maximising access to prevailing winds to allow for air-permeability. 	<p>AO12.1 Roads and lots are configured to:</p> <ol style="list-style-type: none"> maximise the number of streets running in a north-south direction within 20° west and 30° east of north; maximise the number of lots in an east-west direction within 30° south and 20° north of east consistent with Figure 9.5.1-2: Lot orientation outcomes.
<p>PO13 New lots that are of a size or shape capable of further subdivision are designed so the further subdivision:</p> <ol style="list-style-type: none"> has sufficient and dimensions to accommodate the intended land use; provides a safe, efficient and cost effective infrastructure network; limits the creation of rear access lots. <p><i>Note—The ability to further reconfigure the site is demonstrated by submitting a concept plan that meets the requirements for the applicable zone.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Small residential lots</p>	
<p>PO14 Small residential lots may be created to assist urban consolidation and increase housing diversity consistent with Figure 9.5.1-1: Diversity in housing choice and configuration where:</p> <ol style="list-style-type: none"> located within walking distance of a centre zone; consistent with the preferred character for the zone or local area; the small residential lots are distributed among larger lots and do not dictate the streetscape pattern; the site is not subject to topographical constraints; lots with frontages of 10m or less are dispersed through the development minimising impact of pedestrian safety and street parking. <p><i>Editor's note—A small residential lot is a lot with an area between 350m² and 600m² located in a residential zone.</i></p>	<p>AO14.1 Small residential lots are:</p> <ol style="list-style-type: none"> located within 800m walking distance of a centre zone; no more than 25% of lots in any street block; located on land with slopes less than 10%; not located at the end of a T-intersection or at a bend in the road; not located at the end of a cul-de-sac; not created by further subdividing a rear access lot. <p>AO14.2 Small residential lots:</p> <ol style="list-style-type: none"> provide for consistently designed and managed attached housing on individual lots; or ensure Dwelling houses can be managed through building envelopes; or provide access to the rear of the lot by a laneway. <p>AO14.3 Lots less than 450m² have designated building envelopes and driveway location and building staging (e.g. several small lot houses to be constructed as rowhouses are built at the same time).</p> <p>AO14.4 No more than 4 lots with a frontage of 10m or less are created in a row, unless serviced by a rear lane.</p>
<p>PO15 Small residential lots are generally provided with a north-south orientation to optimise opportunities for passive solar design.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a plan of development that shows development envelope area and for each development envelope the:</i></p> <ol style="list-style-type: none"> access crossover locations; 	<p>AO15.1 Small residential lots can contain a building with a long axis that faces between 30° east of true north and 20° west of true north consistent with Figure 9.5-2: Lot orientation outcomes.</p>

<ul style="list-style-type: none"> b. <i>street tree locations;</i> c. <i>on-street car parking locations;</i> d. <i>services locations including stormwater and electricity.</i> 	
Rear access lots	
<p>PO16 Rear access lots are provided where:</p> <ul style="list-style-type: none"> a. there is no alternative having regard to the topography, location, shape or size of the site; b. it will not prejudice later development or the use of surrounding lots; c. it positively contributes to the character of adjacent premises and the street; d. the operational safety and efficiency of the transport network is not adversely affected; e. vehicle access will not harm residential amenity on adjoining lots adjoining the access strip due to noise, light, dust and stormwater runoff; f. protects the safety of pedestrians and cyclists by ensuring that access strips to the road frontage are designed to maintain visibility to the verge; g. provides an adequate internal manoeuvring area for vehicles to exit rear access lots in a forward direction; h. allows sufficient street frontage for waste collection. <p><i>Note—Rear access lots are not appropriate in non-urban or non-residential zones.</i></p>	<p>AO16.1 Rear access lots:</p> <ul style="list-style-type: none"> a. are created only where there is no ability to provide a standard frontage to an existing or new road; b. are consistent with the minimum lot size in Table 9.5.1-4: Minimum lot size and dimensions, exclusive of any rear lot access strip; c. meet the width, length and construction requirements of Table 9.5.1-5: Access requirements; d. are consistent with Figure 9.5.1-3: Rear access lot design; e. are rectangular in shape; f. lots are not located at the end of a cul-de-sac street; g. only 1 rear lot is created behind any lot with a road frontage; h. no more than 1 access strip adjoins a front lot; i. may border another access strip to a rear lot only if reciprocal easement/s are provided over the two access strips.
Development envelope areas	
<p>PO17 Development envelope areas approved as part of a subdivision ensure that there is sufficient area to accommodate future intended uses and have regard to:</p> <ul style="list-style-type: none"> a. existing and future infrastructure; b. adjacent rural activities; c. natural hazards; d. biodiversity and habitat; e. cultural heritage; f. scenic amenity; g. water quality. 	<p>AO17.1 Development envelope areas are provided when a lot is less than the specified lot sizes or the site is affected by overlays, infrastructure, easement/s or buffers.</p> <p>AO17.2 Development envelope areas:</p> <ul style="list-style-type: none"> a. include land within the net developable area; or b. are positioned in one location; c. exclude areas for future infrastructure or infrastructure corridors; d. excludes areas required as buffers to adjacent rural activities. <p>AO17.3 The development envelope area is accessible by a constructed road consistent with Planning Scheme Policy 6 Infrastructure design.</p> <p>AO17.4 Each lot has a development envelope area in one location that is consistent with the requirements in Table 9.5.1-6: Minimum development envelope and dimension.</p>
Staged development	
<p>PO18 Staged development is planned, designed and constructed to ensure each stage can function independent of the development of later stages and there is a logical pattern of development.</p>	<p>AO18.1 Staged development occurs in a logical and orderly form and sequence.</p> <p>AO18.2 The infrastructure and services for each stage can function effectively independent of the delivery of later stages.</p> <p>AO18.3 Where staging results in only part of a road being constructed (with the full length of the road to be completed at a future stage), a temporary sealed cul-de-sac is provided within the stage boundary and the new road reserve, at the end of the road until later stages are completed.</p>
Connectivity	

<p>PO19 Development facilitates logical and orderly future development by providing for connectivity of infrastructure networks and services to adjacent land and provides for cost effective delivery of expanded networks.</p>	<p>AO19.1 The layout allows for the future connectivity of the transportation network and other infrastructure services to adjacent land to facilitate a logical, orderly sequence of future development.</p>
<p>PO20 The reconfiguration provides connectivity for pedestrians by:</p> <ul style="list-style-type: none"> a. ensuring that any roads constructed or extended in association with the reconfiguration are connected in a grid-like pattern that is responsive to topography and other physical constraints; b. ensuring that, to the extent topography and other physical constraints reasonably permit, roads and footpaths: <ul style="list-style-type: none"> i. connect to roads and footpaths in surrounding areas; or ii. allow for connection to future roads and footpaths in surrounding areas. 	<p>No acceptable outcome is nominated.</p>
<p>PO21 Development results in a safe and connected network of walkable neighbourhoods by providing:</p> <ul style="list-style-type: none"> a. a grid-like street network and quality streetscape; b. a movement network that prioritises pedestrians and cyclists to create a comfortable, walkable neighbourhood; c. a movement network that integrates with the networks within the surrounding area including connections to the public transport; d. a compact, well-connected and integrated neighbourhood with environmental corridors, open space and recreation facilities, community facilities, centres and places of employment in the surrounding area; e. connection to the existing open space network; f. sufficient land for open space and community facilities to service the community needs; g. separation buffers to incompatible zones and land uses. 	<p>AO21.1 In urban areas, development provides for convenient pedestrian movement by ensuring the length of each boundary of a block for the reconfiguration does not exceed 250m.</p> <p><i>Note—This does not apply in relation to lot that will be subdivided as part of a future stage of development</i></p> <p>AO21.2 Development in urban areas, does not create new cul-de-sac streets unless there is a physical feature or incompatible zone change that dictates the need to use cul-de-sac streets.</p> <p>AO21.3 Where a cul-de-sac street is used, in urban areas it:</p> <ul style="list-style-type: none"> a. is designed to be no longer than 150m in length; b. is designed so that the end of the cul-de-sac is visible from its entrance; c. provides connections from the top of the cul-de-sac to other streets for pedestrians and cyclists with a minimum width of 6m and a maximum length of 30m. <p>AO21.4 Neighbourhood identity or urban areas is reinforced by locating community, retail and commercial facilities at focal points within convenient walking distance (e.g. up to 800m) for residents.</p> <p>AO21.5 Street blocks in urban areas provide a mid-block path for active transport networks to improves connectivity to open space and recreation facilities, community facilities, centres and places of employment.</p> <p><i>Note—Compliance with this Acceptable Outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p> <p>AO21.6 Development in urban areas provides shade for comfortable walking by planting of a minimum of 1 tree for each 15m of road frontage on each side of a new road.</p> <p><i>Note— The above street tree requirements only apply to residential zones in all urban areas.</i></p> <p>AO21.7 Development in urban areas provides for convenient and comfortable pedestrian movement by ensuring a footpath is constructed on at least 1 side of the new road.</p>

<p>PO22 Gated communities or subdivisions that involve common property retains connected and integrated infrastructure networks (e.g. open space, roads, water etc.).</p>	<p>No acceptable outcome is nominated.</p>
<p>Transport networks and connectivity</p>	
<p>PO23 Lots have a lawful access to a constructed road that maintains or improves safety and efficiency without compromising the road hierarchy or function.</p>	<p>AO23.1 Access design is consistent with Table 9.5.1-5: Access requirements.</p> <p>AO23.2 Lots have vehicular access to:</p> <ul style="list-style-type: none"> a. a constructed road when in the following zones: <ul style="list-style-type: none"> a. Conservation zone; b. Limited development zone; c. Rural zone; b. a constructed sealed road in all other zones.
<p>PO24 Road geometry is designed and constructed to:</p> <ul style="list-style-type: none"> a. be consistent with OM15 Road hierarchy overlay; b. be safe and cost effective; c. encourage efficient traffic flow consistent with road function; d. accommodate utilities, on-street parking, lot accesses, street trees and active transport networks; e. allow unhindered access by service and emergency vehicles. 	<p>AO24.1 The design of streets is consistent with Planning Scheme Policy 6 Infrastructure design.</p> <p>AO24.2 Where a cul-de-sac is proposed, the cul-de-sac head:</p> <ul style="list-style-type: none"> a. is designed to allow a three-point turn by a medium-rigid vehicle; b. is designed to accommodate both on-street parking and medium-rigid vehicle movement, at the same time. <p>AO24.3 Laneways (including rear lanes) are designed to:</p> <ul style="list-style-type: none"> a. provide enough width for safe and efficient vehicle movement, including by service and emergency vehicles; b. be a slow speed environment and shared zone for pedestrians, cyclists and vehicles; c. not be longer than 140m without a mid-street block path for pedestrians and cyclists to access to an adjoining street; d. not be a dead-end or cul-de-sac.
<p>PO25 Subdivision provides transport network connections that assist Emergency services access and operations by:</p> <ul style="list-style-type: none"> a. providing safe evacuation routes for people; b. ensuring a high level of connectivity to the wider transport network; c. maximising the flow of traffic in the road network by minimising junctions that stop or impede traffic flow; d. ensuring routes allow the dispersion of traffic ahead of Emergency services and for an evacuating population. 	<p>AO25.1 The subdivision layout ensures that lots are within 3km of the nearest collector road or a higher order road, following the road network.</p> <p>AO25.2 Residential subdivision provides road network connections and access to a collector road or a higher order road consistent with Table 9.5.1-7: Minimum road network connections.</p>
<p>PO26 Development is designed and constructed to provide efficient, safe and accessible public transport services that connect to existing and planned future public passenger transport facilities and other transport modes with active transport as a priority over motor vehicles.</p>	<p>AO26.1 Development is designed and constructed to:</p> <ul style="list-style-type: none"> a. maximise patron catchment and accessibility for all users; b. provide an efficient and cost-effective public transport service and facilities adjacent to or through the site; c. provide safe, direct, convenient and attractive linkages to existing and future planned public transport facilities; d. protect existing and planned future public transport infrastructure locations from encroachment. <p>AO26.2 Roads catering for buses:</p> <ul style="list-style-type: none"> a. are arterial, sub-arterial, distributor or collector roads; b. provide universally accessible routes; c. provide for the shortest and most direct route for an efficient public transport service; and d. provide a cost effective service adjoining or adjacent to development areas. <p>AO26.3 Roads catering for buses provide convenient connections to existing and future public passenger transport</p>

	<p>facilities.</p> <p>AO26.4 Development on a bus route protects bus stop infrastructure and the efficient running of bus services.</p> <p><i>Editor's note—Any public transport infrastructure designed should be consistent with Department of Transport and Main Roads, Public transport infrastructure manual.</i></p> <p>AO26.5 The road network supports modal interchange by integrating with existing and future planned public passenger transport facilities.</p> <p>AO26.6 Development provides direct and convenient pathway linkages between existing and planned future public passenger transport facilities.</p> <p>AO26.7 Development within 400m (radial distance) of an existing or planned future public transport facility or route provides pedestrian or cycle network links and convenient through-site connections for pedestrians and cyclists to the public transport infrastructure, consistent with Planning Scheme Policy 6 Infrastructure design.</p> <p><i>Editor's note—OM15 Road hierarchy overlay, Planning Scheme Policy 6 Infrastructure design and Department of Transport and Main Roads' Public transport infrastructure manual identifies the design standards for public transport infrastructure.</i></p>
<p>PO27 Development prioritises the planning, design and construction of active transport networks over the use of motor vehicles and:</p> <ol style="list-style-type: none"> provides a high level of connection both within the neighbourhood and to surrounding areas for pedestrians, cyclists, vehicles and where required, public transport; links to schools, open space and recreational facilities, Shops and other community facilities; maximises sightlines and opportunities for casual surveillance, avoiding concealment points and being well lit; protects the retention of trees and responds to site features; minimises potential vehicle conflicts or provides a safe design solution. <p><i>Note—Compliance with this performance outcome may be demonstrate by a Transport assessment consistent with planning and design principles of the Walking Network Planning Guidance and Public Transport Infrastructure Manual.</i></p>	<p>AO27.1 Active transport networks provide for the shortest possible connections between and within neighbourhoods to community facilities and are overlooked by residences for most of their length, with no major breaks in surveillance.</p> <p>AO27.2 In urban areas, at least 60% of lots are within 400m walking distance of roads that can support a bus route.</p> <p><i>Note—The Transport, access and parking code also contains relevant requirements for the design and construction of new roads.</i></p> <p>AO27.3 The planning, design and construction of active transport networks is consistent with pedestrian and cycling aspects of Austroads Guides.</p> <p>AO27.4 Safe active transport networks to and through the site are provided with shade trees, graded paths and lighting.</p> <p>AO27.5 Pathways are provided to cater for both commuting and recreational uses.</p> <p>AO27.6 Pathways have ramps at all kerbs designed for wheelchair and pram access across roads.</p> <p>AO27.7 Pathways are adequately lit and have navigational signs.</p> <p>AO27.8 Active transport networks are designed and constructed to:</p> <ol style="list-style-type: none"> provide a stable, smooth surface, including across driveways, sections and joins; be easily maintained; have a width and longitudinal gradient to cater for projected use; provide clear sightlines for safe use; and

	<p>e. be free of any obstructions such as fences, signage and bollards.</p> <p>AO27.9 Footpaths are provided along the road frontages of residential land, public parks and business uses.</p>
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Vehicle transport network design

<p>PO28 Roads and active transport paths are planned and designed to support the function of the road hierarchy and ensure that design and alignment of roads, intersections and all associated works:</p> <ul style="list-style-type: none"> a. convey the primary function of each type of street; b. provide a safe environment for all users; c. are adequate for the design speed environment; d. are adequate for predicted traffic volumes; e. maintains the safe and efficient functioning of the road network incorporating roundabouts as a preference to T intersections; f. are compatible with existing infrastructure; g. are easily maintained by Council equipment; and h. where appropriate, can accommodate public transport services; i. road pavement surfaces are durable enough to carry estimated wheel loads of travelling and parked vehicles; j. provide for the safe passage of pedestrians, cyclists, vehicles and stormwater discharge from contributing catchments and the preservation of all-weather access; k. prevent edge fretting; l. include kerb and channel; m. controls vehicle movement by delineating the roadway for all users; n. conveys road pavement runoff to the stormwater drainage network; o. provide verges and footpaths are provided; p. provide safe access for pedestrians and cyclists clear of obstructions; q. provide an access area for vehicles onto the premises; r. provide a corridor allocated for services and utilities. 	<p>AO28.1 Road planning and design is consistent with Planning Scheme Policy 6 Infrastructure design.</p>
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External works and infrastructure

<p>PO29 Development is provided with external works along the full extent of the frontage of the site to a standard that has regard to the specified function of the road.</p>	<p>AO29.1 Where not already existing, the following infrastructure is provided along the full frontage of the site:</p> <ul style="list-style-type: none"> a. full width sealed road; b. concrete kerb and channel; c. forming and grading to footpaths; d. vehicular kerb and footpath crossings; e. a constructed cycleway/s; f. a constructed footpath/s; g. stormwater drainage; h. any necessary changes to service infrastructure.
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Park and open space facilities

<p><i>Note—Refer to schedule 12A of the Planning Regulation, Assessment benchmarks for particular reconfiguring a lot.</i></p>	
<p>PO30 The reconfiguration ensures access to areas for recreation, leisure or exercise by ensuring that, to the extent topography and other physical constraints reasonably permit, a part of each block for the reconfiguration is within 400m of a park or another area of open space that is accessible to the public.</p> <p><i>Note—in this section, park includes:</i></p> <ul style="list-style-type: none"> a. an existing park; b. a park, to be provided under a development approval, if 	<p>No acceptable outcome is nominated.</p>

<p><i>development of the park has started;</i> c. <i>land identified in an LGIP (Local Government Infrastructure Plan) for public park infrastructure.</i></p>	
<p>PO31 Neighbourhood design provides for a safe and accessible open space network that:</p> <ol style="list-style-type: none"> accommodates the planned location of trunk open space infrastructure; contributes to the legibility and character of the neighbourhood by providing a focus point for the community; links to existing Park or open space networks wherever possible; provides for a multi-functional role in providing for active transport linkages, recreation, stormwater management and the protection of cultural and environmental values; meets the community's needs and is designed to maximise use by the community it serves; minimises future maintenance cost burden on Council; offers a broad range of informal and formal experiences to the community including providing parks that range in size and type. 	<p>No acceptable outcome is nominated.</p> <p><i>Note—The local government infrastructure plan identifies the general location and desired standards of service for trunk open space infrastructure. Non-trunk open space is designed to be consistent with Planning Scheme Policy 6 Infrastructure Design.</i></p>
<p>PO32 The design and layout of streets and lots assist casual surveillance of and access to parks.</p> <p><i>Note—Compliance with this Performance outcome may be demonstrated by providing a design concept plan that is consistent with the State government Crime Prevention Through Environmental Design Guidelines for Queensland.</i></p>	<p>AO32.1 Street and lot layout results in at least 75% of the perimeter of parks to be fronted by a road</p>
<p>PO33 Sufficient land is provided for open space and community facilities appropriate to the characteristics of the neighbourhood and local community needs.</p> <p><i>Note—Council's Local Government Infrastructure Plan sets out the desired standards of service for land for Park and community facilities, including the land area requirements.</i></p>	<p>No acceptable outcome is nominated.</p>
<p>Buffers to incompatible uses or zones</p>	
<p>PO34 Where development adjoins an incompatible use or zone, including subdivision of land adjoining land in the Rural zone, a buffer is provided to protect the amenity of the development and any adverse impacts on the incompatible use or zone, so the following do not occur:</p> <ol style="list-style-type: none"> neighbourhood conflicts; or environmental nuisance; or economic loss through changed operations. 	<p>AO34.1 New residential lots are designed so future residential uses are oriented away and buffered from existing rural and industrial uses and zones.</p> <p>AO34.2 A buffer for the full length of the boundary to the incompatible land uses is provided and:</p> <ol style="list-style-type: none"> is no less than 20m wide; has dense landscaping consistent with requirements of the landscaping code; has acoustic screening along the boundaries; is protected by a legal instrument to prevent clearing of the buffer area. <p><i>Editor's note—Refer to overlay maps and overlay codes for buffers to ALC Class A & B soils and infrastructure</i></p>
<p>Environmental protection</p>	
<p>PO35 Road infrastructure is located and aligned to:</p> <ol style="list-style-type: none"> minimise disturbance to soils, vegetation and/or other habitat areas; protect and maintain wildlife corridor movements and the safety of native fauna; provide for compensatory habitat establishment and maintenance; minimise changes to the hydrological regime, including 	<p>AO35.1 Roads follow the edge of existing disturbed areas, or these works are co-located with other services within a combined utility corridor.</p> <p>AO35.2 Low impact construction techniques are used around areas of vegetation to be retained to minimise interference with the vegetation.</p>

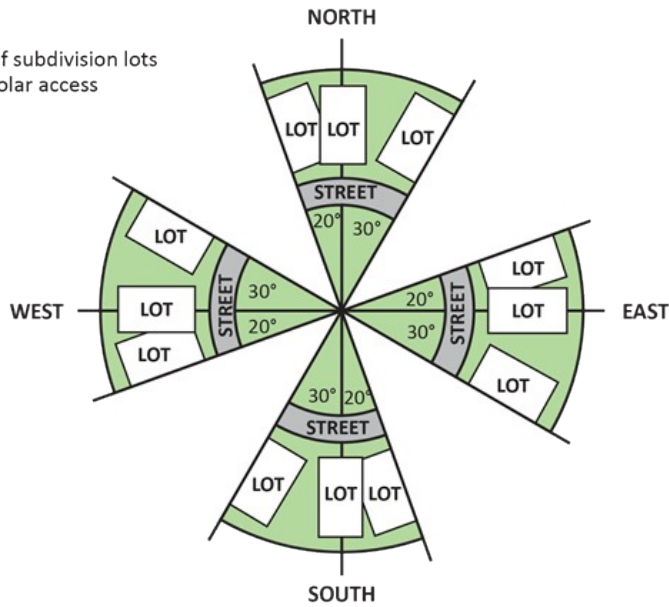
<p>drainage patterns, runoff and water quality;</p> <p>e. avoid crossing watercourses, drainage lines and wetlands, but where such crossings are unavoidable, disturbed areas are reinstated and revegetated on completion of works;</p> <p>f. minimise bulk earthworks.</p>	<p>AO35.3 Roads avoid vegetation and provide fauna movement corridors and protection measures.</p> <p><i>Editor's note—Measures may include green infrastructure such as fauna underpasses, ropes, exclusion fencing and the like.</i></p> <p>AO35.4 Road infrastructure within or adjoining vegetation incorporates fences which allow for protected wildlife movement and controls unrestricted access of domestic cats and dogs.</p> <p>AO35.5 Vegetation is protected from clearing or construction activities by:</p> <ol style="list-style-type: none"> clearly marking vegetation to be retained with flagging tape; installing protective fencing around the dripline of vegetation; ensuring stockpiling, storage and vehicle parking occur outside the areas of vegetation to be retained. <p>AO35.6 Where clearing of habitat is unavoidable, once the area disturbed by the works is re-established, replacement habitat is planted in proximity of the works to create native fauna habitat suitable for the area and maintained for the life of the works.</p>
<p>Existing dams</p>	
<p>PO36 Existing dams in urban areas and the Rural residential zone are removed unless repurposed for stormwater management purposes.</p> <p><i>Note—Compliance with this Performance Outcome may require a management plan by suitably qualified engineer in accordance with:</i></p> <ol style="list-style-type: none"> <i>Planning Scheme Policy 9 Stormwater Management;</i> <i>Queensland Dam Safety Management Guideline;</i> <i>Salinity investigation and management plan consistent with the Queensland Government Salinity Management Handbook.</i> 	<p>AO36.1 Development in urban areas and the Rural residential zone removes all dams unless they can be repurposed for the stormwater drainage network.</p> <p>AO36.2 The land affected by a dewatered dam shall be returned to a natural state by:</p> <ol style="list-style-type: none"> shaping the land to reform a naturalised channel where part of an overland flow path; or compaction of the soil to create flat land; and consistent with a development approval. <p><i>Note—A fauna spotter catcher may need to conduct a pre-works survey and relocate wildlife where necessary before and during draining and/or filling of dams.</i></p>

Figure 9.5-1: Diversity in housing choice and configuration



Figure 9.5-2: Lot orientation outcomes

Orientation of subdivision lots to optimise solar access



Examples of a subdivision pattern after applying the principles

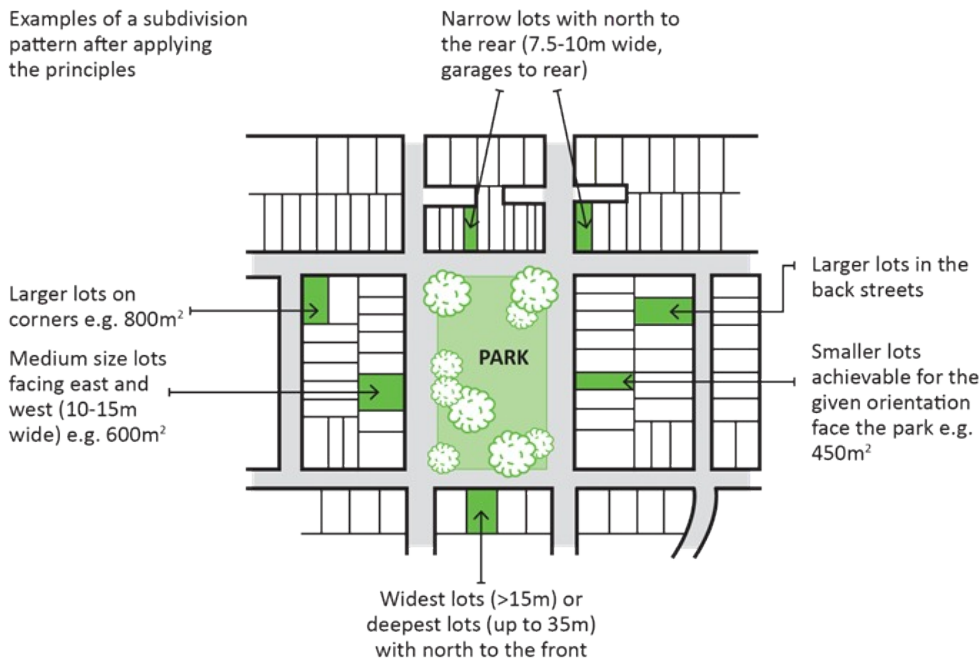


Figure 9.5-3: Rear access lot design

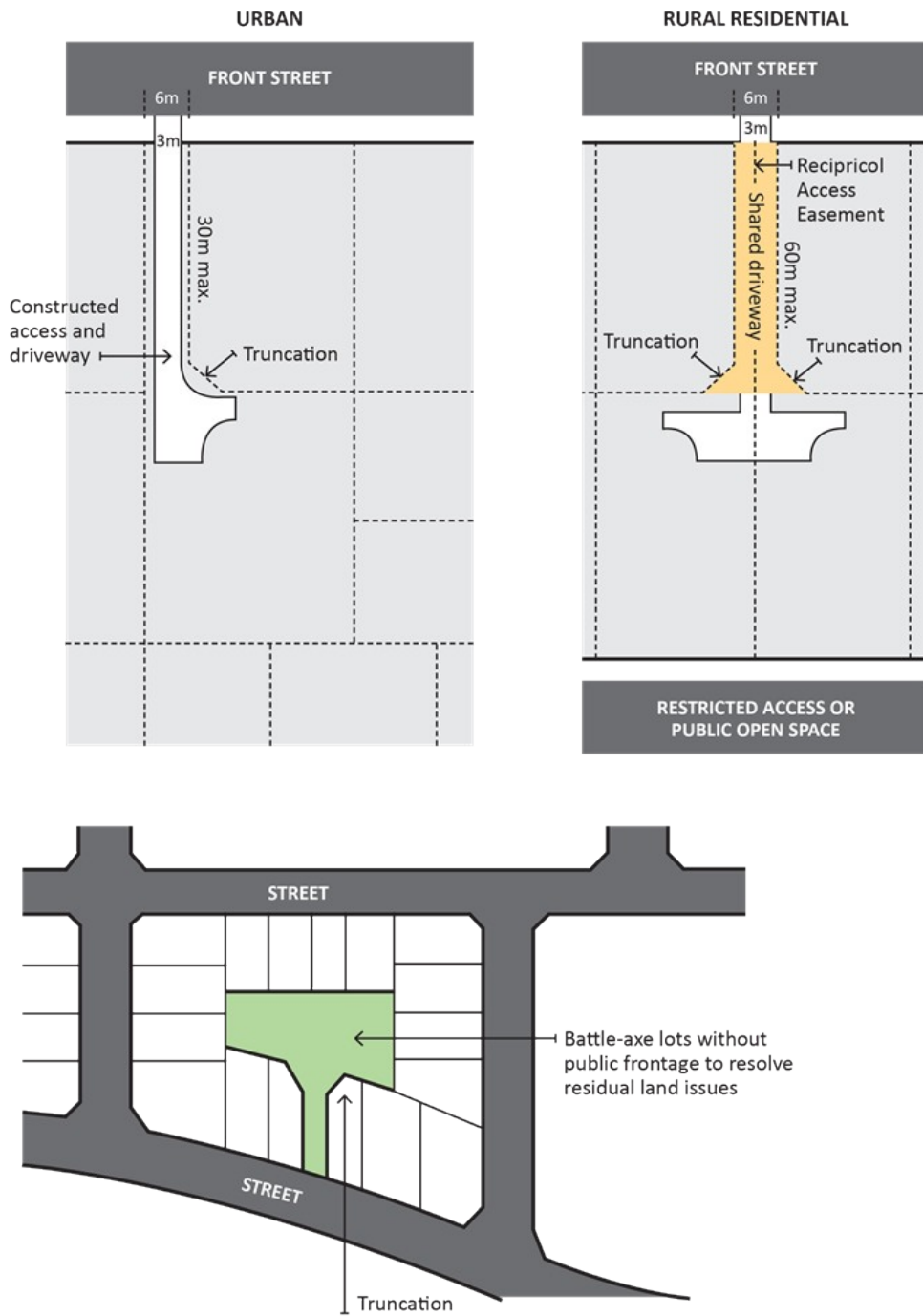


Figure 9.5-4: Mix of residential lot size and densities

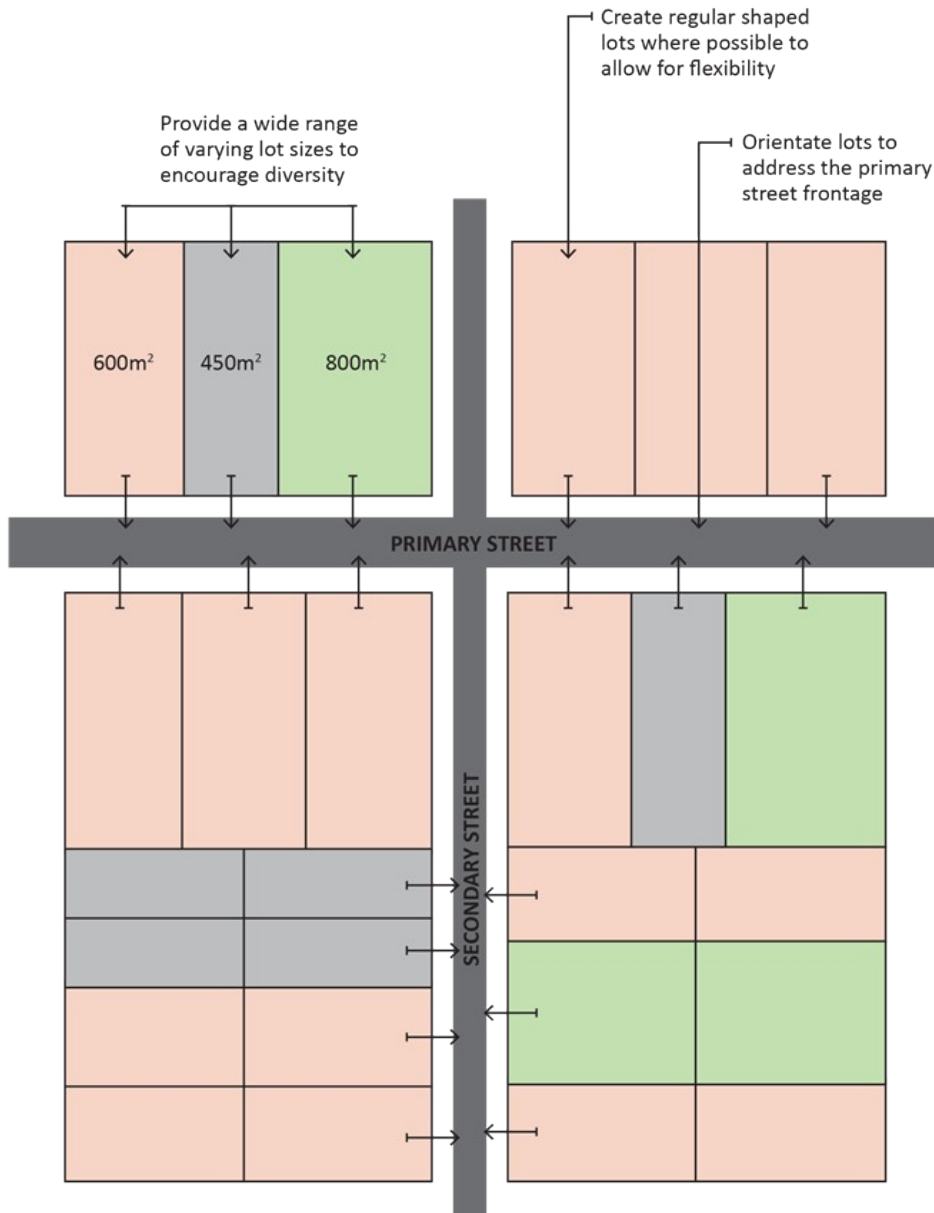


Table 9.5.1-4: Minimum lot size and dimensions

Note—Where a zone is not listed in the table below, there is no nominated minimum lot size, frontage, rectangle or nominated minimum widths for that zone.

Editor's note—A minimum rectangle is not a development envelope area or development footprint. The rectangle is a tool to show lots can accommodate a regular building form.

ZONE	MINIMUM LOT SIZE <i>NOTE—THE MINIMUM LOT SIZE EXCLUDES ANY ACCESS STRIP</i>	MINIMUM FRONTAGE	MINIMUM RECTANGLE
Community facilities zone	No additional lots	20m	Not specified
Conservation zone	200ha or no additional lots	200m	Not specified

Emerging community zone	20ha; or As identified within an approved structure plan	200m; or As identified within an approved structure plan.	Not specified
Industry zone	4,000m ²	40m	30m x 40m
Limited development zone	No additional lots	Not specified	Not specified
Local centre zone	800m ²	20m	18m x 20m
Low density residential zone			
Suburban Precinct	600m ²	15m; or 10m, if a small residential lot	10m x 15m; or 8m x 12m, if a small residential lot
Acreage Precinct	3,000m ²	35m	30m x 60m
Low-medium density residential zone	350m ²	15m; or 10m, if a small residential lot	10m x 15m; or 8m x 12m, if a small residential lot
Major centre zone	800m ²	20m	18m x 20m
Mixed use zone			
No precinct	800m ²	20m	18m x 20m
Highway precinct	No additional lots	Not specified	Not specified
Open space zone Sport and recreation zone	Local park — 5,000m ² District park — 1.4ha Regional park — 6ha District sports park — 4h Regional sports park — 10ha	Local park - 25m District park - 50m Regional park - 100m	Local park - 25m x 50m District park - 50m x 100m Regional park - 100m x 300m
Principal centre zone	800m ²	20m	18m x 20m
Rural zone	100ha	200m	Not specified
Rural residential zone			
Small	4,000m ²	35m	35m x 60m
Medium	2ha	60m	40m x 60m
Large	4ha	60m	40m x 60m
No Subdivision Precinct	No additional lots	Not specified	Not specified
Township zone	No additional lots	30m	30m x 50m

Table 9.5.1-5: Access requirements

ACCESS DESIGN REQUIREMENT	URBAN ZONES	RURAL RESIDENTIAL LESS THAN 4,000M ²	RURAL RESIDENTIAL 4,000M ² OR MORE	RURAL
Standard of driveway construction	Sealed concrete; or Permeable paving where the slope is less than 7%	Sealed asphalt; or Sealed concrete; or Permeable paving where the slope is less than 7%	Sealed asphalt; or Sealed concrete; or Unsealed compacted all-weather gravel where the slope is less than 7%	unsealed compacted all-weather gravel
Maximum driveway length	30m	60m		60m
Minimum access width of strip	6m 8m - Industry zone			10m
Minimum truncation	2m x 2m truncation 6m x 6m truncation - Industry zone			3m x 3m truncation

Minimum width where reciprocal easement/s	3m	5m
Minimum width of each driveway	3m 6m - Industry zone	4m
Minimum passing bays dimensions and location	5.5m wide x 6m long passing bay is provide at the access entry and then at 30m intervals	

Table 9.5.1-6: Minimum development envelope and dimension

ZONE	DEVELOPMENT ENVELOPE AREA	MINIMUM DIMENSION
Low density residential zone, Suburban precinct Low medium density residential zone	300m ²	10m
Low density residential zone, Rural residential zone	2,500m ²	20m
Mixed use zone, centre zones	400m ²	10m
Industry zone	3,000m ²	20m

Table 9.5.1-7: Minimum road network connections

NUMBER OF LOTS OR DWELLINGS IN A CATCHMENT	MINIMUM NUMBER OF CONNECTION ROADS	MAXIMUM NUMBER OF DWELLINGS OR LOTS FOR EACH CONNECTION
1-50	1	50
51-300	2	150
301-600	3	200
601+	4	-

Note—Connection roads include roads classed as collector roads or higher order roads on OM15 Road hierarchy overlay.

Part 10 Other plans

10.1 Preliminary

1. There are no Other plans for the Lockyer Valley Planning Scheme.

Schedule 1 Definitions

SC1.1 Use definitions

1. The use definitions listed in Table SC1.1-2 have a particular meaning for the purpose of the planning scheme.
2. Any use not listed in Table SC1.1-2, column 1, Use is an undefined use.

Editor's note—Development comprising a combination of defined uses is not considered to be an undefined use.

3. A use listed in Table SC1.1-2, column 1, use has the meaning set out beside that term in column 2.
4. Column 2 of Table SC1.1-2 may identify examples of activities that are consistent with the use identified in column 1. These examples are not an exhaustive list and do not form part of the definition.

Table SC1.1-1: Index of use definitions

Index of use definitions		
Adult store	Funeral parlour	Relocatable home park
Agricultural supplies store	Garden centre	Renewable energy facility
Air service	Hardware and trade supplies	Research and technology industry
Animal husbandry	Health care service	Residential care facility
Animal keeping	High impact industry	Resort complex
Aquaculture	Home-based business	Retirement facility
Bar	Hospital	Roadside stall
Battery storage facility	Hotel	Rooming accommodation
Brothel	Indoor sport and recreation	Rural industry
Bulk landscape supplies	Intensive animal industry	Rural workers' accommodation
Car wash	Intensive horticulture	Sales office
Caretaker's accommodation	Low impact industry	Service industry
Cemetery	Major electricity infrastructure	Service station
Childcare centre	Major sport, recreation and entertainment facility	Shop
Club	Market	Shopping centre
Community care centre	Medium impact industry	Short-term accommodation
Community residence	Motor sport facility	Showroom
Community use	Multiple dwelling	Special industry
Crematorium	Nature-based tourism	Substation
Cropping	Nightclub entertainment facility	Telecommunications facility
Detention facility	Office	Theatre
Dual occupancy	Outdoor sales	Tourist attraction
Dwelling house	Outdoor sport and recreation	Tourist park
Dwelling unit	Outstation	Transport depot
Educational establishment	Park	Utility installation
Emergency services	Parking station	Veterinary service
Environment facility	Party house	Warehouse
Extractive industry	Permanent plantation	Wholesale nursery
Food and drink outlet	Place of worship	Winery
Function facility		Workforce accommodation

Table SC1.1-2: Use definitions

COLUMN 1 USE	COLUMN 2 DEFINITION
Adult store	The use of premises for the primary purpose of displaying or selling— a. sexually explicit materials; or b. products and devices that are associated with, or used in, a sexual practice or activity.
Agricultural supplies store	The use of premises for the sale of agricultural supplies and products. <i>Examples of Agricultural supplies and products—animal feed, bulk veterinary supplies, chemicals used in agricultural activities, farm clothing, fertilisers, irrigation materials, saddlery, seeds</i>
Air service	The use of premises for— a. the arrival or departure of aircraft; or

	<p>b. housing, servicing, refuelling, maintaining or repairing aircraft; or c. the assembly and dispersal of passengers or goods on or from an aircraft; or d. training and education facilities relating to aviation; or e. aviation facilities; or f. an activity that— i. is ancillary to an activity or facility stated in paragraphs a. to e.; ii. directly services the needs of aircraft passengers.</p> <p><i>Examples of an Air service—airport, air strip, helipad</i></p>
Animal husbandry	<p>The use of premises for— a. producing animals or animal products on native or improved pastures or vegetation; or b. a yard, stable, temporary holding facility or machinery repairs and servicing, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of Animal husbandry—cattle stud, grazing of livestock, non-feedlot dairy</i> <i>Excludes—Animal keeping, apiculture, Aquaculture, aviary, cattery, domestic pets, Intensive animal industry, kennel, stables, wildlife refuge</i></p>
Animal keeping	<p>The use of premises for— a. boarding, breeding or training animals; or b. a holding facility or machinery repairs and servicing, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of Animal keeping—aviary, cattery, kennel, stable, wildlife refuge</i> <i>Excludes—Animal husbandry, apiculture, Aquaculture, cattle studs, domestic pets, feedlots, grazing of livestock, Intensive animal industry, non-feedlot dairying</i></p>
Aquaculture	<p>The use of premises for cultivating, in a confined area, aquatic animals or plants for sale.</p> <p><i>Examples of Aquaculture—hatchery, pond farm, raceway system, rack and line system</i> <i>Excludes—Intensive animal industry</i></p>
Bar	<p>The use of premises, with seating for 60 or less people, for— a. selling liquor for consumption on the premises; or b. an entertainment activity, or preparing and selling food and drink for consumption on the premises, if the use is ancillary to the use in paragraph a.</p> <p><i>Excludes—Hotel</i></p>
Battery storage facility	<p>The use of premises for the operation of 1 or more battery storage devices.</p>
Brothel	<p>See the <i>Prostitution Act, schedule 4</i>.</p> <p><i>Editor's note—Defined under schedule 4 of the Prostitution Act, Brothel means premises made available for prostitution by 2 or more prostitutes at the premises.</i></p>
Bulk landscape supplies	<p>The use of premises for the bulk storage and sale of mainly non-packaged landscaping and gardening supplies, including, for example, soil, gravel, potting mix, or mulch.</p> <p><i>Excludes—Garden centre</i></p>
Car wash	<p>The use of premises for the commercial cleaning of motor vehicles.</p>
Caretaker's accommodation	<p>The use of premises for a dwelling for a caretaker of a non-residential use on the same premises.</p>
Cemetery	<p>The use of premises for the interment of bodies or ashes after death.</p> <p><i>Examples of a Cemetery—burial ground, columbarium, crypt, lawn cemetery, mausoleum, pet cemetery</i> <i>Excludes—Crematorium</i></p>
Childcare centre	<p>The use of premises for the care, education and minding, but not residence, of children.</p> <p><i>Examples of a Childcare centre—before or after school care, crèche, early childhood centre, kindergarten, vacation care</i> <i>Excludes—Home-based business where home-based childcare or family day care</i></p>
Club	<p>The use of premises for— a. an association established for social, literary, political, sporting, athletic or other similar</p>

	<p>purposes; or</p> <p>b. preparing and selling food and drink, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of a Club—bowls club, club house, guide or scout club, RSL</i> <i>Excludes—Food and drink outlet, Bar, Hotel, Nightclub entertainment facility</i></p>
Community care centre	<p>a. The use of premises for—</p> <ol style="list-style-type: none"> i. providing social support to members of the public; or ii. providing medical care to members of the public, if the use is ancillary to the use in subparagraph i; but <p>b. does not include the use of premises for providing accommodation to members of the public.</p> <p><i>Examples of a Community care centre—disability support service, drop-in centre, indigenous support centre, respite centre</i></p>
Community residence	<p>a. The use of premises for residential accommodation for—</p> <ol style="list-style-type: none"> i. no more than— <ol style="list-style-type: none"> A. 6 children, if the accommodation is provided as part of a program or service under the <i>Youth Justice Act</i>; or B. 6 persons who require assistance or support with daily living needs; and ii. no more than 1 support worker; and <p>b. includes a building or structure that is reasonably associated with the use in paragraph a.</p> <p><i>Examples of a Community care centre— specialist disability accommodation</i> <i>Excludes—Rooming accommodation.</i></p>
Community use	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. providing artistic, social or cultural facilities or community services to the public; or b. preparing and selling food and drink, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Community use—art gallery, community centre, community hall, library, museum</i> <i>Excludes—Indoor sport and recreation, Theatre</i></p>
Crematorium	<p>The use of premises for the cremation or aquamation of bodies.</p> <p><i>Excludes—Cemetery</i></p>
Cropping	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. growing and harvesting plants, or plant material, that are cultivated in soil, for commercial purposes; or b. harvesting, storing or packing plants or plant material grown on the premises, if the use is ancillary to the use in paragraph a.; or c. repairing and servicing machinery used on the premises, if the use is ancillary to the use in paragraph a. <p><i>Examples of Cropping—forestry for wood production, fodder and pasture production, producing fruit, nuts, vegetables and grains, plant fibre production, sugar cane growing, vineyard</i></p>
Detention facility	<p>The use of premises for the lawful detention of persons.</p> <p><i>Example of a Detention facility—correctional facility, detention centre, prison, youth detention centre</i></p>
Dual occupancy	<ol style="list-style-type: none"> a. A residential use of premises involving— <ol style="list-style-type: none"> i. 2 dwellings (whether attached or detached) on separate lots that share a common property; and ii. any domestic outbuilding associated with the dwellings; but b. does not include a residential use of premises that involves a secondary dwelling.
Dwelling house	<p>A residential use of premises involving—</p> <ol style="list-style-type: none"> a. 1 dwelling and any domestic outbuildings associated with the dwelling; or b. 2 dwellings, 1 of which is a secondary dwelling and any domestic outbuildings associated with either dwelling.
Dwelling unit	<p>The use of premises containing a non-residential use for a single dwelling, other than a dwelling for a caretaker of the non-residential use.</p> <p><i>Examples of a Dwelling unit—single ‘shop-top’ apartment</i></p>

Educational establishment	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. training and instruction to impart knowledge and develop skills; or b. student accommodation, before or after school care, or vacation care, if the use is ancillary to the use in paragraph a. <p><i>Examples of an Educational establishment—college, outdoor education centre, preparatory school, primary school, secondary school, special education facility, technical institute, university</i></p>
Emergency services	<p>The use of premises by a government entity or community organisation to provide—</p> <ol style="list-style-type: none"> a. essential emergency services; or b. disaster management services; or c. management support facilities for the services. <p><i>Examples of Emergency services—ambulance station, auxiliary fire and rescue station, emergency management support facility, evacuation centre, fire station, police station, rural fire brigade, State emergency service facility, urban fire and rescue station</i></p>
Environment facility	<ol style="list-style-type: none"> a. The use of premises or a facility for the appreciation, conservation or interpretation of an area of cultural, environmental or heritage value; but b. does not include the use of premises to provide accommodation for tourists and travellers. <p><i>Examples of Environment facility—bird hide, boardwalk, nature-based attraction, observation deck, seating, shelter, walking track</i> <i>Excludes—Park</i></p>
Extractive industry	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. extracting or processing extractive resources; and b. any related activities, including, for example, transporting the resources to market. <p><i>Examples of Extractive industry—quarry</i></p>
Food and drink outlet	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. preparing and selling food and drink for consumption on or off the premises; or b. providing liquor for consumption on the premises, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Food and drink outlet—bistro, cafe, coffee shop, drive-through facility, kiosk, milk bar, restaurant, snack bar, takeaway shop, tearoom</i></p>
Function facility	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. receptions or functions; or b. preparing and providing food and liquor for consumption on the premises as part of a reception or function. <p><i>Examples of a Function facility—conference centre, reception centre</i></p>
Funeral parlour	<ol style="list-style-type: none"> a. The use of premises for— <ol style="list-style-type: none"> i. arranging and conducting funerals, memorials and other similar events; or ii. a mortuary; or iii. storing and preparing bodies for burial or cremation; but b. does not include the use of premises for the burial or cremation of bodies. <p><i>Excludes—Cemetery, Crematorium, Place of worship</i></p>
Garden centre	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. selling plants; or b. selling gardening and landscape products and supplies that are mainly in pre-packaged form; or c. a Food and drink outlet that is ancillary to the use in paragraph a. <p><i>Examples of a Garden centre—retail plant nursery</i></p>
Hardware and trade supplies	<p>The use of premises for selling, displaying or hiring hardware and trade supplies, including, for example, house fixtures, timber, tools, paint, wallpaper or plumbing supplies.</p>
Health care service	<p>The use of premises for medical purposes, paramedical purposes, alternative health therapies or general health care, if overnight accommodation is not provided on the premises.</p>

	<i>Examples of a Health care service—dental clinic, medical centre, natural medicine practice, nursing service, physiotherapy clinic</i>
High impact industry	The use of premises for an industrial activity— a. that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and b. that a local planning instrument applying to the premises states is a High impact industry; and c. that complies with any thresholds for the activity stated in a local planning instrument applying to the premises, including, for example, thresholds relating to the number of products manufactured or the level of emissions produced by the activity.
Home-based business	The use of a dwelling or domestic outbuilding on premises for a business activity that is subordinate to the residential use of the premises. <i>Examples of a Home-based business —Bed and breakfast, home office, home-based childcare</i>
Hospital	The use of premises for— a. the medical or surgical care or treatment of patients, whether or not the care or treatment requires overnight accommodation; or b. providing accommodation for patients; or c. providing accommodation for employees, or any other use, if the use is ancillary to the use in paragraph a. or b.
Hotel	a. The use of premises for— i. selling liquor for consumption on the premises; or ii. a dining or entertainment activity, or providing accommodation to tourists or travellers, if the use is ancillary to the use in subparagraph i.; but b. does not include a bar. <i>Examples of a Hotel—pub, tavern</i> <i>Excludes—Nightclub entertainment facility</i>
Indoor sport and recreation	The use of premises for a leisure, sport or recreation activity conducted wholly or mainly indoors. <i>Examples of Indoor sport and recreation—amusement parlour, bowling alley, gymnasium, squash court</i> <i>Excludes—Theatre</i>
Intensive animal industry	a. The use of premises for— i. the intensive production of animals or animal products, in an enclosure, that requires food and water to be provided mechanically or by hand; or ii. storing and packing feed and produce, if the use is ancillary to the use in subparagraph i.; but b. does not include the cultivation of aquatic animals. <i>Examples of Intensive animal industry—feedlot, piggery, poultry and egg production</i> <i>Excludes—Animal husbandry, apiculture, Aquaculture, drought feeding, milking sheds, shearing sheds, weaning pens</i>
Intensive horticulture	a. The use of premises for— i. the intensive production of plants or plant material carried out indoors on imported media; or ii. the intensive production of plants or plant material carried out outside using artificial lights or containers; or iii. storing and packing plants or plant material grown on the premises, if the use is ancillary to the use in subparagraph i. or ii.; but b. does not include the cultivation of aquatic plants. <i>Examples of Intensive horticulture—greenhouse, hydroponic farm, mushroom farm, shadehouse plant production</i> <i>Excludes—Cropping, Garden centre, Wholesale nursery</i>
Low impact industry	The use of premises for an industrial activity— a. that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and b. that a local planning instrument applying to the premises states is a Low impact industry; and

	<p>c. that complies with any thresholds for the activity stated in a local planning instrument applying to the premises, including, for example, thresholds relating to the number of products manufactured or the level of emissions produced by the activity.</p>
Major electricity infrastructure	<p>a. The use of premises for—</p> <ol style="list-style-type: none"> i. a transmission grid or supply network; or ii. a Telecommunications facility, if the use is ancillary to the use in subparagraph i.; but <p>b. does not include the use of premises for a supply network or private electricity works stated in schedule 6, section 26(5), unless the use involves—</p> <ol style="list-style-type: none"> i. new zone Substation or bulk supply Substation; or ii. the augmentation of a zone Substation or bulk supply Substation that significantly increases the input or output standard voltage. <p><i>Examples of Major electricity infrastructure—powerlines greater than 66kV</i></p> <p><i>Note—Schedule 6, section 26(5) of the Regulation state as follows: Development for a supply network or for private electricity works that form an extension of, or provide service connections to, properties from the network, if the network operates at standard voltages up to and including 66kV, other than development for—</i></p> <ol style="list-style-type: none"> a. a new zone Substation or bulk supply Substation; or b. the augmentation of a zone Substation or bulk supply Substation that significantly increases the input or output standard voltage.
Major sport, recreation and entertainment facility	<p>The use of premises for large-scale events, including, for example, major sporting, recreation, conference or entertainment events.</p> <p><i>Examples of a Major sport, recreation and entertainment facility—convention centre, exhibition centre, horse racing facility, sports stadium</i></p> <p><i>Excludes—Outdoor sport and recreation, Indoor sport and recreation</i></p>
Market	<p>The use of premises on a regular basis for—</p> <ol style="list-style-type: none"> a. selling goods to the public mainly from temporary structures, including, for example, stalls, booths or trestle tables; or b. providing entertainment, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Market—car boot sale, farmers market, flea market</i></p>
Medium impact industry	<p>The use of premises for an industrial activity—</p> <ol style="list-style-type: none"> a. that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and b. that a local planning instrument applying to the premises states is a Medium impact industry; and c. that complies with any thresholds for the activity stated in a local planning instrument applying to the premises, including, for example, thresholds relating to the number of products manufactured or the level of emissions produced by the activity.
Motor sport facility	<p>The use of premises for—</p> <ol style="list-style-type: none"> a. organised or recreational motor sports; or b. facilities for spectators, including, for example, stands, amenities and Food and drink outlets, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Motor sport facility—car race track, go-kart track, motocross track, motorcycle racetrack, off road motorcycle facility, trail bike park, 4WD park</i></p>
Multiple dwelling	<p>A residential use of premises involving 3 or more dwellings, whether attached or detached.</p> <p><i>Examples of a Multiple dwelling—apartments, flats, row housing, townhouses, triplex, units</i></p>
Nature-based tourism	<p>The use of premises for a tourism activity, including accommodation for tourists, for the appreciation, conservation or interpretation of—</p> <ol style="list-style-type: none"> a. an area of environmental, cultural or heritage value; or b. a local ecosystem; or c. the natural environment. <p><i>Examples of Nature-based tourism—environmentally responsible tourism facility or accommodation facilities including cabins, huts, lodges and tents</i></p> <p><i>Excludes—Short-term accommodation, Tourist attraction, Tourist park</i></p>
Nightclub entertainment	<p>The use of premises for—</p>

facility	<p>a. providing entertainment that is cabaret, dancing or music; or b. selling liquor, and preparing and selling food, for consumption on the premises, if the use is ancillary to the use in paragraph a.</p> <p><i>Excludes—Bar, Hotel</i></p>
Office	<p>a. The use of premises for— i. providing an administrative, financial, management or secretarial service or function; or ii. the practice of a profession; or iii. providing business or professional advice or services; but b. does not include the use of premises for making, selling or hiring goods.</p> <p><i>Examples of an Office—bank, real estate agency</i> <i>Excludes—Home-based business</i></p>
Outdoor sales	<p>The use of premises for— a. displaying, selling, hiring or leasing vehicles, boats, caravans, machinery, equipment or other similar products, if the use is mainly conducted outdoors; or b. repairing, servicing, selling or fitting accessories for the products stated in paragraph a., if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of Outdoor sales—agricultural machinery sales yard, motor vehicles sales yard</i></p>
Outdoor sport and recreation	<p>The use of premises for— a. a recreation or sporting activity that is carried on outdoors and requires areas of open space; or b. providing and selling food and drink, change room facilities or storage facilities, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of Outdoor sport and recreation—cricket oval, driving range, football ground, golf course, swimming pool, tennis court</i></p>
Outstation	<p>The use of premises for— a. cultural or recreation activities by Aboriginal people or Torres Strait Islanders; or b. facilities for short-term or long-term camping activities, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of an Outstation—indigenous camp site</i></p>
Park	<p>The use of premises, accessible to the public free of charge, for sport, recreation and leisure activities and facilities.</p>
Parking station	<p>The use of premises for parking vehicles, other than parking that is ancillary to another use.</p> <p><i>Examples of a Parking station—car park, bicycle parking station, 'park and ride'</i></p>
Party house	<p>Premises containing a dwelling that is used to provide, for a fee, accommodation or facilities for guests if— a. guests regularly use all or part of the premises for parties (bucks parties, hens parties, raves, or wedding receptions, for example); and b. the accommodation or facilities are provided for a period of less than 10 days; and c. the owner of the premises does not occupy the premises during that period.</p>
Permanent plantation	<p>The use of premises for growing, but not harvesting, plants for carbon sequestration, biodiversity, natural resource management or another similar purpose.</p> <p><i>Excludes—Cropping, forestry for wood production</i></p>
Place of worship	<p>The use of premises for— a. organised worship and other religious activities; or b. social, education or charitable activities, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of a Place of worship—chapel, church, mosque, synagogue, temple</i> <i>Excludes—Funeral parlour</i></p>
Relocatable home park	<p>The use of premises for— a. relocatable dwellings for long-term residential accommodation; or b. amenity facilities, Food and drink outlets, a manager's residence, or recreation facilities for the exclusive use of residents, if the use is ancillary to the use in paragraph a.</p>

	<i>Excludes—Tourist park</i>
Renewable energy facility	<p>a. The use of premises for the generation of electricity or energy from a renewable energy source, including, for example, sources of bioenergy, geothermal energy, hydropower, ocean energy, solar energy or wind energy; but</p> <p>b. does not include the use of premises to generate electricity or energy that is to be used mainly on the premises.</p> <p><i>Examples of a Renewable energy facility—geothermal power, hydroelectric power, solar farm</i></p>
Research and technology industry	<p>The use of premises for an innovative or emerging industry that involves designing and researching, assembling, manufacturing, maintaining, storing or testing machinery or equipment.</p> <p><i>Examples of Research and technology industries—aeronautical engineering, biotechnology industry, computer component manufacturing, computer server facility, energy industry, medical laboratory</i></p>
Residential care facility	<p>The use of premises for supervised accommodation, and medical and other support services, for persons who—</p> <p>a. can not live independently; and</p> <p>b. require regular nursing or personal care.</p> <p><i>Examples of a Residential care facility—convalescent home, hospice, nursing home</i> <i>Excludes—Community residence</i></p>
Resort complex	<p>The use of premises for—</p> <p>a. tourist and visitor accommodation that includes integrated leisure facilities; or</p> <p><i>Examples of integrated leisure facilities—bars, meeting and function facilities, restaurants, sporting and fitness facilities</i></p> <p>b. staff accommodation that is ancillary to the use in paragraph a.; or</p> <p>c. transport facilities for the premises, including, for example, a ferry terminal or Air service.</p>
Retirement facility	<p>A residential use of premises for—</p> <p>a. accommodation for older members of the community, or retired persons, in independent living units or serviced units; or</p> <p>b. amenity and community facilities, a manager’s residence, health care and support services, preparing food and drink or staff accommodation, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of a Retirement facility—retirement home, retirement village</i></p>
Roadside stall	<p>The use of premises for the roadside display and sale of goods in a rural area.</p> <p><i>Examples of a Roadside stall—produce stall</i></p>
Rooming accommodation	<p>The use of premises for—</p> <p>a. residential accommodation, if each resident—</p> <p>i. has a right to occupy 1 or more rooms on the premises; and</p> <p>ii. does not have a right to occupy the whole of the premises; and</p> <p>iii. does not occupy a self-contained unit, as defined under the <i>Residential Tenancies and Rooming Accommodation Act</i>, schedule 2, or has only limited facilities available for private use; and</p> <p>iv. shares other rooms, facilities, furniture or equipment outside of the resident’s room with 1 or more other residents, whether or not the rooms, facilities, furniture or equipment are on the same or different premises; or</p> <p>b. a manager’s residence, an office or providing food or other services to residents, if the use is ancillary to the use in paragraph a.</p> <p><i>Examples of Rooming accommodation—boarding house, hostel, monastery, off-site student accommodation</i></p>
Rural industry	<p>The use of premises for—</p> <p>a. storing, processing or packaging products from a rural use carried out on the premises or adjoining premises; or</p> <p>b. selling products from a rural use carried out on the premises or adjoining premises, if the use is ancillary to the use in paragraph a.</p>

	<i>Examples of a Rural industry—packing shed</i>
Rural workers' accommodation	The use of premises for accommodation, whether or not self-contained, for employees of a rural use, if the premises, and the premises where the rural use is carried out, are owned by the same person.
Sales office	The use of premises for the temporary display of land parcels or buildings that— a. are for sale or proposed to be sold; or b. can be won as a prize in a competition. <i>Examples of a Sales office—display dwelling</i>
Service industry	The use of premises for an industrial activity that— a. does not result in off-site air, noise or odour emissions; and b. is suitable for location with other non-industrial uses. <i>Examples of Service industries—audio visual equipment repair, bicycle repairs, clock and watch repairs, computer repairs, dry cleaning, film processing, hand engraving, jewellery making, laundromat, locksmith, picture framing, shoe repairs, tailor</i>
Service station	The use of premises for— a. selling fuel, including, for example, petrol, liquid petroleum gas, automotive distillate or alternative fuels; or b. a Food and drink outlet, Shop, trailer hire, or maintaining, repairing, servicing or washing vehicles, if the use is ancillary to the use in paragraph a. <i>Excludes—Car wash</i>
Shop	The use of premises for— a. displaying, selling or hiring goods; or b. providing personal services or betting to the public. <i>Examples of a Shop—betting agency, corner store, department store, discount variety store, hair dressing salon, liquor store, supermarket</i>
Shopping centre	The use of premises for an integrated shopping complex consisting mainly of Shops.
Short-term accommodation	a. The use of premises for— i. providing accommodation of less than 3 consecutive months to tourists or travellers; or ii. a manager's residence, office, or recreation facilities for the exclusive use of guests, if the use is ancillary to the use in subparagraph i.; but b. does not include a Hotel, Nature-based tourism, Resort complex or Tourist park. <i>Examples of Short-term accommodation—backpacker's accommodation, cabin, youth hostel, motel, serviced apartment</i>
Showroom	The use of premises for the sale of goods that are of— a. a related product line; and b. a size, shape or weight that requires— i. a large area for handling, display or storage; and ii. direct vehicle access to the building that contains the goods by members of the public, to enable the loading and unloading of the goods. <i>Examples of a Showroom—bulk stationary supplies, bulky goods sales, bulk home supplies, motor vehicles sales showroom</i> <i>Excludes—Outdoor sales</i>
Special industry	The use of premises for an industrial activity— a. that is the manufacturing, producing, processing, repairing, altering, recycling, storing, distributing, transferring or treating of products; and b. that a local planning instrument applying to the premises states is a Special industry; c. that complies with any thresholds for the activity stated in a local planning instrument applying to the premises, including, for example, thresholds relating to the number of products manufactured or the level of emissions produced by the activity.
Substation	The use of premises— a. as part of a transmission grid or supply network to— i. convert or transform electrical energy from one voltage to another; or

	<ul style="list-style-type: none"> ii. regulate voltage in an electrical circuit; or iii. control electrical circuits; or iv. switch electrical current between circuits; or <p>b. for a Telecommunications facility for—</p> <ul style="list-style-type: none"> i. works as defined under the <i>Electricity Act</i>, section 12(1); or ii. workforce operational and safety communications. <p>Editor’s note—Section 12(1) of the <i>Electricity Act</i> states as follows: Works are anything used for, or in association with, the generation, transmission or supply of electricity. To clarify, Substation excludes works that are less than 66kV and used for:</p> <ul style="list-style-type: none"> a. pole mounted Substations, transformers or voltage regulators; or b. pad mounted Substations or transformers. <p><i>Example of works—electric lines and associated equipment, apparatus, electrical equipment, buildings, control cables, engines, fittings, lamps, machinery, meters, Substations and transformers if they are used for, or in association with, the generation, transmission or supply of, electricity.</i></p>
Telecommunications facility	<p>The use of premises for a facility that is capable of carrying communications and signals by guided or unguided electromagnetic energy.</p> <p><i>Examples of a Telecommunications facility—broadcasting station, telecommunication tower, television station</i></p>
Theatre	<p>The use of premises for—</p> <ul style="list-style-type: none"> a. presenting movies, live entertainment or music to the public; or b. the production of film or music; or c. the following activities or facilities, if the use is ancillary to a use in paragraph a. or b.— <ul style="list-style-type: none"> i. preparing and selling food and drink for consumption on the premises; ii. facilities for editing and post-production; iii. facilities for wardrobe, laundry and make-up; iv. set construction workshops; v. sound stages. <p><i>Example of a Theatre—cinema, concert hall, film studio, music recording studio</i></p>
Tourist attraction	<p>The use of premises for—</p> <ul style="list-style-type: none"> a. providing entertainment to, or a recreation facility for, the general public; or b. preparing and selling food and drink for consumption on the premises, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Tourist attraction—theme park, zoo</i></p>
Tourist park	<p>The use of premises for—</p> <ul style="list-style-type: none"> a. holiday accommodation in caravans, self-contained cabins, tents or other similar structures; or b. amenity facilities, a Food and drink outlet, a manager’s residence, offices, recreation facilities for the use of occupants and their visitors, or staff accommodation, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Tourist park—camping ground, caravan park, holiday park</i> <i>Excludes—Relocatable home park</i></p>
Transport depot	<p>The use of premises for—</p> <ul style="list-style-type: none"> a. storing vehicles, or machinery, that are used for a commercial or public purpose; or b. cleaning, repairing or servicing vehicles or machinery, if the use is ancillary to the use in paragraph a. <p><i>Examples of a Transport depot—premises for storing buses, taxis, trucks, heavy vehicles or heavy machinery, contractors’ depot</i></p>
Utility installation	<p>The use of premises for—</p> <ul style="list-style-type: none"> a. a service for supplying or treating water, hydraulic power or gas; or b. a sewerage, drainage or stormwater service; or c. a transport service; or d. a waste management service; or e. a maintenance depot, storage depot or other facility for a service stated in paragraphs a. to d.

	<i>Examples of a Utility installation—pumping station, refuse transfer station, sewerage treatment plant, water reservoir, water treatment plant</i>
Veterinary service	The use of premises for— a. the medical or surgical treatment of animals; or b. the short-term stay of animals, if the use is ancillary to the use in paragraph a. <i>Examples of a Veterinary service—animal hospital</i>
Warehouse	The use of premises for— a. storing or distributing goods, whether or not carried out in a building; or b. the wholesale of goods, if the use is ancillary to the use in paragraph a. <i>Examples of a Warehouse—self-storage facility, storage yard</i>
Wholesale nursery	The use of premises for— a. the wholesale of plants grown on or next to the premises; or b. selling gardening materials, if the use is ancillary to the use in paragraph a.
Winery	The use of premises for— a. making wine; or b. selling wine that is made on the premises. <i>Example of a Winery—cellar door</i>
Workforce accommodation	a. The use of premises for— i. accommodation that is provided for persons who perform work as part of— A. a resource extraction project; or B. a project identified in a planning scheme as a major industry or infrastructure project; or C. a rural use; or ii. recreation and entertainment facilities for persons residing at the premises and their visitors, if the use is ancillary to the use in subparagraph i.; but b. does not include Rural workers' accommodation. <i>Examples of Workforce accommodation—contractor's camp, construction camp</i>

SC1.1.1 Defined activity groups

1. Defined uses listed in Table SC1.1-4: Defined activity groups are clustered into activity groups.
2. An activity group listed in the activity group column clusters the defined uses listed in the Uses column.
3. An activity group may be referenced in Part 5 Tables of Assessment.
4. The activity groups listed here are the defined activity groups for the purpose of the planning scheme.

Editor's note—The activity groups may differ from those defined under schedule 24 of the Planning Regulation.

Table SC1.1-3: Index of defined activity groups

Commercial activities Community activities Industry activities	Infrastructure activities Residential activities Rural activities	Sport and recreation activities Tourist activities
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Table SC1.1-4: Defined activity groups

ACTIVITY GROUP	USES
Commercial activities	Adult store Agricultural supplies store Bar Car wash Food and drink outlet Function facility Funeral parlour Garden centre Hardware and trade supplies Health care service Hotel Nightclub entertainment facility Office Outdoor sales Parking station Service industry Service station Shop Shopping centre Showroom Theatre Veterinary service

	Market	
Community activities	Cemetery Childcare centre Club Community care centre Community use Detention centre	Educational establishment Emergency services Hospital Place of worship
Industry activities	Aquaculture Bulk landscape supplies Crematorium Extractive industry High impact industry Low impact industry Medium impact industry	Research and technology industry Service industry Special industry Transport Depot Warehouse Winery
Infrastructure activities	Air service Battery storage facility Major electricity infrastructure Renewable energy facility	Substation Telecommunications facility Utility installation Wind farm
Residential activities	Low density residential activities: Caretaker's accommodation Community residence Dual occupancy Dwelling house Dwelling unit Home-based business Sales office	Medium density residential activities: Multiple dwelling Relocatable home park Residential care facility Retirement facility Rooming accommodation Workforce accommodation
Rural activities	Animal husbandry Animal keeping Aquaculture Cropping Intensive animal industry Intensive horticulture Outstation	Permanent plantation Roadside stall Rural industry Rural workers' accommodation Wholesale nursery Winery
Sport and recreation activities	Indoor sport and recreation Major sport, recreation and entertainment facility Motor sport facility	Outdoor sport and recreation Park Tourist attraction
Tourist activities	Environment facility Nature-based tourism Party house	Resort complex Short-term accommodation Tourist park

SC1.1.2 Industry thresholds

1. The industry thresholds listed below are to be used in conjunction with the defined uses listed in Table SC1.1-5: Industry thresholds.
2. An Industrial use may be referenced in Part 5 Tables of Assessment.

Table SC1.1-5: Industry thresholds

USE	INDUSTRY THRESHOLDS
Low impact industry	<ol style="list-style-type: none"> 1. Alcohol (excluding wine) processing including brewing or bottling, but not distilling, less than 1ML a year. 2. Assembling or fabricating products from sheet metal or welding steel, producing less than 10 tonnes a year and not including spray painting. 3. Beverage (non-alcoholic) production, processing, brewing or bottling, producing less than 10ML a year. 4. Clothing or footwear manufacturing. 5. Dismantling automotive or mechanical equipment, not including de-bonding brake or clutch components. 6. Fitting and turning workshop. 7. Food or pet food processing, smoking, drying, curing, milling, bottling or canning, less than 50 tonnes

	<p>a year.</p> <ol style="list-style-type: none"> 8. Printing advertising material, magazines, newspapers, packaging or stationery. 9. Processing or manufacturing wood products including sawmilling, cabinet making, joinery, wood working, producing less than 100 tonnes a year, not involving spray painting. 10. Repairing or servicing lawn mowers or outboard engines. 11. Repairing or servicing motor vehicles, including mechanical components, radiators, electrical components, wheel alignments, exhausts, tyres, suspension bull bars, roof racks or air conditioning, not including spray painting. 12. Storage yard for the collection, storage or sale of scrap goods whether metals, paper, plastic, fabric, glass, timber, vehicles, other machinery, or other scrap goods or material (excludes a scrap metal yard for the dismantling of automotive or mechanical equipment). 13. Storing, processing or packaging of products from a rural use, where products are sourced from a location other than the premises or adjoining premises. <p><i>Editor's note—For the purpose of this table, spray painting does not include the use of aerosol cans or air brushing.</i></p>
<p>Medium impact industry</p>	<ol style="list-style-type: none"> 1. Abrasive blasting facility using less than 10 tonnes of abrasive material a year. 2. Alcohol (excluding wine) processing including brewing or bottling, but not distilling, 1ML or more a year. 3. Alcohol distilling, producing less than 2,500 litres a year. 4. Anodising or electroplating workshop where tank area is less than 400m². 5. Battery recycling and reprocessing. 6. Beverage (non-alcoholic) processing, brewing or bottling producing 10ML or more a year. 7. Boiler making or engineering works producing less than 10,000 tonnes of metal product a year. 8. Chemical manufacturing of soap 1 tonne or more a year. 9. Chemical manufacturing of water based paints more than 1m³ but less than 200m³ a year. 10. Clay or ceramic products manufacturing including bricks, tiles, pipes and pottery goods, producing less than 5,000 tonnes a year. 11. Crushing, grinding, milling or screening less than 5000 tonne a year 12. Enamelling workshop using less than 15,000 litres of enamel a year. 13. Fibreglass, foam plastic, composite plastic or rigid fibre-reinforced plastic manufacturing or plastic products manufacturing, producing less than 5 tonnes a year (except fibreglass boats, tanks and swimming pools). 14. Galvanising works using less than 100 tonnes of zinc a year. 15. Glass fibre manufacture producing less than 200 tonnes a year. 16. Glass or glass product manufacturing, where not glass fibre, producing less than 250 tonnes a year. 17. Manufacturing substrate for mushroom growing. 18. Medium density fibreboard, chipboard, particle board, plywood, laminate board manufacturing or wood veneer products manufacturing, producing less than 250 tonnes a year. 19. Metal foundry producing less than 10 tonnes of metal castings a year. 20. Plaster manufacturing or processing, producing less than 5,000 tonnes a year. 21. Plastic manufacturing PET, PETE, polypropylene and polystyrene plastic or plastic products, producing less than 10,000 tonnes a year. 22. Powder coating workshop using less than 500 tonnes of coating a year. 23. Processing, smoking, drying, curing, milling, bottling or canning food or pet food, 50 tonnes or more, but less than 500 tonnes, a year. 24. Reconditioning metal or plastic drums. 25. Recycling or reprocessing tyres, including retreading. 26. Recycling, storing or reprocessing regulated waste, less than 10 tonnes a year and not involving a waste incinerator. 27. Sawmilling, wood chipping and kiln drying timber and logs, producing less than 500 tonnes a year. 28. Scrap metal yard (not including a fragmentiser), dismantling automotive or mechanical equipment including debonding brake or clutch components. 29. Spray painting workshop (including spray painting vehicles, plant, equipment or boats) using less than 20,000 litres of paint a year. 30. Vegetable oil or oilseed processing in works with a design production capacity less than 1,000 tonnes a year. 31. Waste transfer station, except where otherwise defined as Utility installation. 32. Wooden products processing and manufacturing including sawmilling, cabinet making, joinery, wood working, producing 100 tonnes or more, but less than 500 tonnes, a year.
<p>High impact industry</p>	<ol style="list-style-type: none"> 1. Abattoir (not involving rendering). 2. Abrasive blasting facility using 10 tonnes or more of abrasive material a year. 3. Anodising or electroplating workshop where tank area is 400m² or more. 4. Battery manufacturing. 5. Boiler making or engineering works producing 10,000 tonnes or more of metal product a year. 6. Clay or ceramic products manufacturing including bricks, tiles, pipes and pottery goods, 5,000 tonnes

	<p>or more a year.</p> <ol style="list-style-type: none"> 7. Concrete batching and producing concrete products. 8. Crematoria 9. Distilling alcohol, producing 2,500 litres or more, but no more than 10,000 litres, a year. 10. Enamelling workshop using 15,000 litres or more of enamel a year. 11. Fibreglass, foam plastic, composite plastic or rigid fibre-reinforced plastic manufacturing or plastic product manufacturing, 5 tonnes or more a year. 12. Galvanising works using 100 tonnes or more of zinc a year. 13. Glass fibre manufacture producing 200 tonnes or more a year. 14. Glass or glass products manufacturing, where not glass fibre, 250 tonnes or more a year. 15. Hazardous chemical facility for the storage and distribution of dangerous goods not involving manufacturing processes. 16. Manufacturing tyres, asbestos products, asphalt, glass or glass fibre, mineral wool or ceramic fibre. 17. Medium density fibreboard, chipboard, particle board, plywood, laminate board manufacturing or wood veneer product manufacturing, producing 250 tonnes or more a year. 18. Metal foundry producing 10 tonnes or more of metal castings a year. 19. Plaster manufacturing or processing producing 5,000 tonnes or more a year. 20. Plastic manufacturing PET, PETE, polypropylene and polystyrene plastic or plastic products, producing 10,000 tonnes or more a year. 21. Powder coating workshop using 500 tonnes or more of coating a year. 22. Processing, smoking, drying, curing, milling, bottling or canning food or pet food, 500 tonnes or more a year. 23. Recycling chemicals, oils or solvents. 24. Recycling, storing or reprocessing regulated waste 10 tonnes or more a year and not involving a waste incinerator. 25. Sawmilling, wood chipping and kiln drying timber and logs, producing 500 tonnes or more a year. 26. Scrap metal yard including a fragmentiser. 27. Soil conditioner manufacturing by receiving, blending, storing, processing, drying or composting organic material or organic waste, including animal manures, sewage, septic sludges and domestic waste. 28. Spray painting workshop (including spray painting vehicles, plant, equipment or boats) using 20,000 litres or more of paint a year. 29. Treating timber for preservation using chemicals including copper, chromium, arsenic, borax and creosote. 30. Vegetable oil or oilseed processing in works with a design production capacity 1,000 tonnes or more a year. 31. Waste disposal facility (other than waste incinerator). 32. Wooden products processing or manufacturing including sawmilling, cabinet making, joinery, wood working, producing 500 tonnes or more a year.
Special industry	<ol style="list-style-type: none"> 1. Abattoir (involving rendering). 2. Distilling alcohol, producing 10,000 litres or more a year. 3. Fertiliser manufacture involving ammonia. 4. Hazardous chemicals and poisons manufacture. 5. Explosive manufacture, storing, testing or disposal. 6. Metal refining or smelting. 7. Oil refining or processing. 8. Polyvinyl chloride plastic manufacture. 9. Power station. 10. Producing, quenching, cutting, crushing or grading coke. 11. Producing, refining or processing gas or fuel gas. 12. Pulp or paper manufacturing. 13. Rendering plant. 14. Sugar milling or refining. 15. Tannery or works for curing animal skins, hides or finishing leather. 16. Textile manufacturing, including carpet manufacturing, wool scouring or carbonising, cotton milling, or textile bleaching, dyeing or finishing. 17. Tobacco processing. 18. Waste incinerator.

SC1.2 Administrative terms

1. Administrative terms assist with the interpretation of the planning scheme but do not have a meaning in relation to a use.
2. A term listed in Table SC1.2-2: column 1, Terms has the meaning set out beside that term in the column 2, Definition.
3. The administrative terms listed here are terms for the purpose of the planning scheme.
4. In accordance with legal principle, terms used in this planning scheme are taken to have their natural and ordinary meaning, in the context of development occurring subject to the relevant zone and any applicable overlays.

Table SC1.2-1: Index of administrative definitions

INDEX OF USE DEFINITIONS		
Access	Environmental nuisance	Projection area
Access crossover	Environmental value/s	Public open space
Access strip	Equivalent persons (EP)	Public transport
Active frontage/s	Erosion	Pylon sign
Adjoining premises	Essential community infrastructure	Rear access lot
Advertising device	Essential utilities	Recharge
Afflux	Exempt clearing work	Refuse collection vehicle (RCV)
Affordable housing	Exempt subdivision	Region
Agricultural Land Classification Class A and Class B	Existing commercial building	Regional native species
All weather access	Face area	Registered Professional Engineer of Queensland (RPEQ)
Ambulance	Filling or excavation	Regulated vegetation
Annual exceedance probability (AEP)	Filtration	Residential zone
Aquatic habitat	Flood hazard area	Restoration area
Articulated vehicle (AV)	Flood level	Restoration buffer
Asset protection zone	Floodway	Reverse amenity
Australian height datum (AHD)	Form	Riparian
Average width	Freeboard	Riparian buffer
Aviary	Future trunk infrastructure	Riparian corridor
Background noise level	Game birds	Risk
Bank and bed stabilisation measures	Geomorphological processes	Road
Bank erosion	Greenfield development	Road hierarchy
Bank slumping	Gross floor area (GFA)	Runoff
Base date	Gross pollutants	Rural areas
Basement	Ground level	Salinity expression area
Battery storage device	Groundwater	Scale
B-double	Groundwater extraction	Screen landscaping
Bicycle	Groundwater recharge	Sealed road
Billboard	Grove	Secondary dwelling
Biodiversity	Habitable room	Secondary frontage
Block	Habitat	Sedimentation
Boundary clearance	Habitat condition	Sensitive land use
Building envelope/s	Habitat tree	Sensitive receptor
Building height	Habitat value/s	Service catchment
Building line	Hazardous chemical/s	Service vehicle
Bus	Hazardous chemical facility	Setback
Bushfire hazard area	Hazardous chemicals for flood thresholds	Site
Car	Hazardous material/s	Site cover
Car and trailer (C&T)	Heavy rigid vehicle (HRV)	Small Bus
Clearing	Heavy vehicle (HV)	Small residential lot
Common private title	High risk soils	Small rigid vehicle (SRV)
Communal open space	Higher order road	Soil erosion and instability
Complete communities	Household	Spring
Connectivity	Hydrological processes	Stable
Consolidation or Infill development	Impervious area	State-controlled road
Constructed road	Infrastructure work	State significant species
Contaminant	Investigation area	Storey
Contaminated land	Key species	Stormwater
Continuous ecological corridor	Koala habitat tree	Stormwater device
Corner lot	Lake	Stormwater drain
Council	Land degradation	Stormwater installation

Crime prevention through environmental design (CPTED)	Local government infrastructure	Stormwater quality improvement device
Critical infrastructure	Local heritage place	Street landscaping
Dam	Major hazard facility	Streetscape
Declared pests	Matters of environmental significance	Structure
Defined flood event (DFE)	Matters of Local Environmental Significance	Temporary use
Defined flood level (DFL)	Matters of National Environmental Significance	Total use area (TUA)
Defining bank, of a waterway	Matters of State Environmental Significance	Ultimate development
Demand unit	Mechanical clearing	Urban area
Design speed	Medium Rigid Vehicle (MRV)	Urban footprint
Design vehicle	Mezzanine	Urban purpose
Development envelope area/s	Minor building work	Van
Development footprint	Minor electricity infrastructure	Vegetation
Difficult to evacuate use/s	Minor filling or excavation	Vehicle trips per day (vpd)
Domestic animal/s	Minor Operational work	Verge
Domestic outbuilding/s	Net developable area	Vulnerable persons
Domestic purpose/s	Off-site	Vulnerable use/s
Drainage patterns	On-site	Wastewater
Dwelling	Outdoor lighting	Water catchment or water sub-catchment
Ecological connectivity or Ecological corridors	Outermost projection	Water netserv plan
Ecological integrity	Overland flow	Water quality objective/s
Ecological processes	Overland flow path	Water sensitive urban design
Ecological values	Plan of development	Waterbody
Ecosystem resilience	Planning assumption	Waters
Edge effects	Plot ratio	Waterway
Effectively stabilised surface	Poultry	Waterway condition
Electricity easement	Primary frontage	Wetland
Encroachment	Private open space	Working area
Environmental harm	Prize home	Works codes
	Probable Maximum Flood (PMF)	

Table SC1.2-2: Administrative definitions

COLUMN 1 TERM	COLUMN 2 DEFINITION
Access	The entry of people and vehicles onto a lot from a road that directly abuts the frontage of that lot or its access easement.
Access crossover	The part of an accessway which is located between the edge of the road pavement and the lot boundary.
Access strip	That part of a site that is used for providing access to a road.
Active frontage/s	Where there is a visual connection between a building and a road or public open space by providing: <ol style="list-style-type: none"> windows, openings, pedestrian entries, balconies and awnings; opportunities for casual surveillance; a range of uses along the façade.
Adjoining premises	Premises that share a common boundary, including premises that meet at a single point on a common boundary.
Advertising device	<ol style="list-style-type: none"> A permanent sign, structure or other device used, or intended to be used, for advertising; and includes a structure, or part of a building, the primary purpose of which is to support the sign, structure or device.
Afflux	The increase in water level upstream and downstream of a natural or artificial feature that obstructs the free flow of water (such as a bridge or a natural construction in a flood plain).
Affordable housing	Housing that is appropriate to the needs of households with low to moderate incomes, if the members of the households will spend no more than 30% of gross income on housing costs.
Agricultural Land Classification Class A and Class B	The land shown as ALC Class A and Class B soils on OM1 Agricultural land overlay. <i>Editor's note—For the purposes of this Planning Scheme the land known as Agricultural Land Classification</i>

	<i>(ALC) Class A and Class B soils is abbreviated to ALC Class A & B soils.</i>
All weather access	An access which is capable of being traversed by a two wheel drive vehicle during and after a storm event with no significant damage or deformation to the access.
Ambulance	A vehicle no less than a small rigid vehicle.
Annual exceedance probability (AEP)	The probability of a flood event occurring in any year. The probability is expressed as a percentage and is determined by undertaking a flood model for a site or area. A defined flood event with a 1% AEP is a flood that is calculated to have a 1% chance of occurring in any one year. The 1% AEP is also known as the 1 in 100 year Average Recurrence Interval event and is commonly used for urban planning purposes as the line of acceptable risk.
Aquatic habitat	The biophysical medium or media within the waterway or wetland that: <ol style="list-style-type: none"> a. is occupied (continuously, periodically or occasionally) by an organism or group of organisms; or b. was once occupied (continuously, periodically or occasionally) by an organism, or group of organisms and into which organisms of that kind have the potential to be reintroduced. This encompasses the banks, snags, rocks, channels, substrates, riffles, macrophytes and riparian vegetation.
Articulated vehicle (AV)	Has the same meaning as defined in AS.2890.2 — Off Street Parking — Commercial Vehicle Facilities.
Asset protection zone	<p>A specified area of land that enables emergency access and operational space for firefighting. Within the asset protection zone vegetation is modified and maintained to reduce fuel load and mechanisms of bushfire attack such as flame and radiant heat. The zone may include a combination of elements such as perimeter road, fire trail and working area and open space where vegetation is managed.</p> <p><i>Note—The asset protection zone need not be maintained ‘fuel free’ — sensible landscape design can ensure a balance between landscape design outcomes and minimising the vulnerability to bushfire attack. Refer to the QFES Bushfire Resilient Communities Guide for guidance on landscape design and vegetation management.</i></p> <p><i>Note—The ‘asset protection zone’ considered as part of a planning development application is different from the siting of a building as part of designing and constructing the building to reduce the risk of ignition from a bushfire, appropriate to the intensity of the bushfire attack on the building and the associated requirements prescribed in AS.3959 Construction of buildings in bushfire prone areas as part of a building development application.</i></p>
Australian height datum (AHD)	The survey height datum adopted by the National Mapping Council as the datum to which all vertical control for mapping is to be referred (0.0m AHD approximates mean sea level).
Average width	Of a lot, means the distance, measured in metres, between the midpoint on each side boundary of the lot.
Aviary	A cage or enclosure located external to a residence in which birds are kept. The term does not include the birds commonly associated with food production, Intensive animal industry or rural land uses, including poultry or game birds.
Background noise level	For a specified time, interval, in relation to an investigation of a noise, the A-weighted sound pressure level that is equalled or exceeded for 90% of that part of the interval in which the investigated noise is absent.
Bank and bed stabilisation measures	<p>Bed and banks of a waterway means the land that is normally covered by the waterway, whether permanently or intermittently, regardless of frequency, but does not include adjoining land from time to time covered in flood events. Stabilisation measures encompass activities within and adjacent to a waterway for rehabilitation or the mitigation of impacts. Activities include such works as:</p> <ol style="list-style-type: none"> a. Excavation and filling b. Removing debris c. Revegetation d. Removing or redistributing sediment.
Bank erosion	<p>The accelerated wearing away of a stream bank, caused by factors such as the destruction of riparian vegetation, clearing within the catchment, extractive activities, stream straightening or redirection of streams around infrastructure, changes to drainage and weather events.</p> <p><i>Note—Waterways are dynamic systems and natural bank erosion will occur. The accepted standard for determining whether erosion is a natural process is if it occurs slowly and imperceptibly.</i></p>

Bank slumping	The mass failure of the bank material because: <ol style="list-style-type: none"> a. the waterway bed deepened at the toe of the bank, resulting in the bank becoming unstable and slumping into the waterway under its own weight (or under some surcharge weight on the top of the bank); b. high pore water pressure in the bank material was not balanced by adjacent hydrostatic pressures, causing the structure of the bank material to weaken and slump into the waterway. Slumping is often caused by high velocity stream flows made worse by land and vegetation clearing within the catchment, rapid draw down and the removal of riparian vegetation.
Base date	The date from which the local government has estimated future infrastructure demand and costs for the local government area.
Basement	A space— <ol style="list-style-type: none"> a. between a floor level in a building and the floor level that is immediately below it; and b. no part of which is more than 1m above ground level.
Battery storage device	<ol style="list-style-type: none"> a. Plant that— <ol style="list-style-type: none"> i. converts electricity into stored energy; and ii. releases stored energy as electricity; and b. includes any equipment necessary for the operation of the plant.
B-double	A vehicle no less than a 26m B-double vehicle as defined in Austroads.
Bicycle	Has the same meaning as defined by AS.2890.3: Parking Facilities — Part 3: Bicycle parking.
Billboard	A free-standing advertising device used to display third party advertising matter (i.e. advertising not directly relate to the use of the land on which the billboard is located). Generally, a billboard is elevated from the ground, and the width of the advertising space of a billboard is greater than its height.
Biodiversity	Biodiversity is the variety of all living things and is usually explored at three levels: <ol style="list-style-type: none"> a. genetic diversity — the variety of genetic information contained in individual plants, animals and micro-organisms; b. species diversity — the variety of species; c. ecosystem diversity (terrestrial, marine and freshwater) — the variety of habitats, ecological communities and ecological processes.
Block	In relation to reconfiguring a lot, means an area consisting of 2 or more adjacent created lots for the reconfiguration.
Boundary clearance	The distance between a building or structure on premises and the boundary of the premises, measured from the part of the building or structure that is closest to the boundary, other than a part that is— <ol style="list-style-type: none"> a. an architectural or ornamental attachment; or b. a rainwater fitting. <p><i>Examples—</i></p> <ol style="list-style-type: none"> a. <i>If the fascia of a building is the part of the building that is closest to the boundary, the boundary clearance is the distance between the outside of the fascia and the boundary.</i> b. <i>If a point on the roof of a building is the part of the building that is closest to the boundary, the boundary clearance is the distance between that point on the roof and the boundary.</i>
Building envelope/s	The area of a lot defined on a plan by metes and bounds within which all buildings and structures must be contained.
Building height	<ol style="list-style-type: none"> a. The vertical distance, measured in metres, between the ground level of the building and the highest point on the roof of the building, other than a point that is part of an aerial, chimney, flagpole or load-bearing antenna; or b. The number of storeys in the building above ground level.
Building line	The front face of an existing building.
Bus	Has the same meaning as Inter-city tourist bus from Austroads.
Bushfire hazard area	The bushfire hazard area is mapped as the designated Bushfire prone areas under Section 1.6 and includes: <ol style="list-style-type: none"> a. Very high potential bushfire intensity; b. High potential bushfire intensity; c. Medium potential bushfire intensity; d. Potential bushfire impact buffer.

Car	A Car B99 vehicle as defined in AS.2890.1: Parking Facilities — Part 1: Off-street car parking.
Car and trailer (C&T)	Has the same meaning as a car and trailer configuration equivalent to Austroads 'Car and Caravan'.
Clearing	<p>a. To remove, damage or destroy native vegetation (including any associated ecological values or ecological processes) in any way including cutting down, ringbarking, chemical clearing, mechanical clearing, burning, flooding or draining;</p> <p>b. Does not include:</p> <ol style="list-style-type: none"> i. lopping a tree consistent with AS.4373 Pruning or Amenity Trees; or ii. destroying standing vegetation by stock.
Common private title	Areas such as access roads in community title developments or strata title unit access that are private and under group or body-corporate control.
Communal open space	An outdoor space for the use of all occupants of a building or development. It may include a footpath, gazebo, children's playground, landscaping, tennis court and a swimming pool. It does not include a stormwater channel, driveway access or car parking area.
Complete communities	Communities where residents have adequate and appropriate local access to a range of everyday goods, services and employment opportunities.
Connectivity	The extent to which a place or area is connected to other places and areas through a variety of transport modes, or the ease with which connection with other places can be made.
Constructed road	Means a road located on a road reserve which is trafficable and has improved the natural surface by clearing, grading and by the addition of at least 100mm of gravel pavement and crossroad drainage.
Consolidation or Infill development	Development within the existing urban area boundary involving the use of vacant land or the replacement or removal of existing uses to allow for new uses.
Contaminant	<p>One or more of the prescribed contaminants listed in schedule 9 of the <i>Environmental Protection Regulation</i>.</p> <p><i>Editor's note—See the Environmental Protection Act, section 11.</i></p>
Contaminated land	Means land contaminated by a hazardous contaminant.
Continuous ecological corridor	An unbroken and diversely structured habitat which facilitates wildlife movement.
Corner lot	A lot bounded by two or more roads where the roads intersect or join.
Council	Lockyer Valley Regional Council
Crime prevention through environmental design (CPTED)	A crime prevention philosophy based on proper design and effective use of the built environment leading to a reduction in the fear and incidence of crime, as well as an improvement in quality of life.
Critical infrastructure	<p>Means any of the following uses:</p> <ol style="list-style-type: none"> a. Battery storage facility; or b. Major electricity infrastructure; or c. Renewable energy facility; or d. Substation; or e. Telecommunications facility; or f. Utility installation.
Dam	Has the same meaning as the <i>Planning Regulation, schedule 24</i> .
Declared pests	<p>A plant, other than a native species of plant, that is any of the following under the <i>Biosecurity Act 2014</i>—</p> <ol style="list-style-type: none"> a. invasive biosecurity matter; b. controlled biosecurity matter; c. regulated biosecurity matter. <p><i>Note— For invasive biosecurity matter under the Biosecurity Act 2014 see—</i></p> <ol style="list-style-type: none"> a. <i>the Biosecurity Act 2014, schedule 1, part 3 or 4 or schedule 2, part 2; and</i> b. <i>the note to the Biosecurity Act 2014, schedules 1 and 2.</i>

Defined flood event (DFE)	A flood event, measured in terms of the likelihood of occurrence and associated inundation level, used by Council to manage the engineering and construction of development. The level associated with a DFE is predicted to change over time because of climate change, so it is specific to a point in time or planning period.
Defined flood level (DFL)	<p>a. A 1% AEP plus climate change flood event to 2090 that has been designated; or</p> <p>b. Where no 1% AEP plus climate change flood event has been determined, the greater of:</p> <ol style="list-style-type: none"> a site specific flood risk assessment that models the 1% AEP plus climate change flood event; or written advice is obtained from Council stating the specified DFL for the premises. <p><i>Note—The extent of the defined flood level is shown in Council's digital Flood Information Map.</i></p>
Defining bank, of a waterway	<p>The bank that confines the seasonal flows, but which may be inundated by flooding from time to time. The defining bank can be either:</p> <ol style="list-style-type: none"> the bank or terrace that confines the water before the point of flooding; or where there is no bank, the seasonal high water line that represents the point of flooding. <p>The seasonal high water line is defined as a zone that represents the usual peak seasonal flow level, identifiable by deposition, debris or characteristic vegetation zonation.</p> <p><i>Note—The defining bank is used by the codes as a starting point to measure riparian area away from the water feature.</i></p>
Demand unit	A unit of measurement for measuring the level of demand for infrastructure.
Design speed	The speed selected as being appropriate for a road for design purposes.
Design vehicle	The vehicle that a given development is designed to accommodate in relation to on-site access and manoeuvrability.
Development envelope area/s	Means the three-dimensional extent of where a buildings or structures and ancillary activities may be constructed on a site after consideration of suitable zone and overlay constraints.
Development footprint	On premises, means the total area of the premises covered by a building, structure or landscaping.
Difficult to evacuate use/s	<p>Any of the following uses:</p> <ol style="list-style-type: none"> Childcare centre; Club; Community residence; essential community infrastructure; Function facility; Hotel, if the Hotel includes Short-term accommodation; Indoor sport and recreation; Major sport, recreation and entertainment facility; Nightclub entertainment facility; Outstation; Place of worship; residence/s; Shopping centre; Theatre; tourist activities; and any defined or undefined use that includes: <ol style="list-style-type: none"> overnight accommodation and/or numbers of patrons that would make evacuation difficult.
Domestic animal/s	<p>Domesticated animals which are kept in or about a <i>dwelling</i> for the purpose of companionship, enjoyment, interest or protection and:</p> <ol style="list-style-type: none"> includes, <i>but is not limited to</i> aquarium fish, bees, birds kept in a cage or enclosure located within a residence, cats, poultry (limited to less than 100 in combined total), dogs (including incidental breeding), rodents (including guinea pigs, mice and rats); and does not include: <ol style="list-style-type: none"> alpaca or llama, camel, cattle, crocodile, donkey, ducks, emu, geese, goats, guinea fowl, horses, ostrich, pea fowl, pigs, sheep, turkeys; or Animal keeping; or animals commonly associated with food production, Intensive animal industry or rural land uses.

	<i>Editor's note—Compliance with the requirements of the planning scheme does not, on its own, provide authorisation for the keeping of animals. In certain circumstances and locations an Approval under Councils local laws may also be required. When considering the keeping of animals, contact Council for further details.</i>
Domestic outbuilding/s	A non-habitable class 10a building that is— a. a shed, garage or carport; and b. ancillary to a residential use carried out on the premises where the building is.
Domestic purpose/s	In respect to groundwater extraction, means water for the following: a. household purposes; b. watering of animals kept as pets; c. watering a garden or lawn.
Drainage patterns	System by which water moves across and through the land, influenced by topography and geology.
Dwelling	All or part of a building that— a. is used, or capable of being used, as a self-contained residence; and b. contains— i. food preparation facilities; and ii. a bath or shower; and iii. a toilet; and iv. a wash basin; and v. facilities for washing clothes.
Ecological connectivity or Ecological corridors	Means connections across the landscape that link areas of habitat and facilitate ecosystem resilience and increase in biodiversity, through the safe movement of wildlife or genetic flows (including flora) across the landscape. Ecological connectivity includes: a. large areas of bushland habitat; or b. linear ecological corridors that range in size from smaller corridors connecting close areas of habitat to larger landscape scale corridors connecting more distant areas; or c. small patches of vegetation that provide habitat and serve as 'stepping stones' to help the movement of native species between larger habitat areas. d. vegetation buffers that serve to mitigate edge effects. <i>Note—Ecological corridors traversing the Lockyer Valley Regional Council area include but are not limited to:</i> a. <i>Great Eastern Ranges Terrestrial Corridor (20km wide),</i> b. <i>Main Range National Park to Don River State Forest Terrestrial Corridor (10km wide),</i> c. <i>Emu Creek to Mount Lawson Terrestrial Corridor (5km wide),</i> d. <i>Little Liverpool Range Terrestrial Corridor (5Km wide),</i> e. <i>Lockyer Creek Riparian Corridor (200m wide),</i> f. <i>Woolshed Creek Riparian Corridor (200m wide).</i> g. <i>Riparian corridors</i>
Ecological integrity	The ability of the natural ecosystem to support and maintain ecological structure and function.
Ecological processes	The structural components of an ecosystem (e.g. vegetation, water, soil, atmosphere and biota) and how they interact with each other, within ecosystems and across ecosystems, and include the following: a. hydrological and geomorphological processes; b. soil health and development (including microorganisms and fungi); c. nutrient cycling; d. chemical processes including storage of nutrients; e. decomposition and cycling of organic matter; f. pollination and seed production; g. seed dispersal; h. animal dispersal, migration and breeding; i. predator—prey relationships; j. germination and recruitment of species; k. the carbon cycle and stability of atmospheric carbon; l. habitats for flora and fauna (such as logs, rocks, debris, leaf litter, nectar, hollow bearing trees, food and shelter); m. whole of ecosystem connectivity and processes.
Ecological values	The characteristics of an area that make it suitable as a habitat or refuge for native vegetation and animals. These characteristics include the physical structure, nutrient and energy flows, condition and extent of habitat and the location of the area in relation to other habitats.
Ecosystem resilience	The capacity of an ecosystem to adapt to changes and disturbances while retaining basic functions

	<p>and structures. A resilient ecosystem adapts to shocks and rebuilds itself when damaged. Ecosystem resilience loss is caused by:</p> <ul style="list-style-type: none"> a. changes occurring to the aquatic environment and water flows (e.g. floods and droughts); or b. increases in pollution; or c. unsustainable use and management of natural resources; or d. climate change; or e. changing fire regimes; or f. habitat loss, degradation and fragmentation; or g. invasive declared pest species.
Edge effects	The adverse effects on wildlife and natural environments, caused by urbanisation and due to edge contrast, which is defined as being the compositional or structural difference between adjacent ecosystems at either side of the boundary. High contrast and higher risk edges are often formed with urban development such as roads, residential areas and commercial or industrial developments.
Effectively stabilised surface	A surface that does not, or is not likely to result in: <ul style="list-style-type: none"> a. visible evidence of soil loss caused by sheet, rill or gully erosion; or b. lead to sedimentation; or c. lead to water contamination.
Electricity easement	A right held by an electricity distribution entity over a lot or portion of a lot owned by another party. The right may include the ability to access, maintain, repair, rebuild and restrict development in the electricity easement.
Encroachment	Has the same meaning as the <i>Property Law Act, section 182</i> .
Endemic native species	Flora or fauna native to a locality.
Environmental harm	Has the meaning as the <i>Environmental Protection Act</i> .
Environmental nuisance	Has the meaning as the <i>Environmental Protection Act</i> .
Environmental value/s	<p>Has the same meaning as <i>the Environmental Protection Act, section 9</i>.</p> <p><i>Note—Environmental value is—</i></p> <ul style="list-style-type: none"> a. a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or b. another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.
Equivalent persons (EP)	The demand on infrastructure that is represented by an average single person.
Erosion	The process of eroding or being eroded by wind, water or other natural agents.
Essential community infrastructure	Any of the following uses: <ul style="list-style-type: none"> a. Air service; or b. Community use; or c. Emergency services; or d. Health care service, if supporting a Hospital; or e. Hospital.
Essential utilities	<p>Equipment and systems essential to maintaining operationality and resilience of a use after a flood event and where not regulated by the Queensland Development Code MP 3.5, the Plumbing and Drainage Act 2018 and other legislation. Equipment and systems include but not limited to:</p> <ul style="list-style-type: none"> a. Substation transformers, low voltage switch gear, high voltage switch gear, battery chargers and storage, protection control and communication equipment, low voltage cables, high voltage cables and lift or pump controls; b. heating, cooling and ventilation systems; c. gas systems and bottles; d. wastewater treatment systems and equipment; e. telecommunications systems and equipment. <p>Depending upon the use, this may mean that equipment and systems may be constructed below the nominated Minimum design requirements in Table Flood immunity, if it is resilient and operational immediately after flooding.</p>
Exempt clearing work	Means:

	<p>a. clearing of non-native vegetation including a declared pest; or b. clearing within an approved development envelope; or c. clearing of native vegetation limited to within: i. 20m of an existing or approved class 1 building; or ii. 10m of an existing or approved class 10 building or structure; or d. clearing of native vegetation for the construction or maintenance of an access way limited to 6m in total width, which provides one vehicular access from a road to an existing Dwelling house; or e. clearing of native vegetation on land included in the Rural zone to source construction material to repair infrastructure needed to carry out a rural activity on the same land, provided: i. the clearing does not cause land degradation; ii. restoration of a similar type to, and to the extent of, the removed trees is ensured; iii. the cleared vegetation does not leave the farm site; or f. clearing of native vegetation for the construction and maintenance of fencing required to carry out a rural activity on land in the Rural zone and clearing is limited to a width of 10m either side of the fence; or g. clearing of native vegetation limited to within 10m of existing infrastructure in the Rural zone including any buildings, helipads, stockyards, watering facilities and constructed drains other than contour banks; or h. clearing of native vegetation for the construction or maintenance of a service corridor to provide an aboveground or underground utility service and the clearing is limited to a total width of 6m from the centre point of the corridor; or i. clearing of native vegetation where: i. within 10m of existing infrastructure or buildings and necessary to remove or reduce imminent risk of serious personal injury or damage to infrastructure posed by the vegetation; ii. native vegetation is planted in a suitable location on the site to replace the native vegetation that is removed; or j. clearing of native vegetation for the establishment of fire breaks or fire management lines where in accordance with the <i>Planning Regulation 2017</i>; or k. clearing of native vegetation on a lot less than 5,000m² in area and the trees to be cleared are: i. less than 60cm in diameter when measured 1.3m from the ground; or ii. less than 4m high; iii. excludes koala habitat trees at least 10cm in diameter when measured 1.3m from the ground.</p> <p><i>Note—Where the fence has not yet been built, the proposed fence is required to be constructed within 2 months of the vegetation clearing.</i></p> <p><i>Note—</i> a. <i>The Planning Regulation must also be considered when determining if an activity is considered to be exempt clearing work under State legislation.</i> b. <i>Vegetation clearing meeting the above criteria may still require assessment/approval under State or Federal legislation.</i> c. <i>Lopping of branches is not vegetation clearing.</i></p>
Exempt subdivision	The same as the <i>Planning Regulation</i> .
Existing commercial building	An existing Class 5, 6, 8 and 9 building as specified in the National Construction Code. <i>Note—A change of building classification within Class of Building 5-9 and plumbing work is permissible.</i>
Face area	In relation to an advertising device, where the advertising device has: a. only one face, the greater of the area of: i. the advertisement panel or board as installed; or ii. a rectangular figure best enclosing the advertising message, logo or figure; b. more than one face, the sum of the area of each of the faces where each is calculated separately in accordance with paragraph 1.
Filling or excavation	Removal or importation of material to, from or within a lot that will change the ground level of the land.
Filtration	The removal of sediments and other pollutants from water. Filtration of sediments in overland flow is performed by 'soft' surfaces (soil, grass) and various types of vegetation. <i>Examples include riparian vegetation, vegetation buffers or separation areas.</i>

	Filtration is achieved by retaining or reinstating natural sediment and erosion control measures, such as riparian vegetation, vegetation buffers and natural ground surfaces (soil, grass).
Flood hazard area	<p>The flood hazard area is mapped as the designated Flood hazard area under section 1.6 and includes:</p> <ol style="list-style-type: none"> Laidley flood resilient precinct; Withcott flood resilient precinct; Valley flood plain precinct; Extreme flood risk hazard; High flood risk hazard; Moderate flood risk hazard; Low flood risk hazard; Very low flood risk hazard. <p><i>Note—Section 8 of the Building Regulation requires a Local government to keep a register of the flood hazard area it designates and when the designation was made. The flood hazard area is the designated flood hazard area for the purposes of the Building Regulation, section 8.</i></p>
Flood level	<p>The maximum level of the water surface during a flood event.</p> <p><i>Note—Flood events can be caused by heavy rainfall in the catchment, dam releases, storm surge or a combination of these.</i></p>
Floodway	<p>Has the same meaning as the Queensland Urban Drainage Manual.</p> <p><i>Note—meaning that part of the floodplain specifically designed to carry flood flows and ideally capable of containing the defined flood event.</i></p>
Form	In a streetscape context, the two dimensional shape, outline or silhouette of a building.
Freeboard	<p>A height above the defined flood level that takes account of matters that may cause flood waters to rise above the defined flood level.</p> <p><i>Examples of matters that may cause a flood level to rise above the defined flood level—wave action, localised hydraulic behaviour</i></p> <p><i>Note—Definition from the Building Regulation.</i></p>
Future trunk infrastructure	<p>For Part 4 Local Government Infrastructure Plan, trunk infrastructure planned to be provided from the base date to the planning horizon.</p> <p><i>Note—The future trunk infrastructure is identified in the tables references in Part 4 Local Government Infrastructure Plan.</i></p>
Game birds	<p>Any of the following birds—</p> <ol style="list-style-type: none"> pheasants; partridges; guinea fowl; quail; pigeons (squab).
Geomorphological processes	<p>Processes that influence and induce landforms.</p> <p><i>Examples include erosion, flooding, tides, wind.</i></p>
Greenfield development	Refers to land that has not previously been used for urban development and may be considered for urban development in the future, through a master planning process.
Gross floor area (GFA)	<p>For a building, means the total floor area of all storeys of the building, measured from the outside of the external walls and the centre of any common walls of the building, other than areas used for—</p> <ol style="list-style-type: none"> building services, plant or equipment; or access between levels; or a ground floor public lobby; or a mall; or parking, loading or manoeuvring vehicles; or unenclosed private balconies, whether roofed or not.
Gross pollutants	Comprise of large particles of natural material or artificial litter that is transported by stormwater or water runoff.

Ground level	a. The level of the natural ground; or b. If the level of the natural ground has changed, the level as lawfully changed.
Groundwater	Water that occurs naturally in, or is introduced artificially into, an aquifer.
Groundwater extraction	The extraction or collection of water resources from beneath or above ground and the removal of that resource from a property. Water resources include bore water, spring water, rainwater and surface waters.
Groundwater recharge	The vertical transfer of water from the water table to the groundwater table
Grove	A patch of native woody vegetation present in historical imagery, that may or may not be included on: a. OM3A Biodiversity Ecological areas overlay; b. OM3B Biodiversity — Wildlife habitat overlay; c. OM3C Biodiversity — Waterways and Wetlands overlay.
Habitable room	A room used for normal domestic activities and: a. includes a bedroom living room, lounge room, music room, television room, kitchen, dining room, sewing room, study, playroom, family room, home theatre and sunroom; but b. excludes a bathroom, laundry, water closet, pantry, walk-in.
Habitat	The place where an organism lives, a physical area, some specific part of the earth's surface, air, soil, water, or another organism. More than one animal may live in a particular habitat.
Habitat condition	The state of health of the habitat.
Habitat tree	Any native vegetation, whether dead or alive with: a. a total trunk diameter of 60cm or more measured at 1.3m above ground level; or b. which contains a hollow or drey; or c. contains an active bird's nest, or the nest of a bird which uses the same nest more than once; or d. which is defined as a flying fox roost under the <i>Nature Conservation Act</i> .
Habitat value/s	Those characteristics of an area that make it suitable as a habitat or refuge for <i>native vegetation</i> and animals. These characteristics include the physical structure, nutrient and energy flows, condition and extent of habitat and the location of the area in relation to other habitats.
Hazardous chemical/s	A substance listed in schedule 11 of the <i>Work Health and Safety Regulation</i> , in a quantity equal to or more than the threshold stated in column 5 Manifest quantity of schedule 11.
Hazardous chemical facility	Has the same meaning as the <i>Planning Regulation, schedule 24</i> . <i>Note—means the use of premises for a facility at which a prescribed hazardous chemical is present or likely to be present in a quantity that exceeds 10% of the chemical's threshold quantity under the Work Health and Safety Regulation, schedule 15.</i>
Hazardous chemicals for Flood Thresholds	Has the same meaning as State Planning Policy. <i>Note—Hazardous chemicals flood hazard threshold means any of the following:</i> a. <i>hazardous chemical listed in schedule 11 of the Work Health and Safety Regulation in a quantity that exceeds a threshold quantity stated in column 5 of schedule 11.</i> b. <i>a chemical classified as hazardous to the aquatic environment under the Australian Dangerous Goods (ADG) code in the Acute I or Chronic I category that exceeds 2,500 litres or kilograms.</i> c. <i>a chemical classified as hazardous to the aquatic environment under the ADG code in the Chronic II category that exceeds 10,000 litres or kilograms.</i> d. <i>a chemical classified as hazardous to the aquatic environment under the ADG code and assigned to Packing Group III that exceeds 10,000 litres or kilograms.</i> e. <i>a chemical classified as hazardous to the aquatic environment under the Globally Harmonised System of Classification and Labelling of Chemicals that exceeds 10,000 litres or kilograms.</i>
Hazardous material/s	A substance with potential to cause harm to people, property or the environment because of one or more of the following: a. the chemical properties of the substance (e.g. hazardous chemicals); b. the physical properties of the substance (e.g. asbestos, smoke, radiation); c. the biological properties of the substance (e.g. pathogenic micro-organisms, viruses, spores, fungi). Without limiting the above hazardous material/s includes all dangerous goods, combustible liquids and hazardous chemical/s.

Heavy rigid vehicle (HRV)	Has the same meaning as a Heavy Rigid Vehicle as defined in AS.2890.2 — Off Street Parking — Commercial Vehicle Facilities.
Heavy vehicle (HV)	<p>For the purposes of the Home-based business code a heavy vehicle is as defined by the Queensland Road Rules (i.e. <i>Transport Operations (Road Use Management—Road Rules) Regulation</i>).</p> <p>In all other instances, means where the vehicle is used for business purposes a heavy vehicle includes any of the following:</p> <ol style="list-style-type: none"> medium rigid truck — more than 8t GVM with not more than two axles and with or without a trailer weighing 9t GVM or less; medium rigid tractor — more than 8t GVM with not more than two axles; medium rigid bus — more than 8t GVM with not more than two axles; heavy rigid truck — and more than 8t GVM with more than two axles with or without a trailer weighing 9t GVM or less, this includes a single prime mover; heavy rigid bus — with more than 8t GVM with more than two axles and with or without a trailer weighing 9t GVM or less; articulated bus — more than 8t GVM with more than two axles; heavy combination — rigid truck more than 8t GVM towing one trailer weighing more than 9t GVM; heavy combination — prime mover more than 8t GVM towing one semitrailer; B-double — prime mover towing two semitrailers, with one semitrailer supported at the front and connected to the other semitrailer; a specially constructed vehicle more than 8t GVM being: a crane, hoist or load shifting equipment for which a Workplace, Health and Safety Certificate is issued; any other motor vehicle that is not constructed to carry passengers or a load, except things used in performing a vehicles function; but does not include a motor vehicle with a chassis that is the same as a truck chassis.
High risk soils	<p>An area with:</p> <ol style="list-style-type: none"> erosive soils — soils that are more susceptible to erosion due to their physical structure or chemistry; dispersive soils — soils that are structurally unstable and readily disperse into their constituent particles (e.g. clay, silt and sand) in water. Flocculants and coagulants may be required to interfere with this process to allow suspended sediment to settle out of the water column; <i>Examples include a sediment basin.</i> sodic soils — soils with a high percentage of sodium ions (in soluble or exchangeable form), exhibiting degradation such as dispersion when wet and crusting when dry; saline soils — soils containing enough concentrations of soluble salts within the soil profile to result in reduced plant productivity or damage to infrastructure such as roads and building footings; acid sulfate soils (ASS)— soils that include both actual and potential ASS. Soil or sediment containing highly acidic soil horizons (or layers) affected by the oxidation of iron sulphides is known as actual ASS. Soil or sediment containing iron sulphides or other sulphide material that has not been exposed to air and oxidised is known as potential acid sulfate soils (PASS).
Higher order road	A higher order road specified on the OM15 Road hierarchy overlay.
Household	1 or more individuals who live together in a dwelling.
Hydrological processes	<p>Hydrological processes include:</p> <ol style="list-style-type: none"> surface water flows off the catchment into springs, waterholes, wetlands and waterways; groundwater-surface water exchange; floods, run-off events connecting springs, waterholes, wetlands to waterways; evapotranspiration from vegetation; evaporation from waterbodies; precipitation.
Impervious area	The area of the premises that is impervious to rainfall or overland flow that results in the discharge of stormwater from the premises.
Infrastructure work	<p>Work for:</p> <ol style="list-style-type: none"> supply or treatment of water or gas; or supply of electricity; or sewerage, or stormwater drains; or

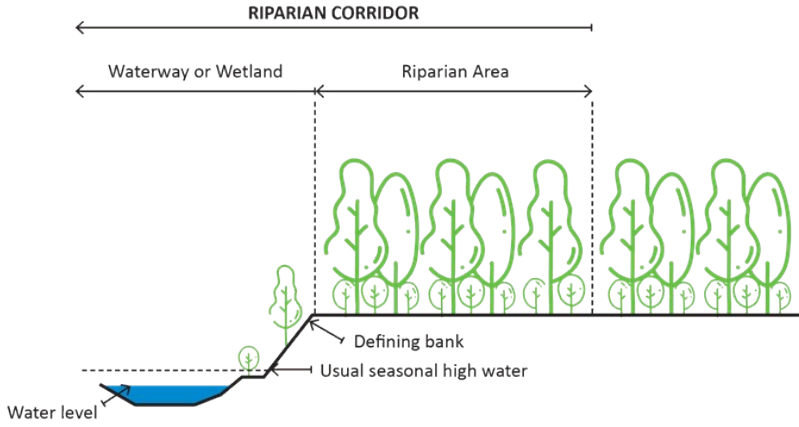
	<p>d. movement network infrastructure; or</p> <p>e. waste management facilities; or</p> <p>f. telecommunications infrastructure.</p>
Investigation area	<p>The area mapped in Planning Scheme Policy 4 Flood hazard as Investigation area. The mapping is based on various landform datasets that represents previous areas of inundation. The Investigation area has been identified where the spatial extent of the mapping identifies an Investigation area of interest for potential flooding impacts and:</p> <p>a. data is not available; or</p> <p>b. two or more flood models create conflicting results.</p> <p>The mapping does not include or specify a flood extent, velocity or risk level. The Investigation area triggers a flood risk assessment to determine the acceptable, tolerable and intolerable flood risk hazard.</p>
Key species	<p>A threatened species or essential habitat listed under the:</p> <p>a. <i>Nature Conservation Act</i>;</p> <p>b. <i>Vegetation Management Act</i>;</p> <p>c. <i>Environment Protection and Biodiversity Conservation Act</i>;</p> <p>d. International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.</p>
Koala habitat tree	<p>Has the same meaning as the <i>Nature Conservation Act</i>.</p> <p><i>Note—</i></p> <p>a. a tree of the <i>Corymbia</i>, <i>Melaleuca</i>, <i>Lophostemon</i> or <i>Eucalyptus</i> genera that is edible by koalas; or</p> <p>b. a tree of a type typically used by koalas for shelter, including, for example, a tree of the <i>Angophora</i> genus.</p>
Lake	<p>Has the same meaning as the <i>Water Act</i>.</p> <p><i>Note—</i></p> <p>a. if a feature is mapped on the watercourse identification map as a lake—means the feature mapped on the map; or</p> <p>b. otherwise—</p> <p>i. includes a lagoon, swamp or other natural collection of water, whether permanent or intermittent and the bed, banks and any other element confining or containing the water; but</p> <p>ii. does not include a lake within which the high spring tide ordinarily flows and reflows or a drainage feature.</p>
Land degradation	<p>Means:</p> <p>a. soil erosion; or</p> <p>b. rising water tables; or</p> <p>c. the expression of salinity; or</p> <p>d. mass movement by gravity of soil or rock; or</p> <p>e. stream bank instability; or</p> <p>f. a process that results in declining water quality including disturbance of high risk soils on OM13 High risk soils overlay.</p>
Local government infrastructure	<p>Infrastructure work that is or is intended to be owned, controlled or maintained by the local government. Typically, it will be provided by the person who has the benefit of a development approval.</p>
Local heritage place	<p>A place that has local cultural heritage significance mapped on OM5 Cultural heritage overlay.</p> <p><i>Editor's note—Planning Scheme Policy 3 Cultural Heritage identifies places in the region that have local cultural heritage significance.</i></p>
Major hazard facility	<p>Has the meaning given in the <i>Work Health and Safety Regulation</i>.</p> <p><i>Note—means a facility—</i></p> <p>a. at which schedule 15 chemicals are present or likely to be present in a quantity that exceeds their threshold quantity; or</p> <p>b. that is determined by the regulator under part 9.2 to be a major hazard facility.</p>
Matters of environmental significance	<p>An area identified as a Matter of National, State or Local Environmental Significance.</p>
Matters of Local	<p>An area identified as a Matter of Local Environmental Significance mapped on:</p>

Environmental Significance	<ul style="list-style-type: none"> a. OM3A Biodiversity overlay — Ecological areas overlay; b. OM3B Biodiversity overlay — Wildlife Habitat overlay; c. OM3C Biodiversity overlay — Waterways and wetlands overlay.
Matters of State Environmental Significance	Has the same meaning as the State Planning Policy.
Matters of National environmental significance	Has the same meaning as the State Planning Policy.
Mechanical clearing	<p>The clearing of vegetation using any of the following methods:</p> <ul style="list-style-type: none"> a. slashing; or b. brush cutting; or c. push over; or d. damage the root zone by compaction, excavation or filling that destroys or damages the vegetation; or e. machinery which disturbs the soil surface or uproots woody vegetation including but not limited to attaching guy rope, cable or other contrivances.
Medium Rigid Vehicle (MRV)	The same meaning as a Medium Rigid Vehicle as defined in AS.2890.2: Parking Facilities — Part 2: Off-street Commercial Vehicle Facilities.
Mezzanine	<p>Has the same meaning as the NCC.</p> <p><i>Note—An intermediate floor within a room.</i></p> <p><i>Note—Definition from the NCC. For the purposes of calculating the rise in storeys of a building:</i></p> <ul style="list-style-type: none"> a. a mezzanine is regarded as a storey in that part of the building in which it is situated if its floor area is more than 200m² or more than 1/3 of the floor area of the room, whichever is the lesser; and b. two or more mezzanines are regarded as a storey in that part of the building in which they are situated if they are at or near the same level and have an aggregate floor area more than 200m² or more than 1/3 of the floor area of the room, whichever is the lesser.
Minor building work	<p>Building work that increases the gross floor area of a building by no more than the lesser of the following—</p> <ul style="list-style-type: none"> a. 50m²; or b. an area equal to 5% of the gross floor area of the building.
Minor electricity infrastructure	<p>Development for a supply network or for private electricity works that form an extension of, or provide service connections to, properties from the network, if the network operates at standard voltages up to and including 66kV, other than development for:</p> <ul style="list-style-type: none"> a. a new zone Substation or bulk supply Substation; or b. the augmentation of a zone Substation or bulk supply Substation that significantly increases the input or output standard voltage.
Minor filling or excavation	<p>Any filling or excavation that involves:</p> <ul style="list-style-type: none"> a. berms or mounds associated with a rural activity; or b. the following where all i — xv are met: <ul style="list-style-type: none"> i. changing the natural ground level by less than 1m in depth; and ii. involving the moving of less than: <ul style="list-style-type: none"> A. 500m³ of earth in the Rural zone or Special industry zone; or B. 50m³ of earth in the Low density residential zone, Low-medium density residential zone, Mixed use zone and Township zone; or C. 10m³ of earth in the Conservation zone and Limited development zone; or D. 200m³ of earth in any other Zone; and iii. is non-structural fill; and iv. is not undertaken within a public utilities' easement; and v. is not within 10m of: <ul style="list-style-type: none"> A. public infrastructure; or B. an overland flow path; and vi. is not within 1.5m of a lot boundary; and vii. is not within the defined flood level; and viii. is not within a separation area on OM3C Biodiversity — Waterways and Wetland habitat overlay; and ix. is not within a 15% slope or greater on OM11 Steep land overlay; and x. is not within a 200m bulk supply storage buffer on OM12B Waterways and water resource

	<p>catchment - water resource catchment overlay; and</p> <p>xi. is not within a 100m of a salinity expression area on OM13 High risk soils overlay; and</p> <p>xii. the site is not on a local or state heritage register; and</p> <p>xiii. the fill is clean; and</p> <p>xiv. earth batters (not including a retaining wall) have a slope less than 1H:6V; and</p> <p>xv. any overflow is in line with a natural overland flow path as it leaves the property.</p> <p><i>Note—Depending on the extent or nature of the proposed works, it may be necessary to consider and apply the following before the construction of a dam and/or levee:</i></p> <p>a. <i>Water Supply (Safety and Reliability) Act</i></p> <p>b. <i>Water Act;</i></p> <p>c. <i>Queensland Dam Safety Management Guideline;</i></p> <p>d. <i>Small Dam Safety: Information for Queensland small dam owners;</i></p> <p>e. <i>Any other relevant legislations and regulations.</i></p> <p><i>Note—Berms or mounds are a type of levee.</i></p> <p><i>Editor's note—Sediment and erosion control measures are still required to ensure compliance with the Environmental Protection Act. Overlays may prescribe a higher level of assessment, or have different measures, than section 5.7 Levels of Assessment — Operational work and must be considered when determining the appropriate level of assessment for filling or excavation.</i></p>
Minor operational work	<p>Any of the following is minor operational work:</p> <p>a. Landscape work where:</p> <p>i. a fence or boundary fence; or</p> <p>ii. not more than a cumulative site area of 50m² (over any period) where not in association with a Material change of use or reconfiguring a lot; or</p> <p>iii. for the conservation or restoration of natural areas; or</p> <p>iv. associated with a Dwelling House (not involving a fence or boundary fence); or</p> <p>v. outside a high and extreme flood hazard area mapped on OM7 Flood hazard overlay except where a fence or boundary fence and the fence is less than 50% permeable; or</p> <p>b. Vegetation clearing where exempt clearing work; or</p> <p>c. Minor filling or excavation; or</p> <p>d. Works for infrastructure where for Minor electricity infrastructure; or</p> <p>e. Works for infrastructure where for the maintenance or repair of existing infrastructure:</p> <p>i. in an on-maintenance period before transfer of ownership to a public entity; or</p> <p>ii. where for lawfully approved private infrastructure; or</p> <p>iii. where for lawfully approved gates and grids; or</p> <p>f. Advertising device where not a billboard or pylon sign.</p>
Net developable area	<p>For premises, means the area of the premises that—</p> <p>a. is able to be developed; and</p> <p>b. is not subject to a development constraint including for example, a constraint relating to acid sulfate soils, flooding or slope.</p> <p><i>Examples include a constraint relating to a natural hazard or land feature.</i></p>
Off-site	External to the site the subject of the development application.
On-site	Located or done at the site the subject of the development application.
Outdoor lighting	Any form of permanently installed lighting system whether internal or external that emits light that may have impacts beyond the site.
Outermost projection	<p>Of a building or structure, means the outermost part of the building or structure, other than a part that is—</p> <p>a. a retractable blind; or</p> <p>b. a fixed screen; or</p> <p>c. a rainwater fitting; or</p> <p>d. an ornamental attachment.</p>
Overland flow	<p>The same as overland flow water under the <i>Water Act</i>.</p> <p><i>Note—means water, including floodwater, that is urban stormwater or is other water flowing over land, otherwise than in a watercourse or lake:</i></p> <p>a. <i>after having fallen as rain or in any other way; or</i></p> <p>b. <i>after rising to the surface naturally from underground.</i></p> <p><i>Overland flow water does not include:</i></p>

	<p>a. water that has naturally infiltrated the soil in normal farming operations, including infiltration that has occurred in farming activity such as clearing, replanting and broadacre ploughing; or</p> <p>b. tailwater from irrigation if the tailwater recycling meets best practice requirements; or</p> <p>c. water collected from roofs for rainwater tanks.</p>
Overland flow path	<p>Where a piped drainage system exists, the path where flood waters exceeding the capacity of the underground drainage system would flow; or</p> <p>Where no piped drainage system or waterway exists, a drainage feature as defined in the <i>Survey and Mapping Infrastructure Act</i>.</p> <p><i>Note—Drainage feature means a natural landscape feature, including a gully, drain, drainage depression or other erosion feature that—</i></p> <p>a. is formed by the concentration of, or operates to confine or concentrate, overland flow water during and immediately after rainfall events; and</p> <p>b. flows for only a short duration after a rainfall event, regardless of the frequency of flow events; and</p> <p>c. commonly, does not have enough continuing flow to create a riverine environment.</p> <p><i>Example for paragraph c.—</i> <i>There is commonly an absence of water favouring riparian vegetation.</i></p>
Plan of development	<p>A plan that forms part of a development approval, for a variety of development types to regulate development controls.</p> <p>Examples include the location of the following—</p> <p>a. built to boundary walls;</p> <p>b. services;</p> <p>c. driveways;</p> <p>d. primary and secondary street frontages.</p>
Planning assumption	<p>An assumption about the type, scale, location and timing of future growth in the local government area.</p>
Plot ratio	<p>The ratio of gross floor area compared to the area of the site. Where calculating plot ratio it should be rounded up to the nearest whole number.</p> <p><i>Example calculation includes 1,864m² GFA and 623m² equals a plot ratio of 2.9 of floor area to 1 site area and written as 2.9:1.</i></p>
Poultry	<p>Any of the following birds—</p> <p>a. chickens;</p> <p>b. ducks;</p> <p>c. geese;</p> <p>d. turkeys.</p>
Primary frontage	<p>If a lot has frontage to two or more roads, means:</p> <p>a. where in a residential zone, the frontage to the lower order road; or</p> <p>b. the frontage that is the shorter of the two; or</p> <p>c. the frontage that is a sealed or constructed road, if one frontage is to an unconstructed road; or</p> <p>d. where there are more than two frontages and only one is sealed the frontage to the sealed road; or</p> <p>e. where there are two sealed or constructed road frontages of equal length, the frontage that forms the address for the site as nominated by Council.</p>
Private open space	<p>An outdoor space for the exclusive use of occupants of a building.</p>
Prize home	<p>A dwelling open for public inspection and the sale of raffle tickets for which the home is a prize.</p> <p><i>Note—A prize home conducted by a charity or not-for-profit organisation and open to the public for a period not exceeding 8 weeks is defined as a temporary use and is exempt development.</i></p>
Probable Maximum Flood (PMF)	<p>An engineering design concept that uses probable maximum precipitation to define the maximum limit of a flood's extent, based on the hydrologic conditions of the region being modelled. As such the PMF is unlikely to have a clear Annual Exceedance Probability.</p>
Projection area	<p>A part of the local government area for which the local government has carried out demand growth projection.</p>
Public open space	<p>Outdoor spaces that are generally accessible to the community and provide for a range of sport, recreation, cultural, entertainment or leisure pursuits.</p>
Public transport	<p>Services and facilities to transport passengers by modes such as buses and rail that are provided</p>

	for public use.
Pylon sign	A free-standing advertising device used to advertise a business or activity being conducted on the land on which the pylon is located. Generally, a pylon sign is elevated from the ground, and the height of the advertising space of a pylon sign is greater than its width.
Rear access lot	A lot that has access to a road by means of: <ol style="list-style-type: none"> a. an access strip that forms part of the lot; or b. an easement over an adjoining lot.
Recharge	The entry into the saturated zone of water made available at the water table surface, together with the associated flow away from the water table within the saturated zone.
Refuse collection vehicle (RCV)	Refuse collection vehicle no smaller than 2.5m x 10.2m.
Region	Refers to the Lockyer Valley Regional Council Local Government Area.
Regional native species	Means flora or fauna native to a locality.
Registered Professional Engineer of Queensland (RPEQ)	A Registered Professional Engineer of Queensland (RPEQ), under the <i>Professional Engineers Act</i> , having the necessary qualifications and experience to perform regulatory or professional functions relevant to the function being undertaken.
Regulated vegetation	The same meaning as the State Planning Policy for Matters of State Environmental Significance (MSES) — Regulated Vegetation.
Residential zone	A premises (however described) designated in a local categorising instrument as residential. <i>Editor's note—For the purposes of the scheme, Residential zones are the Low density residential zone, Low-medium density residential zone, Rural residential zone and Township zone.</i>
Restoration area	An area that has been conditioned to be restored to assist the recovery of an ecosystem that has been previously degraded or destroyed.
Restoration buffer	Vegetation planting for ecological protection purposes that is separate to ecological corridor: <ol style="list-style-type: none"> a. provide habitat for wildlife; b. prevents pest and weed incursion into matters of environmental significance; c. removes sediment and other pollutants from surface runoff; d. minimises water volumes directly entering waterways; e. minimises edge effects including sunlight penetration; f. minimises bushfire and radiant heat impacts.
Reverse amenity	The situation where an existing use would adversely affect the amenity of a proposed use such that, if the proposed use were carried out, the carrying out of the existing use would be restricted or prevented.
Riparian	Relating to or situated on the banks of a waterway.
Riparian buffer	The area of riparian vegetation on each side of a waterway, which: <ol style="list-style-type: none"> a. slows the velocity of overland flow b. facilitates infiltration c. filters overland flow d. provides organic matter e. provides shade f. effectively stabilised surface and the banks of waterways g. provides habitat.

<p>Riparian corridor</p>	<p>Figure SC1.2-1: Riparian corridor</p>  <p>The diagram illustrates a cross-section of a riparian corridor. At the bottom left, a blue area represents the 'Water level'. A dashed line indicates the 'Usual seasonal high water' level. A solid line marks the 'Defining bank'. To the right of the defining bank is the 'Riparian Area', which contains several green trees. Above the riparian area is the 'Waterway or Wetland'. A horizontal double-headed arrow at the top spans the entire width of the diagram and is labeled 'RIPARIAN CORRIDOR'.</p> <p>The bed, banks and riparian area of a waterway or wetland as shown in the figure above.</p> <p><i>Note—Defining bank has the same meaning as schedule 24 of the Planning Regulation.</i></p>
<p>Risk</p>	<p>A concept used to describe the likelihood of harmful consequences arising from the interaction of hazards, community and the environment.</p>
<p>Road</p>	<p>Has the same meaning as the section 93, of the <i>Land Act</i>.</p> <p><i>Note—</i></p> <ol style="list-style-type: none"> 1. An area of land, whether surveyed or unsurveyed: <ol style="list-style-type: none"> a. dedicated, notified or declared to be a road for public use; or b. taken under an Act, for the purpose of a road for public use. 2. The term includes: <ol style="list-style-type: none"> a. a street, esplanade, reserve for esplanade, highway, pathway, thoroughfare, track or stock route; b. a bridge, causeway, culvert or other works in, or over or under a road; c. any part of a road.
<p>Road hierarchy</p>	<p>A system in which roads are ranked in terms of their function, type and capacity to support diverse types of vehicles and volumes of traffic. OM15 Road hierarchy overlay</p>
<p>Runoff</p>	<p>The water which is not lost to infiltration, evaporation, transpiration or depression storage.</p>
<p>Rural areas</p>	<p>The land mapped on Strategic Framework Map SFM1 Growing Communities as Rural Areas.</p>
<p>Salinity expression area</p>	<p>An area containing two or more of the following:</p> <ol style="list-style-type: none"> a. plant species tolerant of saline conditions; or b. shallow water tables or poor drainage (waterlogging); or c. wet areas in lower parts of the landscape or bare soil (soil scalding); or d. dieback of larger trees in low, wetter parts of the landscape (outside drought conditions or the effects of fire); or e. salt accumulations on the surface (often white and powdery, sometimes crystalline); or f. areas of shallow groundwater. <p><i>Note—A water table less than 5m from the surface would be considered as shallow for this purpose. One mechanism to identify this is from an adjacent bore.)</i></p>
<p>Scale</p>	<p>In a streetscape context, the relative size of a building similar to adjacent buildings or the relative size of components of a building when different to similar parts on adjacent buildings.</p>
<p>Screen landscaping</p>	<p>Landscaping for amenity protection purposes that:</p> <ol style="list-style-type: none"> a. screens or obscures from view development that is unsightly, intrusive or visually incompatible with the area in which it is located; b. maintains visual amenity or privacy of adjacent sensitive land uses or public spaces; c. reduces chemical spray drift, noise, dust and odour to adjacent sensitive land uses or public spaces; d. as described in Planning Scheme Policy 7 Landscaping.

Sealed road	A road located on a road reserve which is trafficable and where the local government has improved the natural surface by the addition of at least 100mm of gravel pavement with a bitumen or asphaltic seal and crossroad drainage.
Secondary dwelling	A dwelling on a lot that is used in conjunction with, but subordinate to, another dwelling on the lot, whether or not the dwelling is— a. attached to the other dwelling; or b. occupied by individuals who are related to, or associated with, the household of the other dwelling.
Secondary frontage	Where a lot has frontage to two or more roads, means any frontage that is not the primary frontage.
Sedimentation	The deposition or accumulation of sediment.
Sensitive land use	a. Caretaker's accommodation; or b. a Childcare centre; or c. a Community care centre; or d. a Community residence; or e. a Detention facility; or f. a Dual occupancy; or g. a Dwelling house; or h. a Dwelling unit; or i. an Educational establishment; or j. a Health care service; or k. a Hospital; or l. a Hotel, to the extent the Hotel provides accommodation for tourists or travellers; or m. a Multiple dwelling; or n. a Relocatable home park; or o. a Residential care facility; or p. a Resort complex; or q. a Retirement facility; or r. Rooming accommodation; or s. Rural workers' accommodation; or t. Short-term accommodation; or u. a Tourist park; or v. Workforce accommodation.
Sensitive receptor	A sensitive land use and does not include a Caretaker's accommodation where located in the Industry zone.
Service catchment	An area serviced by an infrastructure network.
Service vehicle	Vehicles that provide a service to the community and includes emergency service vehicles, waste collection vehicles and street cleaning vehicles.
Setback	For a building or structure, means the shortest distance, measured horizontally, between the outermost projection of the building or structure to the vertical projection of the boundary of the lot where the building or structure is.
Site	Of development, means the land that the development is to be carried out on. <i>Examples—</i> <i>If development is to be carried out on part of a lot, the site of the development is that part of the lot.</i> <i>If development is to be carried out on part of 1 lot and part of an adjoining lot, the site of the development is both of those parts.</i>
Site cover	Of development, means the portion of the site, expressed as a percentage, that will be covered by a building or structure, measured to its outermost projection, after the development is carried out, other than a building or structure, or part of a building or structure, that is— a. in a landscaped or open space area, including, for example, a gazebo or shade structure; or b. a basement that is completely below ground level and used for car parking; or c. the eaves of a building; or d. a sun shade.
Small Bus	Has the same meaning as a Medium Rigid Vehicle as defined in AS.2890.2: Parking Facilities — Part 2: Off-street Commercial Vehicle Facilities.
Small residential lot	A lot with an area between 350m ² and 600m ² and located within the Low density residential zone or the Low-medium density residential zone.

Small rigid vehicle (SRV)	Has the same meaning as a Small Rigid Vehicle as defined in AS.2890.2 — Off Street Parking — Commercial Vehicle Facilities.
Soil erosion and instability	Gully erosion more than 30cm in depth, landslips, a scarp, soil scalding or stream bank slumping.
Spring	Has the same meaning as the <i>Water Act</i> . <i>Note—</i> <ul style="list-style-type: none"> a. if a feature is mapped on the watercourse identification map as a spring the feature mapped on the map; or b. otherwise—the land to which water rises naturally from below the ground and the land over which the water then flows.
Stable	A building or structure used for the lodging and feeding of horses, containing stalls. The term does not include: <ul style="list-style-type: none"> a. unroofed yards or pens; and b. shade or shelter structures contained within grazing pastures with at least one open side to allow free access to horses.
State-controlled road	Has the same meaning as the <i>Transport Infrastructure Act</i> . <i>Note—A road or land, or part of a road or land, declared under section 24 (of the Transport Infrastructure Act), to be a State-controlled road and, for chapter 6, part 5, division 2, subdivision 2 (of the Transport Infrastructure Act), see section 53 (of the Transport Infrastructure Act).</i>
State significant species	Has the same meaning as wildlife species listed in schedules 2 to 6 inclusive of the <i>Nature Conservation (Wildlife) Regulation</i> .
Storey	<ul style="list-style-type: none"> a. A space within a building between 2 floor levels, or a floor level and a ceiling or roof, other than — <ul style="list-style-type: none"> i. a space containing only a lift shaft, stairway or meter room; or ii. a space containing only a bathroom, shower room, laundry, toilet or other sanitary compartment; or iii. a space containing only a combination of the things stated in subparagraph i. or ii.; or iv. a basement with a ceiling that is not more than 1m above ground level; and b. includes— <ul style="list-style-type: none"> i. a mezzanine; ii. a roofed structure that is on, or part of, a rooftop, if the structure does not only accommodate building plant and equipment.
Stormwater	Has the same meaning as <i>Environmental Protection Act</i> . <i>Note—stormwater includes run-off of rainwater from an urban or rural source.</i>
Stormwater device	Any device referred to in the Queensland Urban Drainage Manual (QUDM) and current Water by Design resources and Guidelines and any device approved by Council for use in a proposed development.
Stormwater drain	Has the same meaning as section 76(2) of the <i>Local Government Act</i> . <i>Note—is a drain, channel, pipe, chamber, structure, outfall or other work used to receive, store, transport or treat stormwater.</i>
Stormwater installation	Has the same meaning as section 76(3) of the <i>Local Government Act</i> . <i>Note—for a property:</i> <ul style="list-style-type: none"> a. is any roof gutters, downpipes, subsoil drains or stormwater drain for the property; but b. does not include any part of a local government's stormwater drain.
Stormwater quality improvement device	A device or component of a stormwater network used to improve stormwater quality.
Street landscaping	The relevant design and standard of landscaping as described in Planning Scheme Policy 6 Infrastructure design.
Streetscape	The collective combination of urban form elements that constitute the view of a street and its public and private domains. These elements include buildings, roads, footpaths, vegetation, open spaces and street furniture.

Structure	Has the same meaning as the <i>Building Act</i> . <i>Note—Includes a wall or fence and anything fixed to or projecting from a building, wall, fence or other structure.</i>
Temporary use	A use that— a. is carried out on a non-permanent basis; b. does not involve the construction of, or significant changes to, permanent buildings or structures. <i>Note—See section 1.7 Local government administrative matters.</i>
Total use area (TUA)	The total area of all buildings, structures, plant or equipment and storage areas whether roofed or not but excludes service infrastructure, car parking areas and landscaping.
Ultimate development	For an area or premises, means the likely extent of development that is anticipated in the area, or on the premises, if the area or premises are fully developed.
Urban area	Has the same meaning as the <i>Planning Regulation</i> . <i>Note—means—</i> a. an area identified in a gazette notice by the chief executive as an urban area; or b. if no gazette notice has been published—an area identified as an area intended for an urban purpose, or for an urban purpose in the future, on a map in a planning scheme that— i. identifies the area using cadastral boundaries; and ii. is used exclusively or mainly to assess development applications. <i>Example of a map for paragraph b.— a zoning map.</i>
Urban footprint	The area identified in the <i>ShapingSEQ: South East Queensland Regional Plan</i> as ‘urban footprint’.
Urban purpose	A purpose for which land is used in cities or towns: a. including residential, industrial, sporting, recreation and commercial purposes; but b. not including rural residential, environmental, conservation, rural, natural or wilderness area purposes.
Van	Has the same meaning as a 99.8th percentile vehicle as defined in AS.2890.1-2004: Parking Facilities — Part 1: Off-street car parking.
Vegetation or Native vegetation	Any tree, shrub, bush, vine, forb, herb or grass, or other living or dead plant material, that is indigenous to Australia. It does not include environmental weeds, or native or exotic plants planted within a garden.
Vehicle trips per day (vpd)	The demand unit for the road network that is represented by vehicle trips per day. A vehicle trip is a one-way movement of a vehicle between two points for a specific purpose.
Verge	That part of the street or road reserve between the carriageway and the boundary of the adjacent lot or other limit to the road reserve. A verge may accommodate service provider utility infrastructure, footpaths, off-road cycleways, the stormwater drainage network, utility poles and landscaping.
Vulnerable persons	Persons who are identified as having a high degree of susceptibility and low resilience to flood hazard, including unaccompanied minors, the infirmed, the mentally and physically disabled.
Vulnerable use/s	Means any of the following uses: a. Childcare centre; or b. Community care centre; or c. Community residence; or d. Detention facility; or e. Educational establishment; or f. Residential care facility; or g. Retirement facility; or h. Rooming accommodation.
Wastewater	Has the same meaning as the <i>Environmental Protection (Water and Wetland Biodiversity) Policy, schedule 2</i> .
Waters	Has the same meaning as the <i>Environmental Protection (Water and Wetland Biodiversity) Policy</i> . <i>Note—</i> a. includes the bed and banks of waters; and b. without limiting the Acts Interpretation Act, schedule 1, definition Queensland waters, includes—

	<ul style="list-style-type: none"> i. <i>surface water; and</i> ii. <i>groundwater.</i>
Water catchment or water sub-catchment	<p>An area of land that drains water to a common point.</p> <p><i>Note—A catchment is an area with a natural boundary.</i></p> <p><i>Examples of natural boundaries include ridges, hills or mountains where surface water drains to a common channel to form rivers or creeks.</i></p>
Water netserv plan	<p>A plan adopted by an SEQ service provider, as defined under the <i>South-East Queensland Water (Distribution and Retail Restructuring) Act</i>, under section 99BJ of that Act.</p>
Water quality objective/s	<p>Has the same meaning as the <i>Environmental Protection (Water and Wetland Biodiversity) Policy</i>.</p> <p><i>Note—For water, are the objectives for an indicator identified under section 11 for protecting the environmental values for the water.</i></p>
Water sensitive urban design	<p>A holistic design approach to the management of stormwater, incorporating:</p> <ul style="list-style-type: none"> a. the protection and enhancement of the environmental values of receiving waters; b. the use of plants as a form of stormwater treatment; c. water conservation using the reuse of stormwater and the planting of native plants that are water efficient; d. a multi-disciplinary approach to the design of stormwater management; and e. best practice environmental management.
Waterbody	<p>A body of water forming a geographical feature in the landscape.</p> <p><i>Example, a reservoir, farm dam, waterhole, lake, wetland.</i></p>
Waterway	<p>Has the same meaning as the <i>Fisheries Act</i>.</p> <p><i>Note—A river, creek, stream, watercourse, drainage feature or inlet of the sea.</i></p>
Waterway condition	<p>The overall state of health of a waterway, based on an assessment of hydrology, water quality, its streamside zone, physical form and aquatic life.</p>
Wetland	<p>Has the same meaning as the <i>Vegetation Management Act</i>.</p> <p><i>Note—An area of land that supports plants or is associated with plants that are adapted to and dependent on living in wet conditions for at least part of their life cycle.</i></p>
Working area	<p>A part of the land that has enough area for:</p> <ul style="list-style-type: none"> a. access for maintenance and hazard reduction activities; b. safe for a firefighting vehicle and firefighters to undertake firefighting and emergency response activities.
Works codes	<p>The following codes:</p> <ul style="list-style-type: none"> a. Advertising devices code; b. Building design code; c. Earthworks, filling and excavation code; d. Environment and amenity code; e. Infrastructure and services code; f. Landscaping code; g. Stormwater management code; h. Transport, access and parking code.

Schedule 2 Planning Scheme Maps

SC2.1 Map index

1. The table/s below list any strategic plan, zoning, local plan and overlay maps applicable to the planning scheme area.

Editor's note—Mapping for the LGIP is contained within Schedule 3 of the planning scheme.

Table SC2.1-1: Map index

MAP NUMBER	MAP TITLE
Strategic framework maps	
SFM1	Growing communities
SFM2	Prosperous economy
SFM3	Connecting infrastructure
SFM4A	Sustaining the natural environment — Habitat
SFM4B	Sustaining the natural environment — Landscape
SFM5	Living in a great place
Zone maps	
ZM1	Zone map
ZM2	Zone - Precincts map
Overlay maps	
OM1	Agricultural land overlay
OM2	To be determined
OM3A	Biodiversity — Ecological areas overlay
OM3B	Biodiversity — Wildlife habitat overlay
OM3C	Biodiversity — Waterway and wetland habitat overlay
OM4	Bushfire hazard overlay
OM5	Cultural heritage overlay
OM6	Extractive resources overlay
OM7	Flood hazard overlay
OM8	Helidon management area overlay
OM9A	Infrastructure - Energy and water supply overlay
OM9B	Infrastructure - Emissions and hazardous activities overlay
OM10	Scenic landscapes overlay
OM11	Steep land overlay
OM12A	Waterways and water resource catchment - Ecosystems overlay
OM12B	Waterways and water resource catchment - Water resource catchment overlay
OM13	High risk soils overlay — information overlay
OM14	Transport noise corridor overlay — information overlay
OM15	Road hierarchy overlay — information overlay

SC2.2 Strategic Framework Maps

1. The strategic framework maps applicable to the planning scheme area are stated in Table SC2.2-1.
2. For all maps please refer to planning scheme map portal.

Table SC2.2-1: Strategic framework maps

MAP NUMBER	MAP TITLE	GAZETTAL DATE	AMENDMENT
SFM1-00	Growing communities, LVRC	19 July 2024	
SFM1-01	Growing communities, LGA north-west	19 July 2024	
SFM1-02	Growing communities, LGA north-east	19 July 2024	
SFM1-03	Growing communities, LGA south-west	19 July 2024	
SFM1-04	Growing communities, LGA south-east	19 July 2024	
SFM1-05	Growing communities, LGA south	19 July 2024	
SFM2-00	Prosperous Economy, LVRC	19 July 2024	
SFM2-01	Prosperous Economy, LGA north-west	19 July 2024	
SFM2-02	Prosperous Economy, LGA north-east	19 July 2024	
SFM2-03	Prosperous Economy, LGA south-west	19 July 2024	
SFM2-04	Prosperous Economy, LGA south-east	19 July 2024	
SFM2-05	Prosperous Economy, LGA south	19 July 2024	
SFM3-00	Connecting infrastructure, LVRC	19 July 2024	
SFM3-01	Connecting infrastructure, LGA north-west	19 July 2024	
SFM3-02	Connecting infrastructure, LGA north-east	19 July 2024	
SFM3-03	Connecting infrastructure, LGA south-west	19 July 2024	
SFM3-04	Connecting infrastructure, LGA south-east	19 July 2024	
SFM3-05	Connecting infrastructure, LGA south	19 July 2024	
SFM4A-00	Sustaining the natural environment — Habitat, LVRC	19 July 2024	
SFM4A-01	Sustaining the natural environment — Habitat, LGA north-west	19 July 2024	
SFM4A-02	Sustaining the natural environment — Habitat, LGA north-east	19 July 2024	
SFM4A-03	Sustaining the natural environment — Habitat, LGA south-west	19 July 2024	
SFM4A-04	Sustaining the natural environment — Habitat, LGA south-east	19 July 2024	
SFM4A-05	Sustaining the natural environment — Habitat, LGA south	19 July 2024	
SFM4B-00	Sustaining the natural environment — Landscape, LVRC	19 July 2024	
SFM4B-01	Sustaining the natural environment — Landscape, LGA north-west	19 July 2024	
SFM4B-02	Sustaining the natural environment — Landscape, LGA north-east	19 July 2024	
SFM4B-03	Sustaining the natural environment — Landscape, LGA south-west	19 July 2024	
SFM4B-04	Sustaining the natural environment — Landscape, LGA south-east	19 July 2024	

SFM4B-05	Sustaining the natural environment — Landscape, LGA south	19 July 2024	
SFM5-00	Living in a great place, LVRC	19 July 2024	
SFM5-01	Living in a great place, LGA north-west	19 July 2024	
SFM5-02	Living in a great place, LGA north-east	19 July 2024	
SFM5-03	Living in a great place, LGA south-west	19 July 2024	
SFM5-04	Living in a great place, LGA south-east	19 July 2024	
SFM5-05	Living in a great place, LGA south	19 July 2024	

SC2.3 Zone Maps

1. The zone maps applicable to the planning scheme area are stated in Table SC2.3-1.
2. For all maps please refer to planning scheme map portal.

MAP NUMBER	MAP TITLE	GAZETTAL DATE	AMENDMENT
ZM1-00	Zone map, Local government area	19 July 2024	
ZM1-01	Zone map, LGA north-west	19 July 2024	
ZM1-02	Zone map, LGA north-east	19 July 2024	
ZM1-03	Zone map, LGA south-west	19 July 2024	
ZM1-04	Zone map, LGA south-east	19 July 2024	
ZM1-05	Zone map, LGA south	19 July 2024	
ZM1-06	Zone map, Withcott	19 July 2024	
ZM1-07	Zone map, Murphys Creek	19 July 2024	
ZM1-08	Zone map, Helidon	19 July 2024	
ZM1-09	Zone map, Grantham	19 July 2024	
ZM1-10	Zone map, Gatton	19 July 2024	
ZM1-11	Zone map, Forest Hill	19 July 2024	
ZM1-12	Zone map, Laidley	19 July 2024	
ZM1-13	Zone map, Plainland	19 July 2024	
ZM1-14	Zone map, Regency Downs	19 July 2024	
ZM2-00	Zone - Precincts map, Local government area	19 July 2024	
ZM2-01	Zone - Precincts map, LGA north-west	19 July 2024	
ZM2-02	Zone - Precincts map, LGA north-east	19 July 2024	
ZM2-03	Zone - Precincts map, LGA south-west	19 July 2024	
ZM2-04	Zone - Precincts map, LGA south-east	19 July 2024	
ZM2-05	Zone - Precincts map, LGA south	19 July 2024	
ZM2-06	Zone - Precincts map, Withcott	19 July 2024	
ZM2-07	Zone - Precincts map, Murphys Creek	19 July 2024	
ZM2-08	Zone - Precincts map, Helidon	19 July 2024	
ZM2-09	Zone - Precincts map, Grantham	19 July 2024	
ZM2-10	Zone - Precincts map, Gatton	19 July 2024	
ZM2-11	Zone - Precincts map, Forest Hill	19 July 2024	
ZM2-12	Zone - Precincts map, Laidley	19 July 2024	
ZM2-13	Zone map, Plainland	19 July 2024	
ZM2-14	Zone map, Regency Downs	19 July 2024	

SC2.4 Overlay Maps

1. The strategic framework maps applicable to the planning scheme area are stated in Table SC2.4-1.
2. For all maps please refer to planning scheme map portal.

Table SC2.4-1: Overlay maps

MAP NUMBER	MAP TITLE	GAZETTAL DATE	AMENDMENT DATE
OM1-00	Agricultural land overlay, Local government area	19 July 2024	
OM1-01	Agricultural land overlay, LGA north-west	19 July 2024	
OM1-02	Agricultural land overlay, LGA north-east	19 July 2024	
OM1-03	Agricultural land overlay, LGA south-west	19 July 2024	
OM1-04	Agricultural land overlay, LGA south-east	19 July 2024	
OM1-05	Agricultural land overlay, LGA south	19 July 2024	
OM1-06	Agricultural land overlay, Withcott	19 July 2024	
OM1-07	Agricultural land overlay, Murphys Creek	19 July 2024	
OM1-08	Agricultural land overlay, Helidon	19 July 2024	
OM1-09	Agricultural land overlay, Grantham	19 July 2024	
OM1-10	Agricultural land overlay, Gatton	19 July 2024	
OM1-11	Agricultural land overlay, Forest Hill	19 July 2024	
OM1-12	Agricultural land overlay, Laidley	19 July 2024	
OM1-13	Agricultural land overlay, Plainland	19 July 2024	
OM1-14	Agricultural land overlay, Regency Downs	19 July 2024	
OM2_00	Airport Environs overlay map, Gatton	19 July 2024	
OM3A-00	Biodiversity overlay — Ecological areas, Local government area	19 July 2024	
OM3A-01	Biodiversity overlay — Ecological areas, LGA north-west	19 July 2024	
OM3A-02	Biodiversity overlay — Ecological areas, LGA north-east	19 July 2024	
OM3A-03	Biodiversity overlay — Ecological areas, LGA south-west	19 July 2024	
OM3A-04	Biodiversity overlay — Ecological areas, LGA south-east	19 July 2024	
OM3A-05	Biodiversity overlay — Ecological areas, LGA south	19 July 2024	
OM3A-06	Biodiversity overlay — Ecological areas, Withcott	19 July 2024	
OM3A-07	Biodiversity overlay — Ecological areas, Murphys Creek	19 July 2024	
OM3A-08	Biodiversity overlay — Ecological areas, Helidon	19 July 2024	
OM3A-09	Biodiversity overlay — Ecological areas, Grantham	19 July 2024	
OM3A-10	Biodiversity overlay — Ecological areas, Gatton	19 July 2024	
OM3A-11	Biodiversity overlay — Ecological areas, Forest Hill	19 July 2024	
OM3A-12	Biodiversity overlay — Ecological areas, Laidley	19 July 2024	
OM3A-13	Biodiversity overlay — Ecological areas, Plainland	19 July 2024	
OM3A-14	Biodiversity overlay — Ecological areas, Regency Downs	19 July 2024	
OM3B-00	Biodiversity overlay — Wildlife Habitat, Local government area	19 July 2024	
OM3B-01	Biodiversity overlay — Wildlife Habitat, LGA north-west	19 July 2024	
OM3B-02	Biodiversity overlay — Wildlife Habitat, LGA north-east	19 July 2024	
OM3B-03	Biodiversity overlay — Wildlife Habitat, LGA south-west	19 July 2024	
OM3B-04	Biodiversity overlay — Wildlife Habitat, LGA south-east	19 July 2024	

OM3B-05	Biodiversity overlay — Wildlife Habitat, LGA south	19 July 2024	
OM3B-06	Biodiversity overlay — Wildlife Habitat, Withcott	19 July 2024	
OM3B-07	Biodiversity overlay — Wildlife Habitat, Murphys Creek	19 July 2024	
OM3B-08	Biodiversity overlay — Wildlife Habitat, Helidon	19 July 2024	
OM3B-09	Biodiversity overlay — Wildlife Habitat, Grantham	19 July 2024	
OM3B-10	Biodiversity overlay — Wildlife Habitat, Gatton	19 July 2024	
OM3B-11	Biodiversity overlay — Wildlife Habitat, Forest Hill	19 July 2024	
OM3B-12	Biodiversity overlay — Wildlife Habitat, Laidley	19 July 2024	
OM3B-13	Biodiversity overlay — Wildlife Habitat, Plainland	19 July 2024	
OM3B-14	Biodiversity overlay — Wildlife Habitat, Regency Downs	19 July 2024	
OM3C-00	Biodiversity overlay — Wetland Habitat, Local government area	19 July 2024	
OM3C-01	Biodiversity overlay — Wetland Habitat, LGA north-west	19 July 2024	
OM3C-02	Biodiversity overlay — Wetland Habitat, LGA north-east	19 July 2024	
OM3C-03	Biodiversity overlay — Wetland Habitat, LGA south-west	19 July 2024	
OM3C-04	Biodiversity overlay — Wetland Habitat, LGA south-east	19 July 2024	
OM3C-05	Biodiversity overlay — Wetland Habitat, LGA south	19 July 2024	
OM3C-06	Biodiversity overlay — Wetland Habitat, Withcott	19 July 2024	
OM3C-07	Biodiversity overlay — Wetland Habitat, Murphys Creek	19 July 2024	
OM3C-08	Biodiversity overlay — Wetland Habitat, Helidon	19 July 2024	
OM3C-09	Biodiversity overlay — Wetland Habitat, Grantham	19 July 2024	
OM3C-10	Biodiversity overlay — Wetland Habitat, Gatton	19 July 2024	
OM3C-11	Biodiversity overlay — Wetland Habitat, Forest Hill	19 July 2024	
OM3C-12	Biodiversity overlay — Wetland Habitat, Laidley	19 July 2024	
OM3C-13	Biodiversity overlay — Wetland Habitat, Plainland	19 July 2024	
OM3C-14	Biodiversity overlay — Wetland Habitat, Regency Downs	19 July 2024	
OM4-00	Bushfire hazard overlay, Local government area	19 July 2024	
OM4-01	Bushfire hazard overlay, LGA north-west	19 July 2024	
OM4-02	Bushfire hazard overlay, LGA north-east	19 July 2024	
OM4-03	Bushfire hazard overlay, LGA south-west	19 July 2024	
OM4-04	Bushfire hazard overlay, LGA south-east	19 July 2024	
OM4-05	Bushfire hazard overlay, LGA south	19 July 2024	
OM4-06	Bushfire hazard overlay, Withcott	19 July 2024	
OM4-07	Bushfire hazard overlay, Murphys Creek	19 July 2024	
OM4-08	Bushfire hazard overlay, Helidon	19 July 2024	
OM4-09	Bushfire hazard overlay, Grantham	19 July 2024	
OM4-10	Bushfire hazard overlay, Gatton	19 July 2024	
OM4-11	Bushfire hazard overlay, Forest Hill	19 July 2024	
OM4-12	Bushfire hazard overlay, Laidley	19 July 2024	
OM4-13	Bushfire hazard overlay, Plainland	19 July 2024	
OM4-14	Bushfire hazard overlay, Regency Downs	19 July 2024	
OM5-00	Cultural heritage overlay, Local government area	19 July 2024	
OM5-01	Cultural heritage overlay, LGA north-west	19 July 2024	

OM5-02	Cultural heritage overlay, LGA north-east	19 July 2024	
OM5-03	Cultural heritage overlay, LGA south-west	19 July 2024	
OM5-04	Cultural heritage overlay, LGA south-east	19 July 2024	
OM5-05	Cultural heritage overlay, LGA south	19 July 2024	
OM5-06	Cultural heritage overlay, Withcott	19 July 2024	
OM5-07	Cultural heritage overlay, Murphys Creek	19 July 2024	
OM5-08	Cultural heritage overlay, Helidon	19 July 2024	
OM5-09	Cultural heritage overlay, Grantham	19 July 2024	
OM5-10	Cultural heritage overlay, Gatton	19 July 2024	
OM5-11	Cultural heritage overlay, Forest Hill	19 July 2024	
OM5-12	Cultural heritage overlay, Laidley	19 July 2024	
OM5-13	Cultural heritage overlay, Plainland	19 July 2024	
OM5-14	Cultural heritage overlay, Regency Downs	19 July 2024	
OM6-00	Extractive resources overlay, Index	19 July 2024	
OM6-01	Extractive resources overlay, Ballard	19 July 2024	
OM6-02	Extractive resources overlay, Seventeen Mile	19 July 2024	
OM6-03	Extractive resources overlay, Spring Creek	19 July 2024	
OM6-04	Extractive resources overlay, Upper Tenthill	19 July 2024	
OM6-05	Extractive resources overlay, Junction View	19 July 2024	
OM7-00	Flood hazard overlay, Local government area	19 July 2024	
OM8-01	Helidon management area overlay, Helidon	19 July 2024	
OM9A-00	Infrastructure - Energy and water supply overlay, Index	19 July 2024	
OM9A-01	Infrastructure - Energy and water supply overlay, LGA north-west	19 July 2024	
OM9A-02	Infrastructure - Energy and water supply overlay, LGA north-east	19 July 2024	
OM9A-03	Infrastructure - Energy and water supply overlay, LGA south-west	19 July 2024	
OM9A-04	Infrastructure - Energy and water supply overlay, LGA south-east	19 July 2024	
OM9A-05	Infrastructure - Energy and water supply overlay, Withcott	19 July 2024	
OM9A-06	Infrastructure - Energy and water supply overlay, Murphys Creek	19 July 2024	
OM9A-07	Infrastructure - Energy and water supply overlay, Helidon	19 July 2024	
OM9A-08	Infrastructure - Energy and water supply overlay, Grantham	19 July 2024	
OM9A-09	Infrastructure - Energy and water supply overlay, Gatton	19 July 2024	
OM9A-10	Infrastructure - Energy and water supply overlay, Forest Hill	19 July 2024	
OM9A-11	Infrastructure - Energy and water supply overlay, Laidley	19 July 2024	
OM9B-00	Infrastructure - Emissions and hazardous activities overlay, Index	19 July 2024	
OM9B-01	Infrastructure - Emissions and hazardous activities overlay, LGA north-west	19 July 2024	
OM9B-02	Infrastructure - Emissions and hazardous activities overlay, LGA north-east	19 July 2024	
OM9B-03	Infrastructure - Emissions and hazardous activities overlay, LGA south-west	19 July 2024	
OM9B-04	Infrastructure - Emissions and hazardous activities overlay, LGA south-east	19 July 2024	
OM9B-05	Infrastructure - Emissions and hazardous activities overlay, Helidon	19 July 2024	

OM9B-06	Infrastructure - Emissions and hazardous activities overlay, Grantham	19 July 2024	
OM9B-07	Infrastructure - Emissions and hazardous activities overlay, Gatton	19 July 2024	
OM9B-08	Infrastructure - Emissions and hazardous activities overlay, Lockyer Waters	19 July 2024	
OM9B-09	Infrastructure - Emissions and hazardous activities overlay, Laidley	19 July 2024	
OM10-00	Scenic landscapes overlay, Local government area	19 July 2024	
OM10-01	Scenic landscapes overlay, LGA north-west	19 July 2024	
OM10-02	Scenic landscapes overlay, LGA north-east	19 July 2024	
OM10-03	Scenic landscapes overlay, LGA south-west	19 July 2024	
OM10-04	Scenic landscapes overlay, LGA south-east	19 July 2024	
OM10-05	Scenic landscapes overlay, LGA south	19 July 2024	
OM10-06	Scenic landscapes overlay, Withcott	19 July 2024	
OM10-07	Scenic landscapes overlay, Murphys Creek	19 July 2024	
OM10-08	Scenic landscapes overlay, Helidon	19 July 2024	
OM10-09	Scenic landscapes overlay, Grantham	19 July 2024	
OM10-10	Scenic landscapes overlay, Gatton	19 July 2024	
OM10-11	Scenic landscapes overlay, Forest Hill	19 July 2024	
OM10-12	Scenic landscapes overlay, Laidley	19 July 2024	
OM10-13	Scenic landscapes overlay, Plainland	19 July 2024	
OM10-14	Scenic landscapes overlay, Regency Downs	19 July 2024	
OM11-00	Steep land overlay, Local government area	19 July 2024	
OM11-01	Steep land overlay, LGA north-west	19 July 2024	
OM11-02	Steep land overlay, LGA north-east	19 July 2024	
OM11-03	Steep land overlay, LGA south-west	19 July 2024	
OM11-04	Steep land overlay, LGA south-east	19 July 2024	
OM11-05	Steep land overlay, LGA south	19 July 2024	
OM11-06	Steep land overlay, Withcott	19 July 2024	
OM11-07	Steep land overlay, Murphys Creek	19 July 2024	
OM11-08	Steep land overlay, Helidon	19 July 2024	
OM11-09	Steep land overlay, Grantham	19 July 2024	
OM11-10	Steep land overlay, Gatton	19 July 2024	
OM11-11	Steep land overlay, Forest Hill	19 July 2024	
OM11-12	Steep land overlay, Laidley	19 July 2024	
OM11-13	Steep land overlay, Plainland	19 July 2024	
OM11-14	Steep land overlay, Regency Downs	19 July 2024	
OM12A-00	Waterways and water resource catchment - Ecosystems overlay, Index	19 July 2024	
OM12A-01	Waterways and water resource catchment - Ecosystems overlay, LGA north-west	19 July 2024	
OM12A-02	Waterways and water resource catchment - Ecosystems overlay, LGA north-east	19 July 2024	
OM12A-03	Waterways and water resource catchment - Ecosystems overlay, LGA south-west	19 July 2024	
OM12A-04	Waterways and water resource catchment - Ecosystems overlay, LGA south-east	19 July 2024	

OM12A-05	Waterways and water resource catchment - Ecosystems overlay, LGA south	19 July 2024	
OM12A-06	Waterways and water resource catchment - Ecosystems overlay, Withcott	19 July 2024	
OM12A-07	Waterways and water resource catchment - Ecosystems overlay, Murphys Creek	19 July 2024	
OM12A-08	Waterways and water resource catchment - Ecosystems overlay, Helidon	19 July 2024	
OM12A-09	Waterways and water resource catchment - Ecosystems overlay, Grantham	19 July 2024	
OM12A-10	Waterways and water resource catchment - Ecosystems overlay, Gatton	19 July 2024	
OM12A-11	Waterways and water resource catchment - Ecosystems overlay, Forest Hill	19 July 2024	
OM12A-12	Waterways and water resource catchment - Ecosystems overlay, Laidley	19 July 2024	
OM12A-13	Waterways and water resource catchment - Ecosystems overlay, Plainland	19 July 2024	
OM12A-14	Waterways and water resource catchment - Ecosystems overlay, Regency Downs	19 July 2024	
OM12B-00	Waterways and water resource catchment - Water resource catchment overlay, Index	19 July 2024	
OM12B-01	Waterways and water resource catchment - Water resource catchment overlay, LGA north-west	19 July 2024	
OM12B-02	Waterways and water resource catchment - Water resource catchment overlay, LGA north-east	19 July 2024	
OM12B-03	Waterways and water resource catchment - Water resource catchment overlay, LGA south-west	19 July 2024	
OM12B-04	Waterways and water resource catchment - Water resource catchment overlay, LGA south-east	19 July 2024	
OM12B-05	Waterways and water resource catchment - Water resource catchment overlay, LGA south	19 July 2024	
OM12B-06	Waterways and water resource catchment - Water resource catchment overlay, Withcott	19 July 2024	
OM12B-07	Waterways and water resource catchment - Water resource catchment overlay, Murphys Creek	19 July 2024	
OM12B-08	Waterways and water resource catchment - Water resource catchment overlay, Helidon	19 July 2024	
OM12B-09	Waterways and water resource catchment - Water resource catchment overlay, Grantham	19 July 2024	
OM12B-10	Waterways and water resource catchment - Water resource catchment overlay, Gatton	19 July 2024	
OM12B-11	Waterways and water resource catchment - Water resource catchment overlay, Forest Hill	19 July 2024	
OM12B-12	Waterways and water resource catchment - Water resource catchment overlay, Laidley	19 July 2024	
OM12B-13	Waterways and water resource catchment - Water resource catchment overlay, Plainland	19 July 2024	
OM12B-14	Waterways and water resource catchment - Water resource catchment overlay, Regency Downs	19 July 2024	
OM13-00	High risk soils — information overlay, Local government area	19 July 2024	
OM13-01	High risk soils — information overlay, LGA north-west	19 July 2024	
OM13-02	High risk soils — information overlay, LGA north-east	19 July 2024	

OM13-03	High risk soils — information overlay, LGA south-west	19 July 2024	
OM13-04	High risk soils — information overlay, LGA south-east	19 July 2024	
OM13-05	High risk soils — information overlay, LGA south	19 July 2024	
OM13-06	High risk soils — information overlay, Withcott	19 July 2024	
OM13-07	High risk soils — information overlay, Murphys Creek	19 July 2024	
OM13-08	High risk soils — information overlay, Helidon	19 July 2024	
OM13-09	High risk soils — information overlay, Grantham	19 July 2024	
OM13-10	High risk soils — information overlay, Gatton	19 July 2024	
OM13-11	High risk soils — information overlay, Forest Hill	19 July 2024	
OM13-12	High risk soils — information overlay, Laidley	19 July 2024	
OM13-13	High risk soils — information overlay, Plainland	19 July 2024	
OM13-14	High risk soils — information overlay, Regency Downs	19 July 2024	
OM14-00	Transport noise corridor — information overlay, Index	19 July 2024	
OM14-01	Transport noise corridor — information overlay, LGA north-west	19 July 2024	
OM14-02	Transport noise corridor — information overlay, LGA north-east	19 July 2024	
OM14-03	Transport noise corridor — information overlay, LGA south-west	19 July 2024	
OM14-04	Transport noise corridor — information overlay, LGA south-east	19 July 2024	
OM14-05	Transport noise corridor — information overlay, LGA south	19 July 2024	
OM14-06	Transport noise corridor — information overlay, Withcott	19 July 2024	
OM14-07	Transport noise corridor — information overlay, Murphys Creek	19 July 2024	
OM14-08	Transport noise corridor — information overlay, Helidon	19 July 2024	
OM14-09	Transport noise corridor — information overlay, Grantham	19 July 2024	
OM14-10	Transport noise corridor — information overlay, Gatton	19 July 2024	
OM14-11	Transport noise corridor — information overlay, Forest Hill	19 July 2024	
OM14-12	Transport noise corridor — information overlay, Laidley	19 July 2024	
OM14-13	Transport noise corridor — information overlay, Plainland	19 July 2024	
OM14-14	Transport noise corridor — information overlay, Regency Downs	19 July 2024	
OM15-00	Road hierarchy — information overlay map, Index	19 July 2024	
OM15-01	Road hierarchy — information overlay map,	19 July 2024	
OM15-02	Road hierarchy — information overlay map,	19 July 2024	
OM15-03	Road hierarchy — information overlay map,	19 July 2024	
OM15-04	Road hierarchy — information overlay map,	19 July 2024	
OM15-05	Road hierarchy — information overlay map,	19 July 2024	
OM15-06	Road hierarchy — information overlay map,	19 July 2024	
OM15-07	Road hierarchy — information overlay map,	19 July 2024	
OM15-08	Road hierarchy — information overlay map,	19 July 2024	
OM15-09	Road hierarchy — information overlay map,	19 July 2024	
OM15-10	Road hierarchy — information overlay map,	19 July 2024	
OM15-11	Road hierarchy — information overlay map,	19 July 2024	
OM15-12	Road hierarchy — information overlay map,	19 July 2024	
OM15-13	Road hierarchy — information overlay map,	19 July 2024	
OM15-14	Road hierarchy — information overlay map,	19 July 2024	

Schedule 3 Local government infrastructure plan maps and tables

SC3.1 Planning assumption tables

Table SC3.1-1: Existing and projected population

COLUMN 1 PROJECTION AREA	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 EXISTING AND PROJECTED POPULATION					
		2016	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Gatton	Single dwelling	6,202	7,437	8,672	10,048	11,118	13,663
	Multiple dwelling	292	350	408	473	523	643
	Other dwellings	232	278	325	376	416	512
	Total	6,726	8,065	9,405	10,897	12,058	14,818
Grantham	Single dwelling	70	135	181	212	219	237
	Multiple dwelling	3	6	9	10	10	11
	Other dwellings	3	5	7	8	8	9
	Total	76	146	197	230	238	257
Helidon	Single dwelling	804	911	999	1,060	1,367	2,073
	Multiple dwelling	38	43	47	50	64	98
	Other dwelling	30	34	37	40	51	78
	Total	872	988	1,083	1,149	1,482	2,248
Laidley	Single dwelling	3,669	3,923	4,427	4,950	5,567	7,017
	Multiple dwelling	173	185	208	233	262	330
	Other dwellings	137	147	166	185	208	263
	Total	3,980	4,255	4,802	5,368	6,037	7,610
Forest Hill	Single dwelling	448	459	468	473	491	537
	Multiple dwelling	21	22	22	22	23	25
	Other dwelling	17	17	18	18	18	20
	Total	485	498	507	513	533	582
Plainland	Single dwelling	43	169	261	324	337	373
	Multiple dwelling	2	8	12	15	16	18
	Other dwellings	2	6	10	12	13	14
	Total	46	183	283	351	366	405
Inside priority infrastructure area	Single dwelling	11,236	13,033	15,008	17,067	19,099	23,900
	Multiple dwelling	529	614	707	804	899	1,125
	Other dwellings	421	488	562	639	715	895
	Total	12,186	14,135	16,277	18,510	20,714	25,920
Outside priority infrastructure area	Single dwelling	25,472	27,386	29,451	31,555	33,665	59,148
	Multiple dwelling	1,199	1,289	1,387	1,486	1,585	2,785
	Other dwellings	954	1,025	1,103	1,182	1,261	2,215
	Total	27,625	29,701	31,941	34,223	36,511	64,148
Lockyer Valley Region	Single dwelling	36,708	40,419	44,460	48,622	52,765	83,048

Multiple dwelling	1,728	1,903	2,093	2,289	2,484	3,910
Other dwellings	1,375	1,514	1,665	1,821	1,976	3,110
Total	39,811	43,835	48,218	52,732	57,225	90,068

Table SC3.1-2: Existing and projected employees

COLUMN 1 PROJECTION AREA	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 EXISTING AND PROJECTED EMPLOYEES					
		2016	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Gatton	Retail	483	553	622	699	760	903
	Commercial	982	1,130	1,278	1,443	1,571	1,876
	Industry	691	818	945	1,087	1,197	1,459
	Community purposes	985	1,067	1,148	1,239	1,310	1,478
	Rural and other uses	871	1,125	1,380	1,663	1,883	2,407
	Total	4,013	4,693	5,373	6,131	6,720	8,122
Grantham	Retail	1	1	2	2	2	3
	Commercial	2	6	8	10	11	12
	Industry	6	11	15	17	18	19
	Community purposes	1	3	4	5	5	6
	Rural and other uses	8	13	16	18	19	20
	Total	19	34	46	53	55	59
Helidon	Retail	9	11	13	14	20	33
	Commercial	26	32	36	40	56	93
	Industry	69	79	86	91	118	179
	Community purposes	16	19	21	22	29	45
	Rural and other uses	93	99	104	108	126	167
	Total	214	239	260	275	348	516
Laidley	Retail	75	81	92	104	118	152
	Commercial	214	230	262	294	333	423
	Industry	122	136	164	193	227	308
	Community purposes	167	176	193	211	233	282
	Rural and other uses	218	227	244	261	282	331
	Total	796	849	955	1,064	1,193	1,496
Forest Hill	Retail	11	11	12	12	12	12
	Commercial	37	38	38	39	40	44
	Industry	37	37	38	38	40	42
	Community purposes	20	21	21	21	22	24
	Rural and other uses	30	31	31	32	33	37
	Total	135	138	149	142	147	159
Plainland	Retail	1	4	7	8	8	9
	Commercial	4	13	19	24	25	27
	Industry	4	13	20	25	26	29
	Community purposes	2	7	11	14	15	16

	Rural and other uses	3	9	14	17	17	19
	Total	13	47	71	88	92	101
Inside priority infrastructure area	Retail	580	661	747	840	921	1,111
	Commercial	1,264	1,447	1,642	1,849	2,035	2,474
	Industry	929	1,094	1,268	1,452	1,626	2,036
	Community purposes	1,193	1,293	1,399	1,513	1,613	1,850
	Rural and other uses	1,224	1,504	1,789	2,099	2,361	2,980
	Total	5,190	6,000	6,845	7,753	8,554	10,453
Outside priority infrastructure area	Retail	471	487	505	522	556	705
	Commercial	1,300	1,394	1,496	1,600	1,740	2,273
	Industry	1,399	1,510	1,632	1,759	1,908	2,476
	Community purposes	999	1,055	1,116	1,178	1,260	1,574
	Rural and other uses	2,123	2,109	2,104	2,092	2,151	2,442
	Total	6,292	6,555	6,853	7,150	7,615	9,469
Lockyer Valley Region	Retail	1,051	1,148	1,252	1,362	1,476	1,816
	Commercial	2,564	2,841	3,138	3,448	3,775	4,748
	Industry	2,328	2,605	2,901	3,212	3,533	4,512
	Community purposes	2,191	2,348	2,515	2,690	2,874	3,424
	Rural and other uses	3,347	3,612	3,892	4,191	4,512	5,422
	Total	11,482	12,555	13,698	14,903	16,169	19,922

Table SC3.1-3: Planned density and demand generation rate for a trunk infrastructure network

COLUMN 1 AREA CLASSIFICATION	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 PLANNED DENSITY		COLUMN 4 DEMAND GENERATION RATE FOR A TRUNK INFRASTRUCTURE NETWORK		
		NON- RESIDENT PLOT RATIO	RESIDENT DENSITY (DWELLINGS/ DEV HA)	TRANSPORT NETWORK (STRIPS/DEV HA)	PARKS AND LAND FOR COMMUNITY FACILITIES NETWORK (PERSONS/DEV HA)	STORMWATER NETWORK (IMP HA/DEV HA)
Residential development						
Low Density Residential zone, Suburban precinct	Detached dwelling		12.58	125.8	26.56	0.5
	Attached dwelling		12.58	125.8	26.56	0.5
	Other dwellings		12.58	125.8	26.56	0.5
Low-Medium Density Residential zone						
Low Density Residential zone, Acreage Precinct	Detached dwelling		2.67	26.7	7.30	0.15
Rural Residential zone, Small precinct	Detached dwelling		2.25	22.5	6.15	0.15
Rural Residential zone, Medium precinct	Detached dwelling		0.45	4.5	1.23	0.04
Rural Residential zone, Large precinct	Detached dwelling		0.225	2.25	0.61	0.02

Rural Zone	Detached dwelling		0.009	0.09	0.02	0.0
Township Zone	Detached dwelling		2.67	26.7	7.3	0.15
Non-residential development and mixed development¹						
Community facilities zone		0.8		150	0	0.9
Industry zone		0.6		150	0	0.9
Limited development zone		0.8		0	0	0
Local centre zone		0.6		75	0	0.45
Major centre zone		0.8		250	0	0.9
Mixed use zone		0.8		75	0	0.9
Open space zone		0.8		0	0	0.0
Principal centre zone		0.8		250	0	0.9
Special industry zone		0.6		150	0	0.9
Sport and recreation zone		0.8		0	0	0.0

¹Mixed development is development that includes residential and non-residential development.

Table SC3.1-4: Existing and projected residential dwellings

COLUMN 1 PROJECTION AREA	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 EXISTING AND PROJECTED DWELLINGS					
		2016	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Gatton	Single dwelling	2,269	2,731	3,196	3,716	4,127	5,071
	Multiple dwelling	138	166	195	226	251	309
	Other dwellings	108	130	153	177	197	242
	Total	2,516	3,028	3,543	4,119	4,575	5,623
Grantham	Single dwelling	26	50	67	79	81	88
	Multiple dwelling	2	3	4	5	5	5
	Other dwellings	1	2	3	4	4	4
	Total	29	55	74	87	90	98
Helidon	Single dwelling	294	334	368	392	507	769
	Multiple dwelling	18	20	22	24	31	47
	Other dwellings	14	16	18	19	24	37
	Total	326	371	408	435	562	853
Laidley	Single dwelling	1,343	1,441	1,632	1,830	2,066	2,604
	Multiple dwelling	82	88	99	112	126	159
	Other dwellings	64	69	78	87	99	124
	Total	1,488	1,597	1,809	2,029	2,291	2,887
Forest Hill	Single dwelling	164	169	172	175	182	199
	Multiple dwelling	10	10	11	11	11	12
	Other dwelling	8	8	8	8	9	10
	Total	182	187	191	194	202	221

Plainland	Single dwelling	16	62	96	120	125	138
	Multiple dwelling	1	4	6	7	8	8
	Other dwellings	1	3	5	6	6	7
	Total	17	69	107	133	139	154
Inside priority infrastructure area	Single dwelling	4,111	4,786	5,531	6,311	7,089	8,871
	Multiple dwelling	251	292	337	385	432	541
	Other dwellings	196	228	264	301	338	423
	Total	4,558	5,306	6,132	6,997	7,859	9,835
Outside priority infrastructure area	Single dwelling	9,320	10,057	10,853	11,669	12,496	21,954
	Multiple dwelling	568	613	661	711	762	1,338
	Other dwellings	445	480	518	557	596	1,048
	Total	10,333	11,150	12,033	12,937	13,854	24,340
Lockyer Valley Region	Single dwelling	13,431	14,843	16,384	17,981	19,585	30,825
	Multiple dwelling	819	905	999	1,096	1,194	1,879
	Other dwellings	641	708	782	858	935	1,471
	Total	14,891	16,456	18,165	19,935	21,713	34,175

Table SC3.1-5: Existing and projected non-residential floor space

COLUMN 1 PROJECTION AREA	COLUMN 2 LGIP DEVELOPMENT TYPE	COLUMN 3 EXISTING AND PROJECTED EMPLOYEES					ULTIMATE DEVELOPMENT
		2016	2021	2026	2031	2036	
Gatton	Retail	483	553	622	699	760	903
	Commercial	982	1,130	1,278	1,443	1,571	1,876
	Industry	691	818	945	1,087	1,197	1,459
	Community purposes	985	1,067	1,148	1,239	1,310	1,478
	Rural and other uses	871	1,125	1,380	1,663	1,883	2,407
	Total	4,013	4,693	5,373	6,131	6,720	8,122
Grantham	Retail	1	1	2	2	2	3
	Commercial	2	6	8	10	11	12
	Industry	6	11	15	17	18	19
	Community purposes	1	3	4	5	5	6
	Rural and other uses	8	13	16	18	19	20
	Total	19	34	46	53	55	59
Helidon	Retail	9	11	13	14	20	33
	Commercial	26	32	36	40	56	93
	Industry	69	79	86	91	118	179
	Community purposes	16	19	21	22	29	45
	Rural and other uses	93	99	104	108	126	167
	Total	214	239	260	275	348	516
Laidley	Retail	75	81	92	104	118	152
	Commercial	214	230	262	294	333	423
	Industry	122	136	164	193	227	308

	Community purposes	167	176	193	211	233	282
	Rural and other uses	218	227	244	261	282	331
	Total	796	849	955	1,064	1,193	1,496
Forest Hill	Retail	11	11	12	12	12	12
	Commercial	37	38	38	39	40	44
	Industry	37	37	38	38	40	42
	Community Purposes	20	21	21	21	22	24
	Rural and Other Uses	30	31	31	32	33	37
	Total	135	138	140	142	147	159
Plainland	Retail	1	4	7	8	8	9
	Commercial	4	13	19	24	25	27
	Industry	4	13	20	25	26	29
	Community purposes	2	7	11	14	15	16
	Rural and other uses	3	9	14	17	17	19
	Total	13	47	71	88	92	101
Inside priority infrastructure area	Retail	580	661	747	840	921	1,111
	Commercial	1,264	1,447	1,642	1,849	2,035	2,474
	Industry	929	1,094	1,268	1,452	1,626	2,036
	Community purposes	1,193	1,293	1,399	1,513	1,613	1,850
	Rural and other uses	1,224	1,504	1,789	2,099	2,361	2,980
	Total	5,190	6,000	6,845	7,753	8,554	10,453
Outside priority infrastructure area	Retail	471	487	505	522	556	705
	Commercial	1,300	1,394	1,496	1,600	1,740	2,273
	Industry	1,399	1,510	1,632	1,759	1,908	2,476
	Community purposes	999	1,055	1,116	1,178	1,260	1,574
	Rural and other uses	2,123	2,109	2,104	2,092	2,151	2,442
	Total	6,292	6,555	6,853	7,150	7,615	9,469
Lockyer Valley Region	Retail	1,051	1,148	1,252	1,362	1,476	1,816
	Commercial	2,564	2,841	3,138	3,448	3,775	4,748
	Industry	2,328	2,605	2,901	3,212	3,533	4,512
	Community purposes	2,191	2,348	2,515	2,690	2,874	3,424
	Rural and other uses	3,347	3,612	3,892	4,191	4,512	5,422
	Total	11,482	12,555	13,698	14,903	16,169	19,922

Table SC3.1-6: Existing and projected demand for the stormwater network

Editors note—Column 1 The service catchments for the stormwater network are identified on Local Government Infrastructure Plan Map LGIP Stormwater network — Catchment Maps SWC-1:10 in schedule 3 Local government infrastructure mapping and tables.

COLUMN 1 SERVICE CATCHMENT	COLUMN 2 EXISTING AND PROJECTED DEMAND (IMPERVIOUS HA)					
	2016 (BASE DATE)	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Gatton	208.15	239.61	272.67	306.48	339.99	536.22

Gatton CBD	34.24	34.61	34.99	35.39	35.78	38.09
Grantham	10.37	12.42	14.58	16.78	18.97	31.76
Helidon	27.26	28.91	30.65	32.43	34.19	44.51
Plainland	30.44	34.42	38.60	42.88	47.12	71.95
Laidley North	33.12	37.26	41.60	46.05	50.45	76.24
Laidley South	88.33	95.00	102.01	109.18	116.28	157.89
Withcott	59.04	66.81	74.98	83.33	91.60	140.07
Remainder LGA	2,530.83	2,710.96	2,900.25	3,093.84	3,285.69	4,409.25
TOTAL	3,021.78	3,260.00	3,510.33	3,766.35	4,020.08	5,505.98

Table SC3.1-7: Existing and projected demand for the transport network

COLUMN 1 SERVICE CATCHMENT	COLUMN 2 EXISTING AND PROJECTED DEMAND (TRIPS)					
	2016 (BASE DATE)	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
TR1 - Gatton Town	3,997	4,869	5,744	6,752	7,848	17,972
TR2 - Laidley Town	1,957	2,222	2,677	3,144	3,625	5,707
TR3 - Forest Hill	179	184	188	191	199	217
TR4 - Grantham	70	108	138	164	185	315
TR5 - Helidon	444	533	615	691	880	1678
TR6 - Plainland	72	209	348	470	548	930
TR7 - Withcott	683	758	838	924	1,025	1,763
TR8 - Remainder of LGA	11,921	12,707	13,494	14,267	14,908	8,566
TOTAL	19,323	21,589	24,043	26,603	29,218	48,214

Editors note—Column 1 The service catchments for the transport network are identified on Local government infrastructure plan map LGIP Transport network — Catchment Maps TRC-1:2 in schedule 3 Local government infrastructure mapping and tables.

Table SC3.1-8: Existing and projected demand for the parks and land for community facilities network

COLUMN A PARK LEVEL	COLUMN 1 SERVICE CATCHMENT	COLUMN 2 EXISTING AND PROJECTED DEMAND (ET)					
		2016 (BASE DATE)	2021	2026	2031	2036	ULTIMATE DEVELOPMENT
Level 1	PPCL1 - Helidon	307	354	393	423	557	899
	PPCL2 - Withcott	401	440	482	527	580	912
	PPCL3 - Grantham	55	85	108	125	137	210
	PPCL4 - Rural West	-	-	-	-	-	-
	PPCL5 - Gatton Town	2,390	3,033	3,673	4,436	5,265	13,235
	PPCL6 - Helidon Hills and Grantham North	-	-	-	-	-	-
	PPCL7 - Murphy's Creek and Surrounds	-	-	-	-	-	-
	PPCL8 - Forest Hill	178	183	187	189	197	216
	PPCL9 - Laidley Town	1,500	1,683	2,040	2,415	2,824	4,553

	PPCL10 - Rural South	-	-	-	-	-	-
	PPCL11 - Morton Vale	-	-	-	-	-	-
	PPCL12 - Laidley North and Plainland	20	74	114	142	150	176
	TOTAL	4,851	5,852	6,997	8,257	9,710	20,201
Level 2	PPCL1 - Helidon	450	510	563	604	748	1,144
	PPCL2 - Withcott	690	772	861	955	1,066	1,761
	PPCL3 - Grantham	259	291	317	337	358	482
	PPCL4 - Rural West	-	3	4	5	5	7
	PPCL5 - Gatton Town	3,211	3,910	4,613	5,428	6,298	14,463
	PPCL6 - Helidon Hills and Grantham North	-	0	0	0	0	0
	PPCL7 - Murphy's Creek and Surrounds	232	243	254	265	279	361
	PPCL8 - Forest Hill	178	183	187	190	198	217
	PPCL9 - Laidley Town	2,014	2,212	2,587	2,978	3,402	5,213
	PPCL10 - Rural South	-	1	3	4	4	6
	PPCL11 - Morton Vale	1	1	1	1	1	1
	PPCL12 - Laidley North and Plainland	2,209	2,647	3,042	3,382	3,524	4,375
	TOTAL	9,244	10,773	12,432	14,149	15,883	28,030
Level 3	PPCL1 - Helidon	645	710	768	814	960	1,372
	PPCL2 - Withcott	806	889	979	1,075	1,189	1,896
	PPCL3 - Grantham	352	380	405	425	445	564
	PPCL4 - Rural West	883	889	890	891	890	890
	PPCL5 - Gatton Town	3,656	4,339	5,044	5,860	6,728	14,881
	PPCL6 - Helidon Hills and Grantham North	151	154	155	157	158	171
	PPCL7 - Murphy's Creek and Surrounds	506	519	532	545	561	659
	PPCL8 - Forest Hill	181	186	190	193	201	220
	PPCL9 - Laidley Town	2,259	2,466	2,849	3,247	3,672	5,494
	PPCL10 - Rural South	1,079	1,075	1,074	1,073	1,069	1,047
	PPCL11 - Morton Vale	638	639	639	640	640	644
	PPCL12 - Laidley North and Plainland	3,427	3,869	4,267	4,612	4,759	5,643
	TOTAL	14,583	16,116	17,793	19,530	21,273	33,482

Editors note—Column 1 The service catchments for the parks and land for community facilities network are identified on Local government infrastructure plan map LGIP Parks and Land for Community Facilities network — Catchment Maps PPCLC-1:2 in schedule 3 Local government infrastructure mapping and tables.

SC3.2 Schedules of works

Table SC3.2-1: Stormwater network schedule of works

COLUMN 1 MAP REFERENCE	COLUMN 2 TRUNK INFRASTRUCTURE	COLUMN 3 ESTIMATED TIMING	COLUMN 4 ESTABLISHMENT COST
Basins			
SB01	Retention Basin	2026 to 2031	\$6,099,855
SB02	Retention Basin	2031 to 2036	\$3,128,181
SB03	Retention Basin	2031 to 2036	\$1,866,038
SB04	Retention Basin	2031 to 2036	\$3,743,979
SB05	Retention Basin	2031 to 2036	\$3,156,058
SB06	Detention Basin	2031 to 2036	\$8,706,492
SB09a	Detention Basin	2026 to 2031	\$1,575,954
SB09b	Detention Basin	2031 to 2036	\$6,227,863
SB10	Detention Basin	2031 to 2036	\$661,569
SB11	Detention Basin	2026 to 2031	\$1,235,549
Levees			
L01	Levee	2026 to 2031	\$3,600,000
L02	Levee	2026 to 2031	\$2,400,000
L03	Levee	2026 to 2031	\$3,600,000
Channels			
CH03	Open Channel	2026 to 2031	\$6,000,000
CH07	Open Channel	2036 to Ultimate	\$5,640,000
CH08	Open Channel	2031 to 2036	\$1,920,000
CH09	Open Channel	2031 to 2036	\$1,440,000
CH10	Open Channel	2026 to 2031	\$1,824,000
CH13	Open Channel	2031 to 2036	\$2,580,000
CH14	Open Channel	2031 to 2036	\$5,100,000
CH15	Open Channel	2031 to 2036	\$3,840,000
CH16	Open Channel	2026 to 2031	\$1,473,600
CH17	Open Channel	2026 to 2031	\$212,400
Pipes			
SW01	Pipe	2026 to 2031	\$921,840
SW02	Pipe	2031 to 2036	\$3,567,660
SW05	Pipe	2036 to Ultimate	\$4,572,000
SW06	Pipe	2026 to 2031	\$2,424,000
SW07	Pipe	2026 to 2031	\$2,766,000
SW08	Pipe	2026 to 2031	\$2,292,000
SW09	Pipe	2026 to 2031	\$273,600
TOTAL			\$92,848,638

Editor's note—Column 4 The establishment cost is expressed in current cost terms as at the base date.

Table SC3.2-2: Transport network schedule of works

COLUMN 1 MAP REFERENCE	COLUMN 2 TRUNK INFRASTRUCTURE	COLUMN 3 ESTIMATED TIMING	COLUMN 4 ESTABLISHMENT COST⁶
Intersections			
INTF_001	Intersection	2026	\$855,133
INTF_002	Intersection	2031	\$892,313
INTF_003	Intersection	2036 to Ultimate	\$892,313
INTF_004	Intersection	2021	\$817,953
INTF_005	Intersection	2036 to Ultimate	\$892,313
INTF_006	Intersection	2036 to Ultimate	\$892,313
INTF_007	Intersection	2031	\$892,313
INTF_008	Intersection	2036 to Ultimate	\$892,313
INTF_010	Intersection	2026	\$855,133
INTF_013	Intersection	2026	\$855,133
INTF_015	Intersection	2036 to Ultimate	\$892,313
INTF_017	Intersection	2031	\$892,313
INTF_019	Intersection	2026	\$855,133
INTF_020	Intersection	2026	\$855,133
INTF_023	Intersection	2026	\$855,133
INTF_024	Intersection	2026	\$855,133
Structures			
STRF001	Culvert - Woodlands Road Dev No. 7	2036 to Ultimate	\$385,187
STRF002	Culvert - Woodlands Road Dev No. 2	2021	\$353,088
STRF003	Culvert - Woodlands Road Dev No. 4	2036 to Ultimate	\$385,187
STRF006	Culvert - Golf Links Drive No. 4	2036 to Ultimate	\$385,187
STRF008	Culvert - Mountain View Drive	2026	\$369,138
STRF009	Culvert - Zischke Road	2026	\$369,138
Roads			
TRF001	Rural Collector - Zischke Road Upgrade	2026	\$2,938,267
TRF003	Collector - Woodlands Dev Road No. 4	2021	\$323,083
TRF004	Sub-Arterial - Roches Road No. 2	2036 to Ultimate	\$2,044,192
TRF005	Sub-Arterial - Roches Road to Gittins Road Connector	2036 to Ultimate	\$1,763,336
TRF008	Rural Collector - Mountain View Drive Upgrade	2026	\$1,029,754
TRF010	Collector - Woodlands Dev Road No. 3	2036 to Ultimate	\$2,113,197
TRF016	Sub-Arterial - Golf Links Drive No. 1	2031	\$2,620,095
TRF017	Sub-Arterial - Golf Links Drive No. 2	2036 to Ultimate	\$2,231,401
TRF018	Rural Collector - Connors Road to Airforce Road	2036 to Ultimate	\$981,785

	Connector		
TRF019	Sub-Arterial - Woodlands Road No. 1	2026	\$2,487,047
TRF020	Sub-Arterial - Woodlands Road No. 6	2031	\$2,503,072
TRF021	Sub-Arterial - Rangeview Drive Extension	2036 to Ultimate	\$1,418,979
TRF023	Sub-Arterial - Rangeview Drive Upgrade	2031	\$3,911,986
TRF024	Sub-Arterial - Roches Road No. 1	2031	\$1,629,296
TRF025	Sub-Arterial - Gatton CBD Bypass Road No. 5	2021	\$2,612,497
TRF028	Sub-Arterial - Princes Road Extension	2036 to Ultimate	\$724,758
TRF031	Sub-Arterial - Gatton CBD Bypass Road No. 2	2036 to Ultimate	\$2,317,093
TRF032	Sub-Arterial - Gatton CBD Bypass Road No. 3	2036 to Ultimate	\$1,723,945
TRF033	Sub-Arterial - Gatton CBD Bypass Road No. 4	2026	\$3,502,509
TRF034	Collector - Woodlands Dev Road No. 2	2031	\$1,451,665
TRF035	Collector - Princes Rd to Woodlands Rd Connection No. 2	2026	\$2,775,488
TRF036	Collector - Princes Rd to Woodlands Rd Connection No. 1	2026	\$1,805,875
TRF037	Sub-Arterial - Woodlands Road No. 2	2036 to Ultimate	\$1,449,218
TRF038	Collector - Woodlands Dev Road No. 1	2036 to Ultimate	\$4,653,227
TRF040	Rural Collector - Otto Road Extension	2036 to Ultimate	\$1,832,077
TRF041	Rural Collector - Otto Road Upgrade	2036 to Ultimate	\$1,676,535
TRF042	Rural Collector - Zischke Road Connection	2026	\$950,954
TRF045	Collector - Deviney Street to Seventeen Mile Connector	2036 to Ultimate	\$2,231,856
TRF049	Sub-Arterial - Breuer St to Summer St Extension No. 1	2036 to Ultimate	\$1,778,204
TRF050	Sub-Arterial - Breuer St to Summer St Extension No. 2	2036 to Ultimate	\$1,088,055
TRF051	Sub-Arterial - Breuer St to Summer St Extension No. 1	2036 to Ultimate	\$1,778,204
TRF052	Collector - Princes Rd to Woodlands Rd Connection No. 3	2036 to Ultimate	\$1,395,524
TOTAL			\$79,905,422

Editor's note—Column 4 The establishment cost is expressed in current cost terms as at the base date.

Table SC3.2-3: Parks and land for community facilities schedule of works

COLUMN 1 MAP REFERENCE	COLUMN 2 TRUNK INFRASTRUCTURE	COLUMN 3 ESTIMATED TIMING	COLUMN 4 ESTABLISHMENT COST ⁷
OSF060	Recreation District - New district recreation park (Woodlands Rise)	2031	\$1,980,624
OSF063	Recreation District - New district recreation park (west of Woodlands Rise)	2036 to Ultimate	\$1,380,624
OSF064	Recreation District - New district recreation park (Golflinks)	2036 to Ultimate	\$1,380,624
OSF066	Recreation District - New district recreation park	2031	\$1,380,624

	(Lake Freeman Development)		
OSF068	Recreation District - James Norman Hedges	2031	\$780,624
OSF069	Recreation District - Burrambin Park	2026	\$672,730
OSF070	Recreation District - Johnson Drive Park (Lockrose Park)	2031	\$701,979
OSF071	Recreation District - Unnamed Park (Gehrke Road)	2021	\$715,572
OSF072	Recreation District - Unnamed Park (Otto Road)	2031	\$780,624
OSF074	Recreation District - New district recreation park (Plainland)	2026	\$1,048,098
OSF077	Recreation District - New district recreation park	2036 to Ultimate	\$1,180,624
OSF078	Recreation District - New district recreation park	2036 to Ultimate	\$1,180,624
OSF080	Recreation District - Laidley Shire Sports and Recreation Reserve	2026	\$748,098
OSF081	Recreation District - Enoch Semph Park	2031	\$701,979
OSF083	Recreation District - New district recreation park (west of Woodlands Rise)	2036 to Ultimate	\$1,180,624
OSF085	Recreation Regional - Lake Clarendon Recreation Area	2036 to Ultimate	\$1,880,627
OSF086	Recreation Regional - New regional recreation park (Woodlands Rise)	2036 to Ultimate	\$4,668,789
OSF087	Recreation Regional - Additional regional park adjacent to Lake Apex Park	2031	\$1,619,068
OSF088	Recreation Regional - New regional recreation park, Grantham	2036 to Ultimate	\$2,150,636
OSF089	Recreation Regional - Lions Park (Narda Lagoon)	2026	\$717,374
OSF090	Recreation Regional - Lake Dyer Recreation Area	2036 to Ultimate	\$1,229,499
OSF091	Recreation Regional - Lake Apex Park	2031	\$1,229,499
OSF092	Recreation Regional - Narda Lagoon	2031	\$701,979
OSF093	Sport District - Gatton Soccer Club	2036 to Ultimate	\$150,000
OSF094	Sport District - New sport park (Grantham)	2036 to Ultimate	\$1,346,398
OSF095	Sport District - McGovern Park (Sport)	2036 to Ultimate	\$1,179,548
OSF096	Sport Regional - New sport park (south Gatton)	2036 to Ultimate	\$4,880,615
OSF097	Sport Regional - New sport park (Woodlands Rise)	2031	\$5,280,615
OSF098	Sport Regional - Springbrook Park	2036 to Ultimate	\$676,670
OSF099	Recreation District - New district recreation park (west of Woodlands Rise)	2026	\$1,348,098
OSF100	Recreation District - New district recreation park	2036 to Ultimate	\$980,624
OSF101	Recreation District - New district recreation park	2026	\$798,098
OSF102	Recreation District - New district recreation park	2026	\$915,572
OSF103	Sport Regional - New sport park (Plainland)	2031	\$3,130,615
TOTAL			\$50,698,404

Editor's note—Column 4 The establishment cost is expressed in current cost terms as at the base date.

SC3.3 Local government infrastructure plan maps

1. Local government infrastructure plan map LGIP Priority infrastructure area PIA-1:7
2. Local government infrastructure plan map LGIP Stormwater network - Plans for trunk infrastructure SW-1:10
3. Local government infrastructure plan map LGIP Transport network - Plans for trunk infrastructure TR-1:13
4. Local government infrastructure plan map LGIP Parks and land for community facilities network PPCL-1:20
5. Local government infrastructure plan map LGIP Stormwater network — Catchment maps SWC-1:10
6. Local government infrastructure plan map LGIP Transport network — Catchment maps TRC-1:2
7. Local government infrastructure plan map LGIP Parks and land for community facilities network — Catchment maps PPCLC-1:2

Schedule 4 Planning scheme notations

SC4.1 Notation of decisions affecting the planning scheme under section 89 of the *Planning Act*

1. The table below lists all the decisions affecting the planning scheme made under section 89(1)(a) of the *Planning Act*.

Table SC4.1-1: Notation of decisions under the *Planning Act*

DATE OF DECISION	LOCATION (REAL PROPERTY DESCRIPTION)	DECISION TYPE	FILE REFERENCE
Development approvals substantially inconsistent with the Planning Scheme			
2/09/2005	Lot 3 RP172847 Lot 56 CA3120 Lot 63 CA3120	Development Permit for Reconfiguration of a Lot (1 Lot in 22 Lots knowns as Stage 1) & Preliminary Approval for Permit for Reconfiguration of a Lot (66 lots in 3 stages known as Stage 2-4) Known as Grevillea Estate	DA3434; DA4424; OW2022/0023
20/03/2007	Lot 77 CA311429	Development Permit for Reconfiguration of a Lot (80 Lots in 5 Stages) Known as Adare Grove Estate	DA4573; OPW2012/0027; CAP2014/0005; OW2022/0022
19/06/2009	Lot 5 RP123314	Development Permit for Reconfiguration of a Lot (1 lot into 48 Lots) Known as Costello's Junction	DA4672; ROL0570; RL2018/0035
21/04/2011	Lot 59 SP135857 Lot 58 CA311427	Development Permit for Aviation Facility and Community Title Subdivision and Preliminary Approval under section 242 of the <i>Sustainable Planning Act 2009</i> for an Aviation Facility in five (5) stages.	DA2010/0035; CAP2016/0037; MC2018/0027.01
29/10/2013	Lot 9 SP157240 Lot 10 SP157240	Development Permit for Material Change of Use for a 11 Accommodation Units and 3 Shops	Appeal 3226 of 2011; MC2017/0039
15/01/2014	Lot 95 CA311434 Lot 96 SP225226	Development Permit for Reconfiguration of a Lot (2 lots into 145 Lots in 7 Stages) Known as Redbank Creek Estate	DA4678 Appeal No. 3506 of 2011 RL2020/0002
27/02/2015	Lot 2 RP25672	Development Permit for Reconfiguration of a Lot (1 lot into 41 Lots in 4 stages)	ROL2014/0007; RL2020/0041; RL2022/0026
4/09/2019	Lot 3 SP311079	Development Permit for Material Change of Use for Rural Service Industry	MC2019/0042
16/09/2020	Lot 3 RP890810 Lot 54 RP890810	Development Permit for Reconfiguration of a Lot (1 lot into 45 Lots)	RL2020/0006; OW2021/0064
21/04/2021	Lot 1 SP313144	Preliminary Approval including a Variation Request to vary the effect of the Laidley Shire Planning Scheme 2003 and Development Permit for Reconfiguring a Lot for Subdivision (1 Lot into 113 Lots) Known as Thallon Road Estate	MC2020/0003; RL2020/0004
16/3/2022	Lot 5 RP903407 Lot 1 SP110788	Development Permit for Material Change of Use for a Caravan Park	MC2020/0051; RL2020/0029
20/07/2022	Lot 22 RP200060	Preliminary Approval including Variation Request Reconfiguring of a lot (1 lot into 5 lots)	MC2021/0052; RL2021/0028
Variation approvals			

Nil	Nil	Nil	Nil
Decisions agreeing to a superseded planning scheme request			
Nil	Nil	Nil	Nil

Editor's note—This schedule includes details of:

- a. *development approvals that are inconsistent with the planning scheme.*
- b. *variation approvals.*
- c. *decisions agreeing to a superseded planning scheme request to apply a superseded scheme to a particular development.*

SC4.2 Notation of resolution/s under chapter 4, part 2, division 2 of the *Planning Act*

1. The table below lists all the resolutions made under chapter 4, part 2, division 2 of the *Planning Act*.

Table SC4.2-1: Notation of resolutions under the *Planning Act*

DATE OF RESOLUTION	DATE OF EFFECT	DETAILS	CONTACT INFORMATION
Nil	Nil	Adopted infrastructure charges resolution Nil	A copy of the adopted infrastructure charges resolution can be obtained online at: Nil

SC4.3 Notation of registrations for urban encroachment provisions under section 267 of the *Planning Act*

1. The table below lists all the registrations for urban encroachment provisions under section 267 of the *Planning Act*.

Table SC4.3-1: Notation of registrations made under section 267 of the *Planning Act*

DATE OF REGISTRATION OF THE PREMISES	LOCATION OF PREMISES (REAL PROPERTY DESCRIPTION)	DETAILS OF REGISTRATION	TERM OF REGISTRATION
Nil	Nil	Nil	Nil

Editor's note—Section 267(11) of the Planning Act states that the decision notice will identify the period the registration or a renewed registration will continue to have effect (between 10 and 25 years), unless cancelled. If the decision notice does not state a period, the registration will have effect for 10 years.

Schedule 5 Land designated for infrastructure

1. The table below lists all the land designated for community infrastructure within the planning scheme area.

Table SC5-1: Designation of premises for development of infrastructure

DATE THE DESIGNATION, AMENDMENT, EXTENSION OR REPEAL TAKES EFFECT	TYPE OF COMMUNITY INFRASTRUCTURE	LOCATION OF PREMISES (REAL PROPERTY DESCRIPTION)	STREET ADDRESS (INCLUDING THE RELEVANT LOCAL GOVERNMENT AREA IF THE NOTATION IS OUTSIDE THE PLANNING SCHEME AREA)
CID 39 - Springdale to Greenbank 500kV transmission line			
24/03/2000	<i>Integrated Planning Act 1997, schedule 5: item (k) operating works under the Electricity Act 1994.</i>	Lot 202 CSH202	299 Millers Road, Adare
		Lot 121 CC2054	Mount Berryman Road, Blenheim
		Lot 124 CH31475	Ropeley Road, Blenheim
		Lot 1 RP7853	Marsh Road, Blenheim
		Lot 20 RP7860	Woodwell Road, Blenheim
		Lot 21 RP7860	5 Woodwell Road, Blenheim
		Lot 22 RP7860	1055 Woodlands Road, Blenheim
		Lot 25 RP7860	6 Martin Road, Blenheim
		Lot 26RP7860	Schadwell Road, Blenheim
		Lot 2RP156022	Schultz Lookout Road, Blenheim
		Lot 2RP160552	1 Salt Springs Road, Blenheim
		Lot 2 RP41714	75 Blenheim Road, Blenheim
		Lot 2 RP7841	71 Blenheim Road, Blenheim
		Lot 2 RP7849	7 Schadwell Road, Blenheim
		Lot 2 RP7853	Marsh Road, Blenheim
		Lot 3 RP7849	11 Schadwell Road, Blenheim
		Lot 9 RP7849	Ropeley Road, Blenheim
		Lot 362 SP117133	Dodt Road, Forest Hill
		Lot 192 NPW765	Edwards Road, Gatton
		Lot 1 RP158506	Gatton Laidley Road, Gatton
		Lot 1 RP89858	Hausers Road, Gatton
		Lot 22 RP862346	25 Radke Court, Gatton
		Lot 23 RP862346	27 Radke Court, Gatton
		Lot 24 RP862346	29 Radke Court, Gatton
		Lot 25 RP862346	28 Radke Court, Gatton
		Lot 2 RP158506	Gatton Laidley Road, Gatton
		Lot 2 RP21590	138 Gatton Laidley Road, Gatton
		Lot 2 RP89858	Gatton Laidley Road, Gatton
Lot 52 RP886177	105 Robeck Road, Gatton		
Lot 53 RP886177	Robeck Road, Gatton		
Lot 89 CC415	237 Edwards Road, Gatton		
Lot 14 RP7860	Woodlands Road, Glen Cairn		

	Lot 1 RP7860	37G Salt Springs Road, Glen Cairn
	Lot 2 RP7860	37F Salt Springs Road, Glen Cairn
	Lot 1 RP25691	2 Nelson Lane, Laidley Creek West
	Lot 247 CH31977	14 Montgomery Road, Laidley Creek West
	Lot 253 CH31977	20 Laidley Creek West Road, Laidley Creek West
	Lot 2 RP25627	Old Mulgowie Road, Laidley Creek West
	Lot 2 RP25691	Montgomery Road, Laidley Creek West
	Lot 3 RP815471	45 Blenheim Road, Laidley Creek West
	Lot 423 CH3151	19 Laidley Creek West Road, Laidley Creek West
	Lot 121 CC2054	Mount Berryman Road, Laidley South
	Lot 129 CH3151	Mulgowie Road, Laidley South
	Lot 1 RP192007	2 O'Dwyer Road, Laidley South
	Lot 1 RP195891	8 O'Dwyer Road, Laidley South
	Lot 217 CH31634	6 O'Dwyer Road, Laidley South
	Lot 234 CH31760	O'Dwyer Road, Laidley South
	Lot 234 CH31760	O'Dwyer Road, Laidley South
	Lot 2 RP192007	4 O'Dwyer Road, Laidley South
	Lot 2 RP195891	O'Dwyer Road, Laidley South
	Lot 2 RP25628	41 Mulgowie Road, Laidley South
	Lot 107 RP888085	486 Gatton Esk Road, Lake Clarendon
	Lot 19 SP184396	Gatton Esk Road, Lake Clarendon
	Lot 1 RP117753	136 Lake Clarendon Way, Lake Clarendon
	Lot 1 RP57187	Lake Clarendon Way, Lake Clarendon
	Lot 1 SP104160	Main Greenswamp Road, Lake Clarendon
	Lot 1 SP252895	Lake Clarendon Way, Lake Clarendon
	Lot 2 RP117753	Lake Clarendon Way, Lake Clarendon
	Lot 2 RP181049	86 Lake Clarendon Way, Lake Clarendon
	Lot 2 RP57187	154 Lake Clarendon Way, Lake Clarendon
	Lot 2 SP252895	Lake Clarendon Way, Lake Clarendon
	Lot 45 SP184395	620 Gatton Esk Road, Lake Clarendon
	Lot 4 RP888085	582 Gatton Esk Road, Lake Clarendon
	Lot 75 CA311429	Blair Road, Lake Clarendon
	Lot 76 CA311429	422 Gatton Esk Road, Lake Clarendon
	Lot 81 SP195584	Lake Clarendon Way, Lake Clarendon
	Lot 900 SP293970	374 Gatton Esk Road, Lake Clarendon
	Lot 999 SP204414	Yappa Court, Lake Clarendon
	Lot 103 RP838702	Old Toowoomba Road, West Lawes
	Lot 126 CH31472	Old Toowoomba Road, West Lawes
	Lot 13 RP7823	Old Toowoomba Road, West Lawes
	Lot 14 RP7823	Old Toowoomba Road, West Lawes
	Lot 184 CC3374	5391 Warrego Highway, Lawes
	Lot 189 CC3307	Warrego Highway, Lawes

		Lot 362 SP117133	Dodt Road, Lawes
		Lot 3 RP7823	Dodt Road, Lawes
		Lot 76 CC3468	Warrego Highway, Lawes
CID 43 - Springdale to Greenbank 500kV transmission line			
24/03/2000	<i>Integrated Planning Act 1997, schedule 5: item (k) operating works under the Electricity Act 1994.</i>	Lot 11 RP849789	Gatton Esk Road, Adare
		Lot 2 RP14781	193 Millers Road, Adare
		Lot 2 RP206332	709 Gatton Esk Road, Adare
		Lot 4 SP219659	Millers Road, Adare
		Lot 5 SP219659	223 Millers Road, Adare
		Lot 167 SP154248	44 Hausers Road, Gatton
CID 55 - University of Queensland Gatton Campus			
20/04/2000	<i>Integrated Planning Act 1997, schedule 5: item (f) Educational Facility.</i>	Lot 362 CC3226	37 Old Laidley Forest Hill Road, Forest Hill
		Lot 167 SP312484	44 Hausers Road, Gatton
		Lot 184 CC3374	5391 Warrego Highway, Lawes
CID 217 - Millmerran to Middle Ridge 330kV Transmission Line (Project comprises of Substations, a transmission line and an access track)			
13/02/2004	<i>Integrated Planning Act 1997, schedule 5: item (k) operating works under the Electricity Act 1994.</i>	Lot 5 SP141678	Upper Flagstone Creek Road, Flagstone
		Lot 15 SP256724	11 Oakhill Place, Preston
		Lot 22 RP902116	533 Upper Flagstone Creek Road, Preston
		Lot 2 RP151076	365 Preston Boundary Road, Preston
		Lot 2 RP154563	Upper Flagstone Creek Road, Preston
		Lot 3 RP151076	401 Preston Boundary Road, Preston
		Lot 122 RP840607	391 Upper Flagstone Creek Road, Upper Flagstone
CID 271 - Forest Hill Fire Station			
5/05/2006	<i>Integrated Planning Act 1997, schedule 5: item (g) Emergency services facilities.</i>	Lot 24 SP131010	4 William Street, Forest Hill
CID 280 - Mount Campbell Rural Fire Station			
20/10/2006	<i>Integrated Planning Act 1997, schedule 5: item (g) Emergency services facilities.</i>	Lot 2 SP174743	66 Walkers Road, Rockmount
CID 293 - Middle Ridge to Greenbank 275/330 kilovolt transmission line (Stage 1 — Middle Ridge to Ebenezer)			
12/01/2007	<i>Integrated Planning Act 1997, schedule 5: item (k) operating works under the Electricity Act 1994.</i>	Lot 121 CC2054	Mount Berryman Road, Blenheim
		Lot 124 CH31475	Ropeley Road, Blenheim
		Lot 1 RP194171	41 Ropeley Road, Blenheim
		Lot 1 RP7844	Marsh Road, Blenheim
		Lot 1 RP7851	Ropeley Road, Blenheim
		Lot 1 RP7853	Marsh Road, Blenheim
		Lot 2 RP156022	Schultz Lookout Road, Blenheim
		Lot 2 RP41714	75 Blenheim Road, Blenheim
		Lot 2 RP7841	71 Blenheim Road, Blenheim
		Lot 2 RP7851	4 Allan Road, Blenheim
		Lot 2 RP7853	Marsh Road, Blenheim

	Lot 2 RP7861	14 Allan Road, Blenheim
	Lot 9 RP7849	Ropeley Road, Blenheim
	Lot 10 CC2515	13 Smith Road, Flagstone Creek
	Lot 18 CH311905	Flagstone Creek Road, Flagstone Creek
	Lot 1 RP192509	53 Sutcliffes Road, Flagstone Creek
	Lot 1 RP21373	120 Stephens Road, Flagstone Creek
	Lot 1 SP228065	67 Stockyard Creek Road, Flagstone Creek
	Lot 208 CH312299	19 Crans Road, Flagstone Creek
	Lot 20 RP838683	14 Crans Road, Flagstone Creek
	Lot 23 CH312299	Smith Road, Flagstone Creek
	Lot 2 CC150	Smith Road, Flagstone Creek
	Lot 2 RP192509	75 Sutcliffes Road, Flagstone Creek
	Lot 2 RP197957	Batemans Road, Flagstone Creek
	Lot 2 RP21374	28 Stephens Road, Flagstone Creek
	Lot 2 RP21378	Stephens Road, Flagstone Creek
	Lot 2 SP228065	68 Stockyard Creek Road, Flagstone Creek
	Lot 30 CH311336	Batemans Road, Flagstone Creek
	Lot 32 CH311763	Batemans Road, Flagstone Creek
	Lot 34 CH312048	Batemans Road, Flagstone Creek
	Lot 3 SP133928	1 Duncans Road, Flagstone Creek
	Lot 48 CH311763	Stephens Road, Flagstone Creek
	Lot 4 RP80560	766 Flagstone Creek Road, Flagstone Creek
	Lot 4 SP133928	198 Batemans Road, Flagstone Creek
	Lot 62 CH312235	Batemans Road, Flagstone Creek
	Lot 129 CH3151	Mulgowie Road, Laidley
	Lot 1 RP25691	2 Nelson Lane, Laidley Creek West
	Lot 247 CH31977	14 Montgomery Road, Laidley Creek West
	Lot 252 CH31977	14 Laidley Creek West Road, Laidley Creek West
	Lot 253 CH31977	20 Laidley Creek West Road, Laidley Creek West
	Lot 2 RP25691	Montgomery Road, Laidley Creek West
	Lot 3 RP815471	45 Blenheim Road, Laidley Creek West
	Lot 423 CH3151	19 Laidley Creek West Road, Laidley Creek West
	Lot 1 RP192007	2 O'Dwyer Road, Laidley South
	Lot 1 RP195891	8 O'Dwyer Road, Laidley South
	Lot 217 CH31634	6 O'Dwyer Road, Laidley South
	Lot 234 CH31760	O'Dwyer Road, Laidley South
	Lot 2 RP192007	4 O'Dwyer Road, Laidley South
	Lot 2 RP195891	O'Dwyer Road, Laidley South
	Lot 2 RP25627	Old Mulgowie Road, Laidley South

	Lot 2 RP25628	41 Mulgowie Road, Laidley South
	Lot 2 RP903557	40 Mulgowie Road, Laidley South
	Lot 1 RP13884	44 Mason Road, Lilydale
	Lot 200 SP133936	Ma Ma Lilydale Road, Lilydale
	Lot 2 RP13884	Ma Ma Lilydale Road, Lilydale
	Lot 10 SP197167	76 Petersens Road, Ma Ma Creek
	Lot 125 CH31928	873 Gatton Clifton Road, Ma Ma Creek
	Lot 173 CH311328	174 Petersens Road, Ma Ma Creek
	Lot 19 SP156810	910 Gatton Clifton Road, Ma Ma Creek
	Lot 1 RP104542	174 Ma Ma Lilydale Road, Ma Ma Creek
	Lot 1 RP104543	Ma Ma Lilydale Road, Ma Ma Creek
	Lot 1 RP135248	427 Ma Ma Lilydale Road, Ma Ma Creek
	Lot 1 RP13880	Kleins Road, Ma Ma Creek
	Lot 1 RP13883	Ma Ma Lilydale Road, Ma Ma Creek
	Lot 2 RP13880	Kleins Road, Ma Ma Creek
	Lot 2 RP170768	460 Back Ma Ma Road, Ma Ma Creek
	Lot 2 RP187737	421 Ma Ma Lilydale Road, Ma Ma Creek
	Lot 3 RP32667	Back Ma Ma Road, Ma Ma Creek
	Lot 4 RP844674	429 Back Ma Ma Road, Ma Ma Creek
	Lot 8 CH311900	Ma Ma Lilydale Road, Ma Ma Creek
	Lot 112 SP131021	Upper Flagstone Creek Road, Preston
	Lot 134 CC344	31 Preston Peak Lane, Preston
	Lot 15 SP256724	11 Oakhill Place, Preston
	Lot 2 RP154563	Upper Flagstone Creek Road, Preston
	Lot 4 RP883122	422B Ropeley Rockside Road, Rockside
	Lot 1 RP106969	Ropeley Rockside Road, Ropeley
	Lot 1 RP130586	Wesslings Road, Ropeley
	Lot 1 RP32618	170 Weiers Road, Ropeley
	Lot 1 RP32693	400 Ropeley Rockside Road, Ropeley
	Lot 1 RP7791	262 Weiers Road, Ropeley
	Lot 2 CC1834	Wesslings Road, Ropeley
	Lot 2 CC3188	200 Weiers Road, Ropeley
	Lot 2 RP130586	89 Wesslings Road, Ropeley
	Lot 2 RP32604	38 Charlies Access, Ropeley
	Lot 2 RP61983	Weiers Road, Ropeley
	Lot 2 RP7791	300 Weiers Road, Ropeley
	Lot 3 RP164444	5 Charlies Access, Ropeley
	Lot 3 RP32621	Weiers Road, Ropeley
	Lot 3 RP883122	422 Ropeley Rockside Road, Ropeley
	Lot 11 RP838683	13 Stockyard Creek Road, Stockyard
	Lot 116 CC343	436 Upper Flagstone Creek Road, Upper Flagstone
	Lot 117 RP840607	393 Upper Flagstone Creek Road, Upper Flagstone

	Lot 139 RP803617	159 Upper Flagstone Creek Road, Upper Flagstone
	Lot 151 CC479	Rossells Road, Upper Flagstone
	Lot 178 CC2987	300 Sutcliffes Road, Upper Flagstone
	Lot 180 CC2041	Upper Flagstone Creek Road, Upper Flagstone
	Lot 189 CC2109	Upper Flagstone Creek Road, Upper Flagstone
	Lot 1 CP817790	1935 Flagstone Creek Road, Upper Flagstone
	Lot 1 RP155845	152 Sutcliffes Road, Upper Flagstone
	Lot 1 RP190842	400 Upper Flagstone Creek Road, Upper Flagstone
	Lot 1 RP193942	2033 Flagstone Creek Road, Upper Flagstone
	Lot 1 RP835154	39 Upper Flagstone Creek Road, Upper Flagstone
	Lot 21CH311907	186 Sutcliffes Road, Upper Flagstone
	Lot 2 CP817790	1917 Flagstone Creek Road, Upper Flagstone
	Lot 2 RP138335	Rossells Road, Upper Flagstone
	Lot 2 RP155845	122 Sutcliffes Road, Upper Flagstone
	Lot 2 RP181342	105 Sutcliffes Road, Upper Flagstone
	Lot 2 RP193942	2013 Flagstone Creek Road, Upper Flagstone
	Lot 3 RP155845	109 Sutcliffes Road, Upper Flagstone
	Lot 3 RP193942	Flagstone Creek Road, Upper Flagstone
	Lot 3 SP113446	360 Upper Flagstone Creek Road, Upper Flagstone
	Lot 5 SP141678	Upper Flagstone Creek Road, Upper Flagstone
	Lot 7 SP244472	289 Upper Flagstone Creek Road, Upper Flagstone
	Lot 8 SP244472	297 Upper Flagstone Creek Road, Upper Flagstone
	Lot 16 RP32648	127 Ingoldsby Road, Upper Tenthill
	Lot 1 RP188379	43 Old Pitch Lane, Upper Tenthill
	Lot 1 RP32641	Mount Sylvia Road, Upper Tenthill
	Lot 1 RP32642	292 Mount Sylvia Road, Upper Tenthill
	Lot 21 RP32651	Chappells Road, Upper Tenthill
	Lot 22 RP32651	Ingoldsby Road, Upper Tenthill
	Lot 2 CC2080	291 Mount Sylvia Road, Upper Tenthill
	Lot 2 RP188379	31 Old Pitch Lane, Upper Tenthill
	Lot 2 RP32641	Mount Sylvia Road, Upper Tenthill
	Lot 4 SP250087	242 Mount Sylvia Road, Upper Tenthill
	Lot 6 RP32648	Ingoldsby Road, Upper Tenthill
	Lot 8 SP243121	140 Ingoldsby Road, Upper Tenthill

CID 358 - South-East Queensland Correctional Precinct			
25/07/2008	<i>Integrated Planning Act 1997</i> , schedule 5: item (c) correctional facilities; item (f) educational facilities; item (k) operating works under the <i>Electricity Act 1994</i> ; item (c) storage and works depots associated with community infrastructure (a) to (q).	Lot 242 CA31612	152 Millers Road, Adare
		Lot 238 SP233406	Millers Road, Spring Creek
		Lot 240 CA31519	Krugers Road, Spring Creek
		Lot 244 CA31710	437 Krugers Road, Spring Creek
CID 440 - Springdale to Halys 500 kilovolt (kV) transmission lines and the Halys 500/275 kV Substation			
26/02/2010	<i>Sustainable Planning Regulation 2009</i> , schedule 2, part 2: item (k) operating works under the <i>Electricity Act 1994</i> .	Lot 242 CA31612	152 Millers Road, Adare
		Lot 4 SP283042	Palm Tree Road, Buaraba South
		Lot 13 CA311450	524 Krugers Road, Spring Creek
		Lot 222 CA31453	Qualischefskis Road, Spring Creek
		Lot 240 CA31519	Krugers Road, Spring Creek
		Lot 244 CA31710	437 Krugers Road, Spring Creek
		Lot 3 CA311206	666 Krugers Road, Spring Creek
		Lot 65 CA311285	Qualischefskis Road, Spring Creek
		Lot 7 CA311239	744 Krugers Road, Spring Creek
		Lot 47 4NPW785	Forestry Road, Vinegar Hill
Lot 616 FTY1953	Forestry Road, Vinegar Hill		
CID 488 - Abermain to Lockrose 110 kilovolt (kV) Network Upgrade Project			
7/10/2011	<i>Sustainable Planning Regulation 2009</i> , schedule 2, part 2: item (11) operating works under the <i>Electricity Act 1994</i> .	Lot 100 RP231649	Brightview Road, Brightview
		Lot 101 RP803227	Brightview Road, Brightview
		Lot 102 CH311686	Cricket Road, Brightview
		Lot 173 RP836901	16 Walnut Drive, Brightview
		Lot 175 RP836901	20 Walnut Drive, Brightview
		Lot 17 CC3629	144 Thallon Road, Brightview
		Lot 182RP836902	16 Oak Street, Brightview
		Lot 183 RP836902	18 Oak Street, Brightview
		Lot 1 RP229165	16 Redwood Drive, Brightview
		Lot 201 SP128026	30 Oak Street, Brightview
		Lot 2 RP229165	18 Redwood Drive, Brightview
		Lot 35 RP231649	78 Brightview Road, Brightview
		Lot 36 RP231649	76 Brightview Road, Brightview
		Lot 3 RP229165	19 Redwood Drive, Brightview
		Lot 4 RP229165	17 Redwood Drive, Brightview
		Lot 500 RP836900	Evans Road, Brightview
		Lot 64 RP803227	11 Tallowood Court, Brightview
		Lot 65 RP803227	12 Tallowood Court, Brightview
		Lot 66 RP803227	10 Tallowood Court, Brightview
		Lot 67 RP803227	8 Tallowood Court, Brightview
Lot 6 RP139911	145 Thallon Road, Brightview		
Lot 10 RP858409	15 Johnson Drive, Lockrose		

		Lot 11 RP858409	17 Johnson Drive, Lockrose
		Lot 12 RP858409	19 Johnson Drive, Lockrose
		Lot 13 RP858409	21 Johnson Drive, Lockrose
		Lot 1 RP117954	26 Village Road, Lockrose
		Lot 1 RP850738	77 Brightview Road, Lockrose
		Lot 2 RP117954	73 Brightview Road, Lockrose
		Lot 2 RP850738	79 Brightview Road, Lockrose
		Lot 9 RP850739	13 Johnson Drive, Lockrose
		Lot 89 CH311498	81 Cricket Road, Regency Downs
CID 534 - Springdale to Blackwall 500kV transmission line project, planned to be initially energised at 275kV			
23/11/2012	<i>Sustainable Planning Regulation 2009, schedule 2, part 2: item (11) operating works under the Electricity Act 1994.</i>	Lot 1 RP161638	739 Gatton Esk Road, Adare
		Lot 1 SP223171	Gatton Esk Road, Adare
		Lot 2 RP14781	193 Millers Road, Adare
		Lot 2 RP206332	709 Gatton Esk Road, Adare
		Lot 132 CSH186	130 Forest Hill Fernvale Road, Glenore Grove
		Lot 133 CSH186	134 Forest Hill Fernvale Road, Glenore Grove
		Lot 134 CSH186	8 Pomerence Road, Glenore Grove
		Lot 142 CSH186	3 Kentville Road, Kentville
		Lot 144 CSH186	9 Kentville Road, Kentville
		Lot 145 CSH186	17 Kentville Road, Kentville
		Lot 147 CSH2204	27 Kentville Road, Kentville
		Lot 1 RP211258	23 Kentville Road, Kentville
		Lot 2 RP211258	19 Kentville Road, Kentville
		Lot 3 RP177429	Forest Hill Fernvale Road, Kentville
		Lot 53 RP808047	6 Dawn Court, Kentville
		Lot 19 SP184396	Gatton Esk Road, Lake Clarendon
		Lot 45 SP184395	620 Gatton Esk Road, Lake Clarendon
		Lot 8 RP206191	Main Greenswamp Road, Lake Clarendon
		Lot 9 SP248984	Gatton Esk Road, Lake Clarendon
		Lot 10 CSH186	15 Kentville Road, Lockrose
		Lot 117 RP850740	14A Caleys Court, Lockrose
		Lot 119 CH311699	Kerlin Road, Lockrose
		Lot 120 CH311699	Kerlin Road, Lockrose
		Lot 172 CC975	Kerlin Road, Lockrose
		Lot 17 RP858409	29 Johnson Drive, Lockrose
		Lot 18 RP858409	31 Johnson Drive, Lockrose
		Lot 190 CC975	Herny Road, Lockrose
		Lot 19 RP858409	33 Johnson Drive, Lockrose
		Lot 1 RP805981	12 Old Brightview Road, Lockrose
		Lot 20 RP858409	35 Johnson Drive, Lockrose
		Lot 21 RP858410	37 Johnson Drive, Lockrose
		Lot 22 RP858410	39 Johnson Drive, Lockrose

		Lot 23 RP858410	41 Johnson Drive, Lockrose
		Lot 24 RP858410	43 Johnson Drive, Lockrose
		Lot 25 RP858410	45 Johnson Drive, Lockrose
		Lot 2 RP117954	73 Brightview Road, Lockrose
		Lot 2 RP805981	10 Old Brightview Road, Lockrose
		Lot 2 RP99220	123-125 Brightview Road, Lockrose
		Lot 3 RP805981	8 Old Brightview Road, Lockrose
		Lot 454 CC184	50 Zabel Road, Lockrose
		Lot 48 RP808046	42 Village Road, Lockrose
		Lot 4 RP805981	6 Old Brightview Road, Lockrose
		Lot 54 RP808047	8 Dawn Court, Lockrose
		Lot 55 RP808047	10 Dawn Court, Lockrose
		Lot 56 RP808047	7 Dawn Court, Lockrose
		Lot 5 RP805981	4 Old Brightview Road, Lockrose
		Lot 1 RP135087	Lester Road, Morton Vale
		Lot 21 SP176174	36 Main Greenswamp Road, Morton Vale
		Lot 22 SP176174	40 Main Greenswamp Road, Morton Vale
		Lot 26 CA311426	Main Greenswamp Road, Morton Vale
		Lot 28 RP230471	25 Lester Road, Morton Vale
		Lot 6 RP206191	Main Greenswamp Road, Spring Creek
		Lot 7 RP206191	Main Greenswamp Road, Spring Creek
MID-0418-0276 - Laidley State High School			
7/12/2018	<i>Planning Regulation, schedule 5, part 2: item 6 Educational facilities</i>	Lot 363 CC3396	98 Alfred Street, Laidley
MID-0918-0306 - Plainland Secondary College and Church (known as Sophia College)			
29/3/2019	<i>Planning Regulation, schedule 5, part 2: item 3 Community and cultural facilities, including community centres, galleries, libraries and meeting halls item 6 Educational facilities item 9 Facilities at which an education and care service under the Education and Care Services National Law (Queensland) is operated.</i>	Lot 601 SP283422	29 Gehrke Road, Plainland
		Lot 5 RP154611	33 Gehrke Road, Plainland
		Lot 4 RP154611	56 Otto Road, Plainland
		Lot 3 RP154611	54 Otto Road, Plainland
MID-1020-0451 - Faith Lutheran College			
4/08/2023	<i>Planning Regulation, schedule 5, part 2: item 6: educational facilities, item 9: facilities at which an education and care service under the Education and Care Services National Law (Queensland) is operated</i>	Lot 4 RP208154	3-5 Faith Avenue, Plainland
		Lot 211 N25287	3 Victor Court, Plainland

Editor's note—Section 42(5)(a) of the Planning Act states that a note in the planning scheme for the purposes of a designation is not an

amendment of a planning scheme.

Schedule 6 Planning scheme policies

1. The table below lists all the planning scheme policies applicable to the planning scheme area.

Table SC6-1: Planning scheme policy index

REF	INDEX OF PLANNING SCHEME POLICIES
PSP 1	Biodiversity
PSP 2	Bushfire management plans
PSP 3	Cultural heritage
PSP 4	Flood hazard
PSP 5	Geotechnical assessment
PSP 6	Infrastructure Design
PSP 7	Landscaping
PSP 8	Scenic landscape assessment
PSP 9	Stormwater management
PSP 10	Transport Assessment

SC6.1 Biodiversity

SC6.1.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.1 Biodiversity as supporting an outcome of the Biodiversity overlay code.

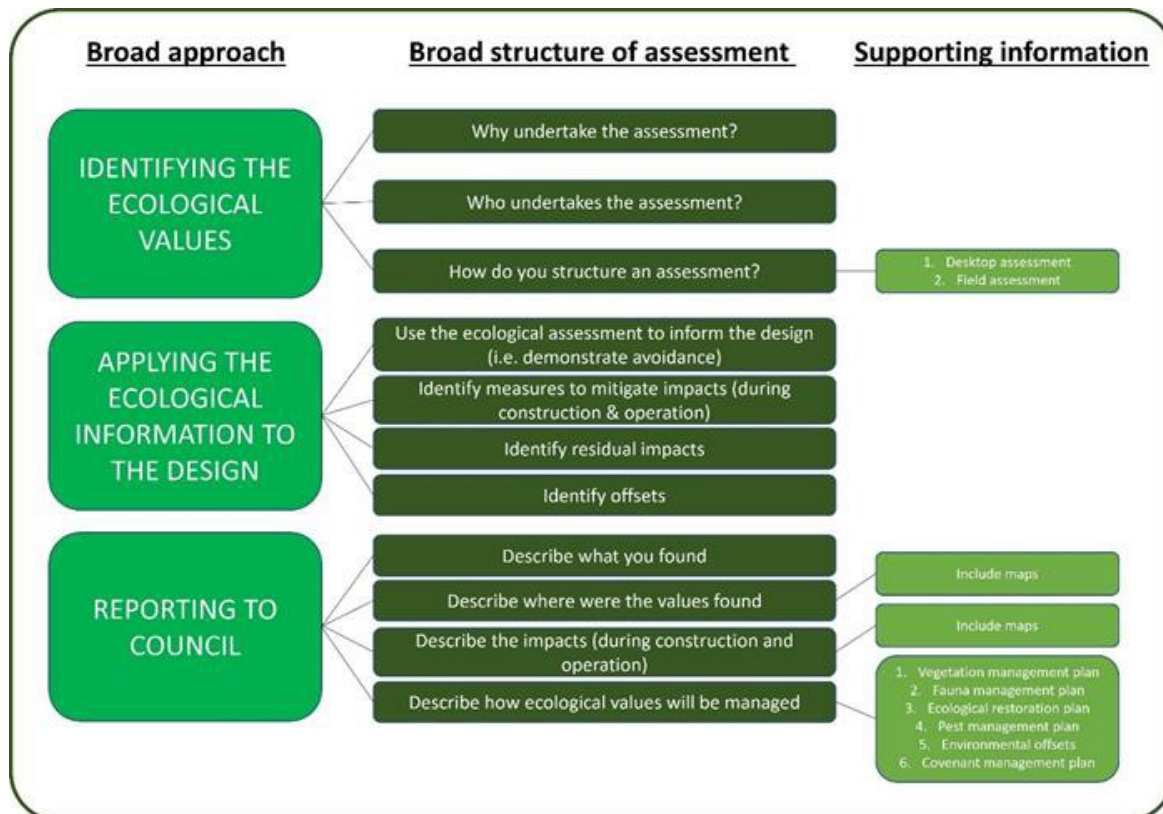
SC6.1.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the planning scheme and applies when development is proposed in an area identified on:
 - a. OM3A Biodiversity - Ecological areas overlay;
 - b. OM3B Biodiversity - Wildlife Habitat overlay;
 - c. OM3C Biodiversity - Waterways and wetland habitat overlay.
2. This policy specifically relates to the assessment of section 8.3 Biodiversity overlay code and ensuring development is consistent with the purpose and performance outcomes of the code.

SC6.1.3 Purpose

1. The purpose of this planning scheme policy is to ensure ecological values are appropriately identified, considered and reported so that they can be protected and managed before, during and after development. The approach will assist in determining whether the outcomes of the Biodiversity overlay code are met.
2. An information request will be requested where the information required by this policy is not supplied when a development application is made.
3. The figure below summarises the broad approach of assessment.

Figure SC6.1.3-1: Broad approach of assessment



SC6.1.4 Qualifications

1. The consultant undertaking the ecological assessment and associated management plans must be a competent person.
2. A person is competent if they have qualifications in:
 - a. environmental science, or
 - b. botany; or
 - c. zoology; or
 - d. ecology; or
 - e. another related discipline.
3. A competent person must also have demonstrated experience in undertaking flora and fauna surveys, assessing regional ecosystems, and undertaking conservation, ecology, and biodiversity assessments. Other persons may be involved with assessment but must be under the supervision of a competent person particularly when conducting field investigations.
4. Persons undertaking field surveys must have appropriate licences, approvals and permits as required. Individuals handling fauna must be compliant with all relevant animal handling requirements and hold the necessary permits for the proposed purpose. The individual handling fauna must hold ethical clearance from an Animal Ethics Committee. The individual undertaking a protected flora survey for the purposes of meeting the requirements of the protected plants legislative framework for clearing protected plants must be a suitably qualified person in accordance with the Flora Survey Guidelines - Protected Plants.
5. The qualifications, experience, licences, approvals and permits of the person undertaking the ecological assessment must be stated within the ecological assessment report.
6. Where proposing to engage a suitably qualified person with qualifications other than those listed, prior approval by Council is required.

SC6.1.5 Technical standards

1. Ecological assessments and management plans are informed by contemporary technical documentation. Guidelines, standards and other references are dynamic and new documentation is frequently published and existing documentation is often revised. Competent persons should be aware of contemporary documentation and refer to the latest versions of documentation when preparing ecological assessments and management plans. **SC6.1 Appendix 2** presents several relevant guidelines, standards and other references.
2. This planning scheme policy makes specific reference to documentation listed in **SC6.1 Appendix 2**. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document.
3. It is the responsibility of the developer to consider their obligations under relevant legislation including the:
 - a. *Vegetation Management Act*;
 - b. *Nature Conservation Act*;
 - c. *Environmental Offsets Act*;
 - d. *Fisheries Act*;
 - e. *Water Act*;
 - f. *Environmental Protection Act*; and
 - g. *Environment Protection and Biodiversity Conservation Act (Cth)*.

SC6.1.6 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.1.7 Requirements for ecological assessments

SC6.1.7.1 Level of ecological assessment required

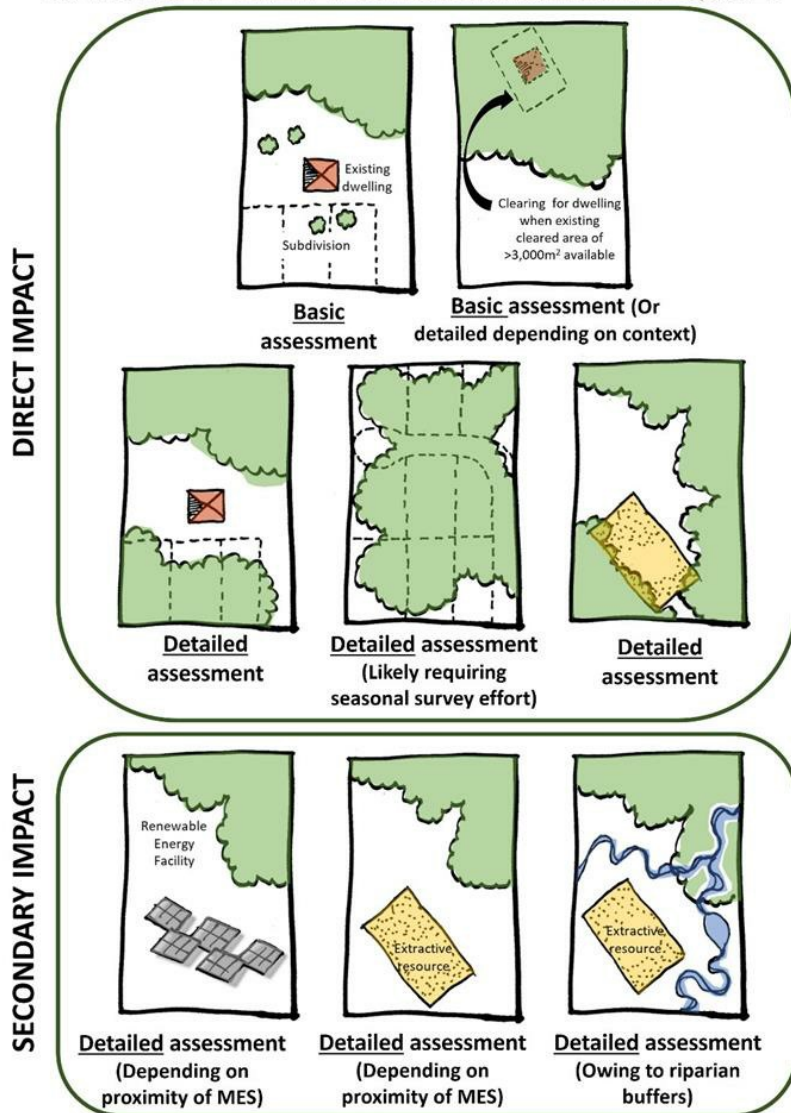
1. Where required, ecological assessments are to be undertaken for the entirety of the lot(s) and adjacent road reserves and creek reserves that are the subject of the development application.
2. A Basic or Detailed Ecological Assessment will be required depending on the complexity of the development site and/or associated adverse effects of the development. **Table SC6.1-1** provides a summary of the circumstances that may determine the level of ecological assessment required.

Table SC6.1-1: Circumstances for basic and detailed ecological assessments

	BASIC	DETAILED
Circumstance	<p>Assessment relates to a small, affected area, which has simple solutions to the adverse effects of the development on environmental values. The report must consider the Biodiversity overlay code and detail how the relevant outcomes are to be met by the development. Examples include:</p> <ul style="list-style-type: none"> • The extent of vegetation clearing is minor, limited to scattered low habitat value trees. • The ecological value of the area to be affected is minor, for example disconnected trees outside of a corridor. • The extent of impact on the ecology both direct and/or secondary is minor. <p>Refer to Figure SC6.1-1 for further examples.</p>	<p>Assessment relates to development which affects a large area and/or has potential to cause significant ecological and residual impacts on environmental values. Solutions to adverse effects 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. Examples include:</p> <ul style="list-style-type: none"> • The extent of vegetation clearing is broad including stands of diverse native vegetation. • The ecological value of the area to be affected is important, for example a broad patch or corridor providing habitat and/or movement opportunities for multiple species. • The extent of impact on the ecology both direct and/or secondary is considerable. <p>Refer to Figure SC6.1-1 for further examples.</p>
General approach to field assessments	<p>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.</p>	<p>A Detailed Ecological Assessment is undertaken over a five day/four-night period. Flora and fauna surveys are conducted. Trapping is undertaken. To 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 and documented. An assessment of adverse effects on wetlands and watercourses is conducted where required, and appropriate mitigation measures outlined.</p>

Figure SC6.1-1: Example likely assessment and type of impact

EXAMPLES OF LIKELY LEVEL OF ASSESSMENT REQUIRED



3. It is strongly recommended that pre-lodgement discussions are held with Council prior to assessment for clarification of specific requirements and outcomes related to a particular project. Any variation to policy requirements should be discussed as early as possible.
4. Council may:
 - a. consent to a lesser or greater level of ecological assessment; or
 - b. require a lesser or greater level of ecological assessment.

SC6.1.7.2 Ecological assessment

SC6.1.7.2.1 Desktop assessment

1. Desktop assessments are an integral component of all ecological assessments. The level of effort applied to desktop assessments should remain relatively constant irrespective of the level of field assessment undertaken (basic or detailed).
2. A desktop assessment must identify:
 - a. information for the entire lot(s) and adjacent road or water parcels:
 - i. contemporary and historical aerial photography;
 - ii. contours/topographic information;
 - iii. geology and soil types including any special features such as rocky outcrops or unusual/unique soil/geology combinations;
 - iv. Matters of State Environmental Significance (MSES) regulated under the State Planning Policy such as protected

- areas, regulated vegetation, essential habitat, regulated vegetation intersecting a waterway, wildlife habitat, koala habitat, waterway providing for passage of fish, threatened species and protected plants flora survey trigger;
- v. Matters of Local Environmental Significance (MLES) as shown on the Biodiversity overlay maps;
- vi. wetlands and waterways visible on aerial photography, but not mapped as Matters of National Environmental Significance (MNES), MSES or MLES;
- vii. salinity and salinity recharge areas;
- viii. previous site-based studies where available;
- b. information for the site and a 5-10km buffer to aid in identifying potential ecological features within the site:
 - i. MNES under the *Environment Protection and Biodiversity Conservation Act (Cth)* such as Threatened Ecological Communities (TEC), threatened species, migratory species, World Heritage Places, National Heritage Places and Wetlands of International Importance;
 - ii. adjacent or nearby conservation areas;
 - iii. ecological corridors or links at the local, regional, state, or national scale;
 - iv. Atlas of Living Australia/Wildnet/Biomaps.
- 3. The desktop assessment must:
 - a. include a likelihood of occurrence assessment for threatened species, migratory species and significant ecological communities;
 - b. determine the most appropriate time of the year to undertake the field survey, i.e. when there is the highest possible chance of detecting possible threatened or migratory species (particularly for detailed ecological assessments).
- 4. Resources included in SC6.1 Appendix 2 should be considered in the desktop assessment.
- 5. It is recommended that local naturalists and other sources of local knowledge who are likely to be able to provide further detailed information about the ecological values of the study area (e.g. members of local environmental or catchment groups) are consulted.

SC6.1.7.2.2 Field assessment

1. The survey area is to include the maximum area likely to be affected by the construction and ongoing operation of the proposed development. The area outside the development area on the site is also to be incorporated into the field survey particularly where secondary adverse effects are anticipated.
2. The level of survey effort required will be determined during early project planning and as part of the desktop assessment. Table SC6.1-2 identifies the method to be adopted for each ecological element during basic and detailed ecological assessments.
3. Other assessments (soil, water, drainage, connectivity, pest animals and weeds) to be undertaken using methods recommended by the ecologist.

Table SC6.1-2: Field survey methods

ELEMENT	METHOD	BASIC	DETAILED
Flora	Prepare a flora list for the site identifying those species that are: <ul style="list-style-type: none"> • native (including if significant under the <i>Nature Conservation Act, Environment Protection and Biodiversity Conservation Act (Cth)</i> or locally significant including range extensions). • exotic (including status under the <i>Biosecurity Act</i> and Councils' Biosecurity Plan). 	✓	✓
	Notable weed occurrences to be mapped and categorised according to the Spatial Pest Attributes Standard Queensland.		✓
	For threatened flora follow the current Flora Survey Guidelines - Protected Plants - Nature Conservation Act 1992. Noting where a property is not mapped in the State's protected plants flora survey trigger map the survey is confined only to the site. The location of threatened flora is to be recorded with a GPS. Where large, difficult to map populations occur, population extents are to be mapped and numbers estimated based on methods outlined in the current Flora Survey Guidelines - Protected Plants - <i>Nature Conservation Act</i> .	✓	✓
Vegetation communities	The Regional Ecosystems of the site should be identified and classified according to vegetation and land zone, the current Regulated Vegetation Management mapping. and extensive fieldwork undertaken. The survey should seek to verify the current Regional Ecosystem mapping. Collect data using quaternary points in accordance with the current version of "Methodology for survey and mapping of regional ecosystems and	✓	✓

	vegetation communities in Queensland”.		
	<p>Where anomalies are identified in regional ecosystem/vegetation mapping a revised map should be prepared along with the rationale for the changes. The current version of “Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland” identifies some of the appropriate approaches for mapping including secondary sites.</p> <p>Vegetation that is not mapped as remnant (category B) or regrowth (category C) must also be mapped. This may include unmapped regrowth or isolated remnant trees.</p>		✓
	Where the desktop assessment identifies the presence of Threatened Ecological Communities under the <i>Environment Protection and Biodiversity Conservation Act (Cth)</i> they are to be assessed in accordance with the current listing advice of each community.	✓	✓
Being present during topsoil stripping where subterranean species of reptiles or amphibians are present;	The presence and extent of locally significant vegetation communities are to be identified and mapped.	✓	✓
Waterways and wetlands	A description of the presence, condition, water quality, type and habitat values of water features including overland flows, floodplains, creeks, wetlands, groundwater dependent ecosystems, and aquatic ecosystems on the site (using photos upstream and downstream, creek profiles, description of vegetation present within the creek and wetlands as well as any state mapping). If wetlands are present, they are identified according to “Part B of the Queensland Wetland Definition and Delineation Guideline” (State of Queensland 2011)	✓	✓
Trees	<p>A tree survey is undertaken for all trees 100mm diameter and greater at breast height (DBH) on the site. The map and table are to outline the following:</p> <ul style="list-style-type: none"> • Tree identification number; • tree species (botanical and common names); • height (in metres); • Diameter at Breast Height (DBH) (in centimetres); • Tree Protection Zone (in accordance with The Australian Standard Protection of Trees on Development Sites AS 4970-2009); • condition/health; • evidence of fauna uses or habitat value including, scratch marks, hollows, nests, arboreal termitarium, dreys and scats; • where in mapped koala habitat, those trees regarded as non-juvenile koala habitat trees including species in the genera of <i>Angophora</i>, <i>Corymbia</i>, <i>Melaleuca</i>, <i>Lophostemon</i> or <i>Eucalyptus</i> genera (i.e. being 4m tall and greater or 10cm diameter and greater at 1.3m above the ground). <p>Trees on adjacent properties and road reserves that are likely to be impacted by the proposed development (e.g. by impacting Tree Protection Zones) must also be assessed.</p> <p>Trees are to be located by high precision (sub-centimetre) GPS or by the project surveyor.</p> <p>Where there are broad areas of trees where survey is impractical (e.g. in a retained ecological corridor) a reduced survey effort may be consented to by Council.</p>	✓	✓
Fauna	<p>All fauna assessments are to include:</p> <ul style="list-style-type: none"> • diurnal assessments; • tracks, scats, and other trace analysis; • some active searches for fauna in natural and artificial places such as stockpiles of vegetation, rocky outcrops, cracks in soil, bridges, 	✓	✓

	<p>concrete piles, tin on ground;</p> <ul style="list-style-type: none"> • opportunistic observations; • habitat assessments. 		
	<p>For detailed fauna surveys, a minimum of five days and four nights survey time is recommended to minimise any sampling duration influences within any given sampling period. At least one sampling site should be established in each habitat type.</p> <p>All surveys must be conducted consistent with the State's Terrestrial Vertebrate Fauna Survey Guidelines for Queensland 2018 and recommended survey guidelines for target wildlife listed under the <i>Environment Protection and Biodiversity Conservation Act (Cth)</i> (refer to the Species Profile and Threats Database for individual species). Targeting koala habitat assessment in known or predicted koala habitat, the Spot Assessment Technique or Koala Rapid Assessment Method are recommended.</p> <p>Specific methods may be required to target particular fauna species identified as potentially occurring within the study area, particularly EVNT-listed and significant species. Some vertebrates, e.g. amphibians, nomadic mammals and birds which have population cycles and movements that are more closely linked to stochastic events, e.g. heavy rainfall than to seasonal changes, will require targeted surveys after such events to enhance detectability.</p> <p>Many or, in some instances, all the specific techniques outlined in SC6.1 Appendix 3 are be utilised during the survey effort.</p> <p>Additional seasonal survey sampling may need to be undertaken for cryptic, migratory and/or seasonal species, which may occur on the site. This is recommended irrespectively where direct or secondary adverse effects are likely to be substantial.</p>		✓
	<p>Known or predicted breeding places are to be identified. For the purposes of this assessment, the definition of "breeding places" follows that provided in section 332 of the <i>Nature Conservation (Wildlife Management) Regulation 2006</i>. For species such as koala and native frogs, that do not use a habitual breeding place, the term 'breeding habitat' is used in lieu of 'breeding place'.</p> <p>Habitat features that are considered significant for assessing the presence of breeding places and/or habitation value for native fauna, include but are not limited to:</p> <ul style="list-style-type: none"> • presence of hollow-bearing trees: these may be used by birds, reptiles or arboreal mammals for the purpose or incubating or rearing offspring; • presence of bowers, nests, dreys, termitaria: birds or mammals commonly use these structures to incubate or rear offspring; • presence of caves, mounds, burrows, ground hollows, crack in soil and/or coarse woody debris: birds, mammals, reptiles or amphibians commonly use these structures to incubate or rear offspring; • presence of permanent water, ephemeral ponding, depressions and/or seasonally inundated areas: waterbodies may be used for breeding by aquatic species or amphibians, or may provide intermittent breeding habitat for opportunistic species; • presence of large trees: large trees can be a dominant feature of native vegetation and are difficult to replace once lost. Their influence for wide-ranging species can extend over a considerable distance from their location. 	✓	✓

SC6.1.7.3 Design and impact assessment

SC6.1.7.3.1 Informing the design

1. The results of the ecological assessment must inform the design of the development following the mitigation hierarchy. Specifically:
 - a. in the first instance the development design must consider how adverse effects can be avoided;
 - b. where impacts cannot be avoided, they should then be minimised;
 - c. the applicant should demonstrate how impacts on MES have been avoided and minimised.
2. Reference to the purpose, performance outcomes and acceptable outcomes of the Biodiversity overlay code will assist in informing the development design.
3. The design must consider potential direct impacts of the proposed development, especially vegetation clearing and adverse effects on significant species. The potential adverse effects should consider the design, construction, and operational phase of the development. Direct impacts can result from:
 - a. buildings and structures, including fences outbuildings and tanks;
 - b. roads;
 - c. clearing and earthworks footprint showing the extent of ground disturbance, clearing including cut and fill, trenching for infrastructure within the Tree Protection Zones of retained trees and significant vegetation;
 - d. asset protection zones;
 - e. infrastructure services (i.e. driveways, electricity, water, bores, dams, sewer or onsite effluent disposal areas, stormwater systems, telecommunications, easements, access, fences and fauna infrastructure);
 - f. exempt clearing areas (as defined under the *Planning Regulation 2017*).
4. Flying fox roosts must be retained in situ.
5. The analysis must also consider secondary adverse effects and maintenance of ecological processes including but not limited to:
 - a. changes to existing hydrological regimes (surface water and groundwater) that may affect groundwater dependant ecosystems;
 - b. changes in light that may affect nocturnal wildlife;
 - c. changes in the noise, odour, vibration and dust environment that may affect wildlife.
6. The assessment of potential adverse effects must consider the biological requirements of the flora and fauna species that are known or are likely to occur on the site. Adverse effects on fauna breeding places must be clearly identified.
7. Enhancement and maintenance of corridors must be addressed. This will include:
 - a. determining the minimum width of corridors. The width of the corridor is to be identified by a competent person who must consider at a minimum:
 - i. the mapped width of corridors in the overlay map;
 - ii. the ecological needs of wildlife known to or that are likely to move through the site. Reference should also be made to the State's Koala-Sensitive Design Guideline;
 - iii. the following design considerations:
 - A. the relative width to length of corridor. In some instances, a reduced width may be acceptable provided it is over a short distance;
 - B. preventing fragmentation and minimising edge effects;
 - C. reconstructing ecological corridors and widening existing ecological connections to support wildlife, including:
 - I. for links between vegetation 'islands' these should be a minimum of 50m wide unless threatened species are confirmed when the minimum should be 100m (see also to the State's koala-sensitive design guidelines);
 - II. for waterway corridors these should accord with riparian buffers (i.e. minimum 10m wide for stream orders 1-2; 25m wide for stream orders 3-4; and 50m wide for stream orders 5 and greater as measured from the defining banks on both sides of the waterway);
 - D. providing dense landscape buffer corridors to either side of the ecological corridor to minimise edge effects;
 - E. avoiding the creation of any additional exempt clearing rights within the corridor area including the establishment of new lot boundaries;
 - F. locating structures and infrastructure (e.g. services, fences, roads, pedestrian access and instream structures) outside the corridor area;
 - G. ensuring that buildings and accesses (pedestrian and vehicle) are setback as far as practicable from matters of environmental significance;
 - b. identifying the retention and enhancement of vegetation that contribute to steppingstone corridors.
 8. Areas of retained MES are to be protected in perpetuity. This may include protection by way of a registrable covenant, in community title under an appropriate management regime or a under voluntary declaration for the purposes of the *Vegetation Management Act 1999*. In some instances, Council may accept a dedication of the land as open space. Circumstances where this might be acceptable include where the land:
 - a. adjoins existing areas managed by Council as open space;
 - b. adjoins another area of conservation estate such as a National Park;
 - c. supports outstanding ecological values.

SC6.1.7.3.2 Identifying mitigation measures

1. After taking steps to avoid and minimise impacts on MES the design must then consider how adverse effects can be mitigated. Examples of mitigation include identification of:

- a. areas that should be buffered;
 - b. areas that should be fenced;
 - c. areas requiring ecological restoration;
 - d. appropriate lighting solutions that prevent or minimise light spill;
 - e. noise, odour, vibration and dust reduction strategies;
 - f. areas where habitats can be reconnected or where wildlife connectivity is to be maintained through the establishment of wildlife movement infrastructure.
2. Mitigation measures must form part of the design.
 3. Some mitigation measures must form part of supporting documentation (e.g. Ecological Restoration Plans).

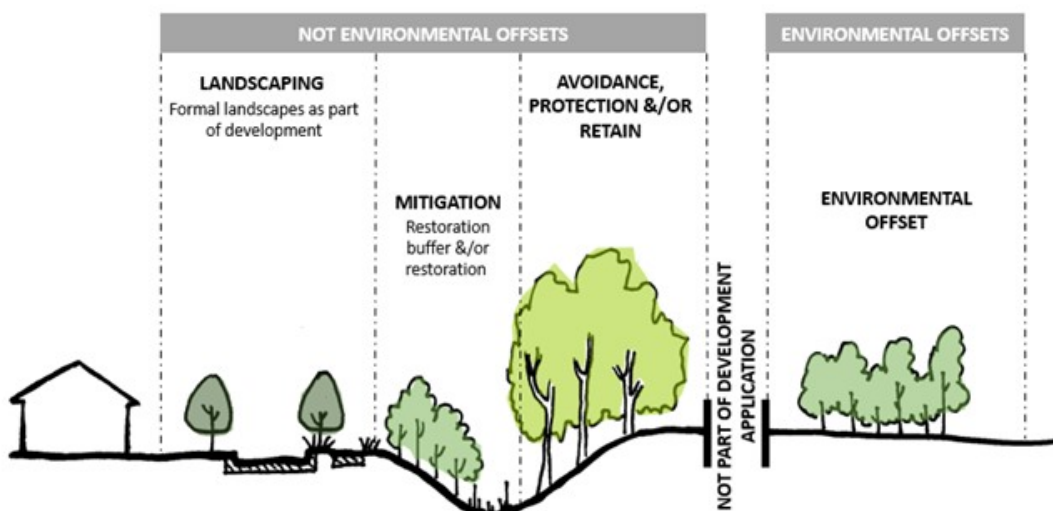
SC6.1.7.3.3 Assessing residual impacts

1. If the proposed development still results in adverse effects on MES following avoidance and mitigation then these adverse effects are considered 'residual impacts'.
2. Residual impacts on MES must be identified and categorised according to
 - a. Matters of National Environmental Significance (MNES);
 - b. Matters of State Environmental Significance (MSES);
 - c. Matters of Local Environmental Significance (MLES).
3. Where the residual impact is the unavoidable loss of MLES native vegetation (with the exception of flying fox roosts) then this is regarded as a 'significant residual impact' for the purpose of this policy.

SC6.1.7.3.4 Environmental offsets

1. Environmental offsets are designed to counterbalance unavoidable residual impacts on MES. An offset may be proposed where a development proposal causes significant residual impacts on MES. Offsets should be guided by and have a conservation outcome as defined by the *Environmental Offsets Act*.
2. Environmental offsets covered by this planning scheme policy only apply in instances where there is a significant residual impact on MLES. Where residual impacts occur on MNES or MSES they may require offsetting under other legislative frameworks.
3. Where a development is likely to require an environmental offset, it is strongly recommended that a pre-lodgement meeting is undertaken with Council prior to finalising the development application.
4. An environmental offset can be established on a development site, but it must be separate to other planting, restoration or protection measures established as part of the development. Figure SC6.1-2 below identifies what is not considered an environmental offset.

Figure SC6.1-2: Differences between landscaping restoration buffers and environmental offsets



5. Offsets should aim to result in long-term strategic conservation outcomes with net environmental benefits, including an increase in biodiversity and ecosystem values, ecological connectivity, improved sediment and erosion control, catchment functioning, and hydrological processes across the Lockyer Valley.
6. The developer may either deliver the offset themselves (proponent driven offset) or pay a financial contribution to the Lockyer Valley Regional Council (financial settlement offset) or a combination of both approaches. Council is to be consulted prior to settling on a delivery mechanism to discuss the most appropriate approach. (Note funds received by the Lockyer Valley Regional Council will be accumulated and spent strategically through possible purchase and protection of environmentally sensitive land, or offset restoration works and ongoing maintenance on existing Council land.)
7. Offsets must:
 - a. not replace or undermine existing environmental standards or regulatory requirements, or be used to allow development in areas otherwise prohibited through other legislation or policy;
 - b. result in a net environmental benefit to the Lockyer Valley Region.
8. Developer driven offsets:
 - a. have an impact ratio of 3:1 based on area of native vegetation impacted within and/or supporting MLES;
 - b. result in the enhancement of the environmental values of the offset receiving site to a greater extent than the loss of the environmental values from the impact site;
 - c. offset the impact of the development for the duration of the period that that impact occurs;
 - d. result in improved ecological connectivity (e.g. within a mapped ecological corridor);
 - e. must enhance biodiversity at a range of scales;
 - f. minimise the time lag between the impacts and the delivery of the offset;
 - g. consider the risks of delivering offsets through revegetation;
 - h. ensure the long-term viability and functionality of biodiversity;
 - i. protect the offset receiving site in perpetuity;
 - j. are provided on the same site as that on which the significant residual impact is occurring, or on a suitable offset receiving site. In the first instance, providing an environmental offset on the same site is preferred. If this is not achievable, the following hierarchy of preference is to be utilised to determine a suitable offset receiving site:
 - i. Within the boundaries of the local government area; AND
 - ii. on land which has the same or very similar pre-cleared regional ecosystem, underlying geology, soils, aspect, and drainage to re-establish the offset vegetation, as close as practical to the impact site and contiguous with areas of MES;
 - k. environmental offset receiving sites must become secure land managed for conservation purposes. It must be secured in perpetuity using a legally binding mechanism (e.g. environmental offset protection area, covenant, voluntary declaration etc);
 - l. environmental offset receiving sites (as defined by metes and bounds, not necessarily cadastral boundaries) must not be used for any other purpose other than for the environmental offset.
9. For financial settlement offsets the financial settlement for impacts to MLES values can be calculated using the Queensland Environmental Offsets Policy online offset calculator. For the 'Matter Group' choose 'Local Government Matter MLES 3'.
10. Documentation requirements for offsets, including management plans, are presented in section SC6.1.8.5 Environmental offsets.

SC6.1.7.4 Ecological assessment reporting

1. The purpose of an ecological assessment report is to:
 - a. describe the proposed development in the context of environmental adverse effects including impacts that are temporary, permanent, direct, and secondary;
 - b. present the outcomes of desktop and field surveys that have been undertaken within 24 months of the report being submitted to Council;
 - c. use maps and descriptions to show areas of combined ecological values as well as opportunities and constraints across the site;
 - d. demonstrate how the identification and location of ecological values has informed the development design process and has resulted in the best outcome for the ecological values on the site, including how the mitigation hierarchy (i.e. Avoid - Minimise - Mitigate - Offset) has been applied;
 - e. identify any residual impacts from the proposed development;
 - f. address any requirements of the relevant planning scheme.
2. The Basic and Detailed Ecological Assessment will be required to establish and describe the following as a minimum (Table SC6.1-3):

Table SC6.1-3: Contents of an ecological assessment report

SECTION	DETAIL	BASIC	DETAILED
1.0 Introduction			
1.1 Background	A brief background summary explaining the scope of the report	✓	✓

1.2 Site Description	Detailed description of the natural and physical environment of the site such as locality, landform, contours, geology, hydrology (surface and ground waters), air quality, noise, site contamination (where relevant to the impacts from the development), etc as well as how the site fits in a regional context. Current aerial photography at a scale to enable interpretation	✓	✓
1.3 Proposed Development	Full description of the proposed development including the nature and scale of development: a. development envelope areas; b. buildings and structures, including fences outbuildings and tanks; c. roads; d. infrastructure services (i.e. power, water, bores, dams, sewer or onsite effluent disposal areas, stormwater systems, telecommunications, driveways, easements, and accesses); e. proposed clearing; f. a plan of the proposed earthworks showing the extent of ground disturbance and clearing including cut and fill, trenching for infrastructure, and Tree Protection Zones of remaining vegetation; g. asset protection zones; h. other activities or infrastructure as appropriate.	✓	✓
1.4 Trigger for Field Ecological Assessment	A description of the values identified in the relevant Biodiversity overlay.	✓	✓
2.0 Methodology			
2.1 Author's Qualifications	The name and relevant professional qualifications of the person/s preparing the ecological assessment.	✓	✓
2.2 Desktop Review	Explanation of the desktop and literature review conducted for known and ecological values, including database searches listed but not limited to those listed in SC6.1 Appendix 2 Reference documentation.	✓	✓
2.3 Methods for Field Assessment	Including date, time, temperature, and weather conditions while the surveys were undertaken. Also include justification for the selected field survey methods and timing.	✓	✓
	Methods adopted for each element: a. flora; b. vegetation communities; c. waterways and wetlands; d. trees; e. fauna.	✓	✓
	Map(s) showing the location of all surveys conducted. All maps in the ecological assessment must include: a. a north point; b. a scale; c. suitable background information (e.g. aerial, cadastre) and labels as required so the location can be readily identifiable. Separate and more detailed maps will be required for accompanying management plans.	✓	✓
3.0 Results			
3.1 Desktop review	Results of the desktop assessment including maps and database searches for the site and as required for within 5-10km of the site boundary.	✓	✓
3.2 Error identification (where applicable)	Information that provides a supporting case for not addressing a relevant mapped feature or value, if applicable. For example, a mapping error where a feature is mapped on the site however it		

	<p>is obvious from the aerial photography or on ground assessments that the feature is not present in the mapped location. Written and photographic evidence is to be provided.</p> <p>Where there is a regional ecosystem mapping error, maps, photos, and the appropriate information as required for the Herbarium to make a mapping change is provided.</p> <p><i>Note—This part does not apply to vegetation that may have been cleared without the requisite permits/approvals.</i></p>	✓	✓
3.3 Results of Field Assessments			
3.3.1 Flora species	<p>A flora list should be established for the site that adequately samples all vegetation communities present. At a minimum, the species list must include the common name, scientific name and status (conservation status or pest status).</p> <p>Maps and photos showing location of these specimens. Also provide GIS data of GPS points.</p> <p><i>Note—A separate report may be required under State requirements in accordance with the Flora Survey Guidelines - Protected Plants prepared by Department of Environment and Science. If such a report is prepared it should be included as an appendix to the ecological assessment.</i></p>	✓ In part	✓
3.3.2 Vegetation communities	<p>Describe the vegetation types (including the use of photos) present across the site with regards to structure and floristics, including dominant communities and the site features they are concurrent with (such as topography, aspect, land zone or soils). Include maps showing their location mapped at a property scale (at a scale of 1:10,000 or better).</p> <p>Provide a map for and describe the vegetation communities (written and photographic) present on the site, including any incorrectly mapped areas. Include the <i>Vegetation Management Act</i> status, a short description and the area of each Regional Ecosystem type across the site.</p> <p>Describe and map any previous disturbance, the current land use/ management, significant weed infestations, pest disturbance, evidence of dry land salinity, erosion, and fire history (written and photographic).</p>		✓
3.3.3 Waterways and wetlands	Describe and map the presence, location and condition of wetlands.	✓	✓
3.3.4 Trees	<p>In some instances, it may be necessary to perform a tree survey to identify impacts and to describe where the proposed development is aiming to protect specific habitat trees, incorporate trees into landscaping, streetscaping or park areas, or protect trees.</p> <p>A separate map will be required as part of a Vegetation Management Plan in these instances.</p>	✓	✓
3.3.5 Fauna			
3.3.5.1 Fauna habitats	Description and photos of the various habitats within the site.	✓	✓
3.3.5.2 Habitat condition	Description of the habitat condition including previous disturbance, the current land use/ management, significant weed infestations, pest disturbance and fire history in relation to habitat, feeding and breeding resources for fauna (written and photos).	✓	✓
3.3.5.3 Fauna Species	A fauna list should be established for the site that adequately		

	<p>samples all habitat types of communities present. It is important to cater the survey methodology to the species and their habitat that are likely to be found on the site. Threatened species identified in the desktop assessment should be targeted. At a minimum, the species list must include the common name, scientific name, and status (conservation status or pest status).</p> <p>Maps showing location of these specimens. Also provide GIS data of GPS points. Photographic evidence of species found using camera traps or targeted surveys.</p>	<p>✓ In part</p>	<p>✓</p>
3.3.5.4 Fauna Breeding Places	<p>Show on a map and with photos (and provide GIS data of GPS points) all known or possible fauna breeding places. See tree survey requirements above.</p>	<p>✓</p>	<p>✓</p>
3.3.6 Connectivity	<p>Corridors will in part be identified as part of the desktop review with reference to overlay maps and aerial photography plus through field work.</p> <p>Location, alignment, and width of ecological corridors including regional, local and site based corridors are to be mapped. Stepping-stone corridors must also be considered. The degree to which a site contributes to corridor function must be discussed (some sites may be entirely located within a corridor).</p> <p>Consideration of corridor pinch points including existing and proposed road crossings.</p>	<p>✓</p>	<p>✓</p>
4.0 Design and impact assessment			
4.1 Combined Ecological Values/Opportunities and Constraints	<p>Supply an opportunities and constraints map combining the ecological values data from the results above. This map should show a continuum from the highest value ecological areas of the site to the lowest value ecological areas of the site.</p> <p>The assessment of impacts shall consider and describe the biological requirements of the flora and fauna species that have been recorded from the site or are considered likely to occur on the site, and the implications of the development on the viability of the species and the ecosystem.</p>	<p>✓</p>	<p>✓</p>
4.2 Response to Ecological Values	<p>How the development proposal considers the identified ecological values and ecological processes across the site. Important ecological values should be retained and, in some instances, buffered from the impacts of development. Buffers to wetlands and waterways should follow current best practice. Corridors and connections should allow for uninhibited fauna movement at both local and regional scales. Other necessary ecological processes must be considered (e.g. hydrological regimes that maintain groundwater dependent ecosystems).</p> <p>Measures to enhance ecological values and ecological processes, such as integration of ecological restoration and wildlife movement infrastructure, must be identified.</p> <p>The report must clearly identify how impacts (direct and secondary) ecological values have been:</p> <ol style="list-style-type: none"> avoided; minimised. 	<p>✓</p>	<p>✓</p>
4.3 Potential Impacts and recommended Mitigation Measures	<p>Describe the likely temporary and permanent impacts (both direct and secondary) on ecological values from the proposed development (both positive and negative).</p> <p>Mitigation measures to avoid or reduce the impacts of the proposed development and any proposals to enhance, restore</p>	<p>✓</p>	<p>✓</p>

	or revegetate the ecological values where appropriate, both during construction and once the development is complete. Management plans may be required to describe mitigation measures and are to be included as appendices.		
4.4 Residual Impacts	Describe the likely residual impacts of the proposed development on MNES, MSES and MLES. For MLES identify significant residual impacts following avoidance, minimisation and mitigation identified in the previous sections.	✓	✓
5.0 Environmental Offsets	Identify whether or not environmental offsets are required and if so the proposed approach. An offset management plan may be required.	✓	✓
6.0 Recommendations	Summarise proposed mitigation, offset measures and provide a list of recommendations pertaining to other necessary measures including by not limited to: a. the need for other approvals such as protected plant surveys and species management plans required under the <i>Nature Conservation Act</i> or referrals under the <i>Environment Protection and Biodiversity Conservation Act (Cth)</i> ; b. other aspects of the development application such as recommendations for species selection for street trees or detention basins.	✓	✓
7.0 Conclusions	Restate the scope of the report, summarise the key findings, potential impacts, and recommended mitigation measures.	✓	✓
8.0 References	List of documents referred to in the study	✓	✓
Appendices	As required but as a minimum should include: a. relevant reference material that has been relied on (e.g. online wildlife records); b. species lists; c. management plans (refer to SC6.1.8 Requirements for supporting documents). d. Response to Biodiversity overlay code.	✓	✓

SC6.1.8 Requirements for supporting documentation

SC6.1.8.1 Vegetation management plan

1. A vegetation management plan may be prepared as a report supported by a series of A3 plans or simply as a series of A3 plans provided requisite information is included.
2. Information to be included in the vegetation management plan:
 - a. a scaled tree survey map overlaid on the development layout (including proposed above and below ground infrastructure/services and earthworks), identifying the location of:
 - i. individual trees, ensuring each tree is numbered;
 - ii. those trees proposed for retention;
 - iii. those trees proposed for removal;
 - iv. tree protection zones, in accordance with AS 4970-2009 Protection of trees on development sites;
 - b. a table which includes:
 - i. the number for each tree identified on the tree survey map;
 - ii. height (in metres);
 - iii. Diameter at Breast Height (DBH) (in centimetres);
 - iv. Tree Protection Zone (in accordance with the Australian Standard Protection of Trees on Development Sites AS 4970-2009);
 - v. condition/health;
 - vi. evidence of fauna uses or habitat value including, scratch marks, hollows, nests, arboreal termitarium, dreys and scats;
 - vii. where in mapped koala habitat, those trees regarded as non-juvenile koala habitat trees including species in the genera of *Angophora*, *Corymbia*, *Melaleuca*, *Lophostemon* or *Eucalyptus* genera (i.e. being 4m tall and greater or 10cm diameter and greater at 1.3m above the ground);
 - viii. trees to be removed;
 - ix. trees to be retained;
 - c. any other supporting information provided by a qualified arborist.
 - d. methods for protecting retained vegetation during site works, construction and other site activities (e.g. in accordance with AS 4970 Protection of trees on development sites). Where the development will result in any encroachment into tree protection zones of trees to be retained, the tree survey plan is to be supported by an Arborist Report;
 - e. methods for vegetation clearing (including fauna management) noting any clearing of koala habitat trees must ensure the clearing is carried out in a way that complies with the sequential clearing conditions in Part 3 section 10 of the the Nature Conservation (Koala) Conservation Plan 2017;
 - f. methods for management of any restricted and invasive weeds present across the entire site prior to, during and after construction (not just the construction area).
 - g. construction practices to minimise impacts to wildlife through sequential clearing and allowing animals time to relocate. Instances where a wildlife spotter is to be involved with clearing activities must be identified including notes stating the vegetation management plan must be read in conjunction with the fauna management plan;
 - h. measures to prevent/control erosion during vegetation clearing works including links to soil management plans as required;
 - i. where vegetation is unavoidably cleared, methods of disposal and repurposing/salvage. Trunks can be used as ground habitat in retained areas, 'habitated' and installed as standing nesting opportunities, and branches can be similarly used with salvaged hollows and habitated branches installed in retained trees;
 - j. roles and responsibilities during works.

SC6.1.8.2 Fauna Management Plans

1. A fauna management plan may be prepared as a report supported by a series of A3 plans or simply as a series of A3 plans, provided requisite information is included.
2. A fauna management plan must identify in separate plans the measures required to manage fauna during construction works and mitigation measures to be established to support wildlife during operation.
3. A fauna management plan must link closely with any vegetation management plan and ecological restoration plan developed for the site and include, but is not limited to, the following items:
 - a. purpose and objective;
 - b. relevant legislation and standards;
 - c. reference to other relevant studies including notes stating the plan must be read in conjunction with the vegetation management plan and as needed, the ecological restoration plan;
 - d. roles and responsibilities;
 - e. a summary of species surveyed as using, or are likely to use the site identifying the following:
 - i. how these species may be currently using and or moving through the site;
 - ii. which of these are likely to be adversely impacted by works occurring in the development area;

- iii. how impacts are proposed to be mitigated;
- f. a scaled map showing existing habitat values overlaid on the development layout (including proposed above and below ground infrastructure/services and earthworks), identifying the location of important habitat (e.g. particular vegetation communities and/or movement corridors) and habitat features (e.g. hollow-bearing trees, wetlands);
- g. the plan should be structured to consider individual impacts during the construction and operational phases along with targeted mitigation measures. Responsibilities and timing for each must be identified. **Table SC6.1-4** provides examples of likely impacts and potential mitigation measures;
- h. a schedule of meetings, including pre-starts, and reporting;
- i. a monitoring plan and schedule;
- j. a plan for corrective actions/treatments;
- k. evaluation and review.

Table SC6.1-4: Fauna management plan mitigation measures

Phase	Impact	Management/mitigation measure	Responsibility	Timing
Construction	Including but not limited to: <ul style="list-style-type: none"> • clearing and ground disturbance; • deliberate interference with animals; • traffic or interactions with vehicles; • noise and vibration; • light; • dust; • vibration; • odour; • pollution; • erosion; • changes to hydrology; • introduced flora and fauna, including dogs onsite during construction; • fire; • hydrocarbon and chemical spills; • inadequate waste management; • dewatering. 	Examples include: <ul style="list-style-type: none"> • referencing specific elements of the vegetation management plan; • specific management procedures for potential or known habitat trees and fauna breeding places; • details of Spotter Catcher roles and responsibilities, contacts, and certification. At a minimum spotter catchers must: <ul style="list-style-type: none"> ◊ undertake pre-clearing inspections and provide a pre-clear report to Council; ◊ advise contractors when it is appropriate to commence works; ◊ be available for pre-start meeting with Council if required; ◊ be present during topsoil stripping where subterranean species of reptiles or amphibians are likely present; ◊ assess and possibly attend mulching or moving of stockpiled vegetation; ◊ clearly marking (flagging) vegetation containing fauna or fauna habitat and visually and verbally communicating such information to the tree feller to ensure flagged trees are not felled until authorised and instructed to by the Fauna Spotter; ◊ keep and submit requisite records and reports; ◊ submit post-clearing report to Council. • clearing procedures in accordance with the sequential clearing conditions in Part 3 section 10 of the Nature Conservation (Koala) Conservation Plan 2017 and a Species Management Program (SMP) approved by DES (where applicable). • a directional clearing plan. • a temporary fauna exclusion fencing plan to reduce possibility of wildlife interactions with vehicles on roads • prohibit dogs onsite during construction. 		
Operation	Including but not limited to: <ul style="list-style-type: none"> • limiting wildlife movement opportunities in hostile environments; • impacts of domestic animals; • impacts from vehicles; • impacts associated with lighting, noise, odour, vibration and dust management; • soil erosion and sediment control; • stormwater runoff. 	Examples include: <ul style="list-style-type: none"> • wildlife movement infrastructure; • fauna friendly and exclusion fencing; • underpasses or overpasses fencing; • directional fencing; • traffic calming devices; • signage; • wildlife sensitive lighting; • installation of artificial hollows; • dog and cat curfews; • consideration of breeding requirements of wildlife (e.g. halting certain development activities during breeding events); • co-locating new infrastructure networks. 		

SC6.1.8.3 Ecological restoration plans

1. Ecological restoration may be required for multiple reasons such as:
 - a. creating a buffer zone between a development and a significant ecological value;
 - b. restoring a riparian area or wetland;
 - c. enhancing areas of retained vegetation communities / habitat;
 - d. reducing edge effects and edge to area ratios;
 - e. reinstating an ecological corridor.
2. Depending on the level of existing native vegetation cover, weed extent and natural capacity for the site to regenerate (i.e. its 'resilience') different approaches to ecological restoration may be required. The Southeast Queensland Ecological

Restoration Framework identifies the following approaches to ecological restoration:

- a. Natural regeneration - where resilience is intact and recovery is automatic with the removal of the cause of the damage;
 - b. Assisted natural regeneration - where degrees of resilience exist and “triggering” interventions (either disturbance or resource provision) can affect recovery by natural regeneration;
 - c. Reconstruction - where resilience is depleted, and abiotic or biotic elements need wholesale importation or major amendment before recovery can commence;
 - d. Fabrication - where conditions are permanently changed and better-adapted local systems can be regenerated or constructed to restore integrity to the landscape.
3. In most instances development projects will require the use of Assisted natural regeneration (e.g. where weed removal is required from the understorey of a forest) or Reconstruction (e.g. where a riparian corridor requires planting). Fabrication will occasionally be required (e.g. on a fill batter that buffers a cropping area). Multiple approaches may be required for a single project.
 4. For Assisted natural regeneration and Reconstruction projects it will be necessary to aim for the establishment of the pre-clearing regional ecosystem for the location. SC6.1 Appendix 1 Regional Ecosystem Species Lists includes species lists for the regional ecosystems of the region.
 5. Fundamental to any ecological restoration project is to establish a clear aim for the entire project and/or for particular restoration zones. The aim guides the approach and objectives/quantifiable performance indicators. Table SC6.1-5 presents an example of how this may be structured is presented below (noting the Performance Indicators are Council’s minimum acceptable standard).

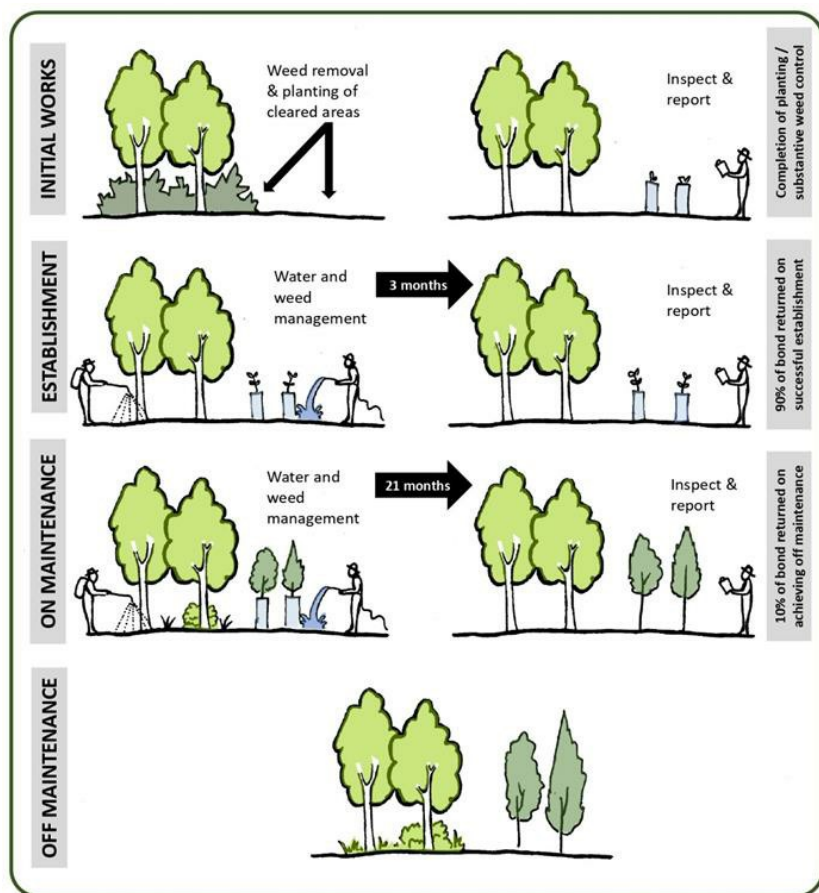
Table SC6.1-5: Example aims and objectives and minimum acceptable performance indicators

Aim	Objective	Performance indicators
Reinstate self-sustaining native vegetation.	Establish species and structure consistent with regional ecosystem 12.3.3 within the mapped riparian area.	<ul style="list-style-type: none"> • <i>Biosecurity Act</i> listed weeds are to be absent or controlled (90% removal) after 12 months, and absent after 24 months; • Environmental weeds are to be absent or controlled (50% removal) after 12 months, and absent or controlled (75% removal) after 24 months; • Plant survival and plant density — replace mortalities as required to maintain 90% survival rate after 3 months and in perpetuity; • Erosion and sediment control/mulching — maintain an 80% ground cover across the rehabilitation at completion of initial works and in perpetuity. This can include established grass, ground cover plants, mulch or jute matting; • Nest boxes are correctly installed in accordance with “Nest boxes for wildlife, a practical guide by Alan and Stacy Franks”; • All revegetation works are to be conducted in accordance with: Chenoweth EPLA and Bushland Restoration Services (2012) South East Queensland Ecological Restoration Framework: Manual.

6. Once a clear understanding of project aims and objectives are established an ecological restoration plan can be prepared.
7. An ecological restoration plan may be prepared as a report supported by a series of A3 plans, or simply as a series of A3 plans provided requisite information is included.
8. An ecological restoration plan must contain the following as a minimum:
 - a. the objective of the restoration (e.g. restore to the pre-clear regional ecosystem, restore koala habitat, improve connectivity);
 - b. site overview/background;
 - c. a scaled map showing the different management zones with respect to the proposed development layout in addition to access trails, asset protection zones and bushfire management lines (if required);
 - d. the ecological restoration approach for each management zone in accordance with the Chenoweth EPLA and Bushland Restoration Services (2012) South East Queensland Ecological Restoration Framework: Manual;
 - e. performance criteria that, at a minimum, accord with Council’s minimal performance indicators;
 - f. the steps and timing required for each management zone including:
 - i. site preparation;
 - ii. weed management;
 - iii. earthworks (if required);
 - iv. sediment and erosion control;
 - v. planting;
 - vi. maintenance;
 - g. if planting is required, the:
 - i. plant specifications including:
 - A. plant schedule;
 - B. species;
 - C. densities and quantities;
 - D. locally sourced seed stock;
 - E. sun hardened;
 - F. pot size;
 - ii. the planting method including:
 - A. excavation;

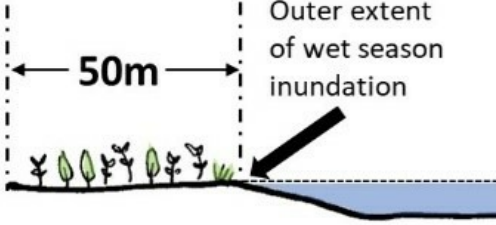
- B. soil conditioning;
 - C. planting method;
 - D. fertilisers;
 - E. mulch or other weed suppressant methods including Jute mats;
 - F. tree protection (tree guards);
 - G. initial watering regime.
- h. where ecological restoration areas are located within mapped medium, high or very high potential bushfire intensity areas or the mapped potential impact buffer, they are restored in a manner that maintains or reduces the existing fuel load;
 - i. a maintenance schedule for a total of 2-years including necessary tasks such as watering, weed management and replacement plantings;
 - j. required qualifications of restoration contractor;
 - k. details of proposed legal security mechanisms for preserving and enhancing retained or rehabilitated vegetation (e.g., a vegetation protection covenant), including a plan showing the location and a description of the activities that are proposed to be permissible and prohibited in these areas;
 - l. priced bill of quantities for the ecological restoration (itemised for the works, 3-month establishment period and 2-year on-maintenance period).
9. Reporting and inspection schedule (see Figure SC6.1-3):
- a. notify Council when all plants have been planted or, where planting is not required, following substantive control of weeds. Upon acceptance, a 3-month 'establishment period' commences.
 - b. an inspection and report will be required by a competent person with experience in ecological restoration to determine whether works have been completed to such a standard (i.e. meeting performance criteria) that they can be accepted 'on maintenance'. Certification by the competent person to be submitted to Council. Upon acceptance the on maintenance period commences.
 - c. an inspection and report by a competent person with experience in ecological restoration will be required after 21-months from the commencement of the 'on maintenance' period to ensure rehabilitation performance criteria have been met. Certification by the competent person to be submitted to Council. Upon acceptance the works will be accepted off maintenance.
10. Ecological restoration works are to be subject to a performance bond (see Figure SC6.1-3: Maintenance for restoration works):
- a. where the bond value is set at 150% of the total priced bill of quantities;
 - b. bonding is to be in the form of a Bank Guarantee in a form acceptable to Council. Amongst other matters the Bank Guarantee must comply with the following:
 - i. Council's policies in relation to credit risk;
 - ii. detail the name of the customer/applicant;
 - iii. for reasons of practicality, two separate Bank Guarantees may be required, one set at 90% of the bond value ('Incomplete works') and the other at 10% ('maintenance bond');
 - c. where works are accepted 'on maintenance' by Council all, or part, of the 'Incomplete works' component of the bond will be reinstated;
 - d. latent defects reported to Council by the competent person three months prior to the end of the maintenance period must be promptly rectified to enable the ecological restoration works to be accepted 'off maintenance'.

Figure SC6.1-3: Maintenance for restoration works



11. Specific requirements for particular circumstances are tabulated below:

Table SC6.1-6: Specific requirements for restoring waterways and wetlands

Waterways	Wetlands
<p>1. To improve waterways and minimise impacts from development the following minimum widths of ecological restoration are required on both sides of a waterway as measured from the defining banks:</p> <ul style="list-style-type: none"> • 10m wide for stream orders 1-2; • 25m wide for stream orders 3-4; • 50m wide for stream orders 5 and greater. <p>2. Fences are located along the outer edge of restoration to control access to the restored area. Fixed watering locations are provided for stock. Creek crossings may use laydown fences or gates.</p>	<p>1. To improve wetlands and minimise impacts from development, restoration planting is a minimum width of 50m from the outer edge of open water for seasonally inundated wetlands or for all other wetlands, the outer edge of groundwater dependant vegetation;</p>  <p>2. Where a wetland is a riverine wetland, the above wetland requirements apply, and a minimum 75% riparian shade cover is achieved across the waterway within 10 years of restoration;</p> <p>3. Fences are located along the outer edge of restoration to control access to the restored area.</p>

SC6.1.8.4 Pest management plan

1. Where not adequately covered by an ecological restoration plan (e.g. if pest animals are present; or if pest plants are to be controlled in the absence of an ecological restoration plan) a pest management plan may be required.
2. The pest management plan is to include:

- a. an assessment of the current level of pest occurrence;
 - b. treatment schedule for identified all pest plants, ensuring those scheduled under the *Biosecurity Act 2014* are removed/treated appropriately prior to removing trees or conducting any earthworks on the site.
3. Where necessary, a treatment schedule is to be provided for identified pest animals including necessary fencing to exclude pests from significant habitat, restoration areas and/or environmental offsets.
 4. Steps must be identified to prevent the spread of fire ants. Refer to the National Fire Ant Eradication Program website for contemporary information pertaining to fire ant management requirements.
 5. Weed treatment approaches may include mechanical and/or chemical methods. For both methods, the following must be considered:
 - a. weed management includes strategies that prevent erosion occurring because of soil exposure;
 - b. weed management includes strategies to prevent 'off target' impacts;
 - c. exclude chemical use in riparian areas unless where specified by the approved product label or the safety and use conditions specified by the Australian Pesticides and Veterinary Medicines Authority;
 - d. exclude root-absorbed broad-spectrum or residual herbicides.

SC6.1.8.5 Environmental offsets

SC6.1.8.5.1 Documentation

1. The applicant must submit an Offset Delivery Form 1 - Notice of Election and any other associated forms relevant to the offset delivery approach chosen prior to commencement of any works that impact on the offset matter in accordance with section 18 of the *Environmental Offsets Act*. Refer to the Queensland Government's website for the location of all forms associated with environmental offsets.
2. If a developer driven (land-based) offset or a combined land-based/financial settlement offset option is chosen, the proponent must prepare an offset delivery plan in accordance with section 18 of the in *Environmental Offsets Act* and the latest version of the Queensland Offsets Policy.
3. Upon agreement between Council and the developer about the developer's planned delivery of the offset (and within 40 business days after receiving the notice of election), Council will issue an Agreed Delivery Arrangement in accordance with sections 19 and 19A of the *Environmental Offsets Act 2014*. This agreement forms a contract between the parties and details the delivery of the offset. The developer is to enter into an agreed delivery arrangement with Council prior to commencement of any works that impact on the offset matter in accordance with section 19B of the *Environmental Offsets Act*.
4. A legally binding mechanism must be in place over the receiving site within 12 months of clearing works occurring on the impact site.

SC6.1.8.5.2 Environmental offset management plans

1. The offset delivery plan in accordance with section 18 of the in *Environmental Offsets Act* and the latest version of the Queensland Offsets Policy may provide sufficient detail to act as the environmental offset management plan. Council will identify whether the developer is to prepare a separate report to fulfil the requirements of the environmental offset management plan following receipt of the offset delivery plan.
2. Environmental offsets may require ecological restoration and/or pest management. Where ecological restoration and/or pest management is required, the approaches outlined in SC6.1.8.3 and SC6.1.8.4 are to be adopted for the environmental offset management plan.
3. The offset management plan must also integrate bushfire management planning in accordance with Planning Scheme Policy SC6.2 Bushfire management plan.
4. However, owing to the uncertainty and risks associated with delivering environmental offsets the offset site must be managed/maintained for a period of 5 years. The performance bond for ecological restoration works will cover this period with reimbursement milestones identified by Council prior to commencement according to the level of risk associated with the specific offset.
5. The environmental offset management plan is to be structured as follows:
 - a. a description of the background to the environmental offset including a description of the impact site, its ecological values, how the mitigation hierarchy was observed and how offsets have been calculated for the offset site;
 - b. a description of the site including lot on plan and an appropriately scaled map showing offset areas;
 - c. a description of the method of legal protection;
 - d. a summary of key dates/timelines including when management works is to commence, the duration of works and when works will cease being maintained by the applicant;
 - e. a description of management measures incorporating relevant plans as appendices including:
 - i. ecological restoration;
 - ii. pest management;
 - iii. bushfire management.
6. Reporting associated with the following milestones:
 - a. at completion of planting;

- b. quarterly for the first 12-months;
- c. annually thereafter;
- d. a final assessment at the end of the five-year period.

SC6.1.8.6 Covenant management plan

1. A covenant management plan will be required by Council where land is to be legally secured by way of a statutory covenant under the *Land Title Act 1994*.
2. The covenant management plan must identify and map the location of ecological values with respect to the covenant and cadastral boundaries. The location of any targeted ecological restoration works, fencing or other management measures pertaining to the covenant must also be mapped.
3. The covenant management plan must state the activities not permitted in the covenant area. At a minimum this must include a statement noting the following activities are not permitted:
 - a. harm or cause harm to any native animal;
 - b. restrict any native animal from accessing the covenant area;
 - c. remove any native plants or native animals from the covenant area except where the maintenance of weeds is required;
 - d. damage any native plants;
 - e. pollute the covenant area;
 - f. plant or grow non-native plants in the covenant area;
 - g. conduct burning off, application of herbicide or other chemical or any other process in the covenant area which might adversely affect native plants or native animals;
 - h. allow or permit entry in the covenant area of any domestic animal that may harm or interfere with native animals or adversely affect native plants;
 - i. use motorised vehicles, including motor bikes, within the covenant area (unless required for management purposes);
 - j. construct, create or path any path, road or access way;
 - k. carry out any works, construction, or build anything in the covenant area including but not limited to buildings, swimming pools, tennis courts, retaining walls, car-parking, waste disposal areas, excavations, foundations, filling, paving and services;
 - l. carry out any process which may cause erosion.
4. Where the covenant is required for the purpose of legally securing an environmental offset, then the environmental offset management plan is to be included as an appendix to the covenant management plan.
5. Where the covenant is required for the purpose of legally securing an area other than an environmental offset, then the following must be included:
 - a. a summary of key dates/timelines including when management works is to commence, the duration of works and when works will cease being maintained by the applicant;
 - b. a description of management measures incorporating relevant plans as appendices including:
 - i. ecological restoration;
 - ii. pest management;
 - iii. bushfire management.

SC6.1 Appendix 1: Regional ecosystem species lists

See Council's revegetation species list on Councils' website.

SC6.1 Appendix 2: Reference documentation

REFERENCES	ECOLOGICAL ASSESSMENTS				MANAGEMENT PLANS					
	Flora	Fauna	Vegetation communities	Design & Impact assessment	Vegetation MP	Fauna MP	Pest MP	Ecological Restoration Plans	Environmental Offset MP	Covenant MP
AS 4970 Australian Standard Protection of Trees on Development Sites	✓			✓	✓					✓
Bavins, M., Couchman, D. and Beumer, J. (2000) Fisheries Guidelines for <i>Fish Habitat Buffer Zones</i> , Department of Primary Industries, Queensland, Fish Habitat Guideline FHG 003, 37 pp.				✓	✓	✓		✓		✓
Calvert, M. (2014) <i>Spatial Pest Attributes Standard Queensland, Invasive Plants and Animals</i> , Biosecurity Queensland, Department of Agriculture, Fisheries and Forestry.	✓				✓		✓	✓	✓	✓
Challen, S. and Long, P. (2004) <i>Fisheries Guidelines for Managing Poned Pastures</i> , Department of Primary Industries, Queensland, Fish Habitat Guideline FHG 005, pp 27.				✓		✓	✓			
Chenoweth EPLA and Bushland Restoration Services (2012) <i>South East Queensland Ecological Restoration Framework: Code of Practice</i> . Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.				✓				✓		
Chenoweth EPLA and Bushland Restoration Services (2012) <i>South East Queensland Ecological Restoration Framework: Manual</i> . Prepared on behalf of SEQ Catchments and South East Queensland Local Governments, Brisbane.				✓				✓		
Commonwealth of Australia (2020) <i>National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds</i> , Canberra.				✓		✓				✓
Department of Environment and Heritage Protection, Queensland Government. <i>Guideline: Developing a species management program</i> .				✓		✓				
Department of Environment and Resource Management (2011) <i>Queensland Wetland Buffer Planning Guideline</i> , 54 pp, Queensland Wetlands Program, Brisbane Queensland.				✓	✓	✓		✓		✓
Doerr, V, Doerr, E & Davies, V (2010), <i>Does Structural Connectivity Facilitate Dispersal of Native Species in Australia's Fragmented Terrestrial Landscapes?</i> Collaboration for Environmental Evidence Systematic Review no. 44, CEE, Bangor, Wales.				✓				✓	✓	

Eyre TJ, Ferguson DJ, Hourigan CL, Smith GC, Mathieson MT, Kelly, AL, Venz MF, Hogan, LD & Rowland, J. (2018) <i>Terrestrial Vertebrate Fauna Survey Assessment Guidelines for Queensland</i> . Department of Environment and Science, Queensland Government, Brisbane		✓								
Hilty, JA, Lidicker, WZ & Merenlender, AM (2006), <i>Corridor Ecology: the science and practice of linking landscapes for biodiversity conservation</i> , Island Press, Washington DC.				✓				✓	✓	
Long, K and Robley, A (2004). <i>Cost Effective Feral Animal Exclusion Fencing for Areas of High Conservation Value in Australia</i> .				✓			✓			
Mackey, B, Watson, J & Worboys, G (2010), <i>Connectivity Conservation and the Great Eastern Ranges Corridor, Independent report to the Interstate Agency Working Group (Alps to Atherton Connectivity Conservation Working Group)</i> , Department for Environment, Climate Change and Water, Canberra.				✓						✓
Markwell, K and Breen, P. (2010) <i>Waterway and Channel Rehabilitation Guidelines</i> , Ipswich City Council, Ipswich				✓				✓		
National Recovery Plans and listing advice for species and threatened ecological communities including but not limited to: a. Koala b. Brigalow c. Bats/Grey headed flying foxes	✓	✓	✓	✓	✓	✓		✓	✓	✓
National standards for the practice of ecological restoration in Australia.				✓				✓		
National Threat abatement plans including for invasive ants.				✓			✓			✓
Neldner, V.J., Wilson, B.A., Dillewaard, H.A., Ryan, T.S., Butler, D.W., McDonald, W.J.F, Addicott, E.P. and Appelman, C.N. (2020) <i>Methodology for survey and mapping of regional ecosystems and vegetation communities in Queensland</i> , Queensland Herbarium, Queensland Department of Environment and Science, Brisbane.			✓							
Queensland Department of Environment and Heritage Protection (2020) <i>Koala-sensitive Design Guideline: A guide to koala-sensitive design measure for planning and development activities</i> , Queensland Government, Brisbane.				✓		✓		✓		
Queensland Department of Environment and Resource Management (2011) <i>Queensland Wetland Definition and Delineation Guideline</i> ,				✓						

Queensland Government, Brisbane.										
Queensland Department of Environment and Science (2020) <i>Flora Survey Guidelines - Protected Plants</i> , Queensland Government, Brisbane	✓									
Queensland Department of Environment and Science (2020) <i>Information Sheet, Species Management Program, Requirements for tampering with a protected animal breeding place in Queensland</i> , Queensland Government, Brisbane				✓		✓				
Queensland Department of Transport and Main Roads (2024) <i>Fauna Sensitive Transport Infrastructure Delivery manual</i> , Queensland Department of Transport and Main Roads, Planning, Design and Environment Division, Brisbane.				✓		✓		✓		
SEQ Catchments & Hampson, R (2014) <i>South East Queensland Land Types Booklet — Lockyer Catchment Version 2</i> , SEQ Catchments, Brisbane.			✓							
Links to the following resources may be found at Useful wildlife resources: <ul style="list-style-type: none"> • Aquatic Conservation Assessments (ACA) and AquaBaMMs • Atlas of Living Australia • Australia's Virtual Herbarium • Australian Species profile and threats database • Biodiversity planning assessments • Biomaps • BirdLife Australia • Census of Queensland flora • Conservation status of Queensland wildlife • Environmental reports online • Generalised distribution and densities of Queensland wildlife • Habitat suitability models series • MapsOnline API • Modelled potential habitat for selected threatened species in Queensland • Online Zoological Collections of Australian Museums • Queensland Confidential Species • Queensland Herbarium specimen data - HerbreCs • Queensland Museum data • Queensland wildlife data API • Regrowth benefits indicative map • Search regional ecosystems descriptions • Species lists • Species profile search • WetlandMaps • WetlandSummary—facts and maps • WildNet wildlife records 	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

SC6.1 Appendix 3: Fauna survey techniques

SURVEY TECHNIQUE	METHODS	MINIMUM DURATION
Diurnal Search	<p>Two x 30 minute searches within two different 50 x 50 metre quadrants of the survey area. This involves intensive investigation of streams, ground layer (under logs, rocks and leaf litter, cracks in soil), low vegetation (under bark and in tree stumps) and caves for target invertebrates and all amphibians, reptiles, bats and other evidence of habitation, e.g. scats, owl pellets, remains and tracks.</p> <p>Animal Ethics (AE) consideration - Where rocks or logs are lifted to check for fauna, they are replaced as found with minimal disturbance of fauna.</p>	1-2hr/day during the middle of the day for each community
Pitfall Traps	<p>A pitfall trap line should contain a minimum of 2 buckets (20L containers) at 7.5m intervals and appropriate drift fencing (30-40 cm high). At least one pitfall trap line for each habitat type or community.</p> <p>AE considerations - Pitfall traps should be cleared early morning and late afternoon. Adequate moisture and litter and a float must be provided in pitfall traps. Pitfall traps should be decommissioned if forecast to flood.</p>	Four nights
Opportunistic Records	Covers all fauna outside the systematic survey times.	None
Funnel Traps	A minimum of 6 funnels should be placed along alternate sides of drift fence usually between a pitfall array. AE consideration — Funnel traps should be covered with leaf litter or other insulating material to minimise exposure to heat or cold.	Four nights
Spotlighting	<p>Two 30 minute surveys using a combination of high-powered spotlights and head torches to be carried out on foot only. This method surveys nocturnal fauna within a 100x100m survey area.</p> <p>AE consideration - During nocturnal surveys, care will be taken to ensure that spotlighting does not disorientate or frighten fauna. Appropriate red filters or infrared beams should be used for prolonged observation periods.</p>	Two nights
Elliot Traps	<p>The Elliot transects should comprise of approximately 20 Elliots at 5-10 metre intervals) positioned in a T configuration. At least one Elliot transect for each habitat type or vegetation community</p> <p>AE considerations - Elliott traps should be checked every six hours to minimise stress caused to individuals and well covered with leaf litter or other insulating material to minimise exposure to heat or cold.</p> <p>Specimens should be released into appropriate habitat features to prevent predation from other fauna.</p> <p>Time spent handling animals must be minimised to reduce stress or mortality or potential for myopathy.</p> <p>Care should be taken when handling marsupials with advanced pouch young which are prone to ejecting young when under stress.</p> <p>Lactating females may also need to return to feed young.</p>	Four nights
Wire Cage (possum) and Arboreal Traps	<p>One wire cage trap per site open for four nights and up to 5 platform mounted arboreal traps which are secured to selected trees.</p> <p>AE consideration - Cage traps should be covered to reduce stress to captured animals.</p>	Four nights
Bird Surveys	Six 5-10 minute area searches within 100 x 100 metre survey site or a transect search where 100m transect is walked with 5-10 minutes spent at each transect. Birds are recorded indicating method of identification	1hr a day and night

	(i.e. call or visual observation). Surveys are conducted for 1 hour from dawn to early morning, 1 hour at dusk to early evening and 1 hour during night for nocturnal species.	
Call Playback	<p>This technique uses call playback to determine the presence of species that may be difficult to detect visually (e.g. owls and frogs).</p> <p>For amphibians — Two sessions of call playback to simulate calling activity of breeding males. Usually crepuscular survey carried out for 15-30 minutes over 1-2 nights.</p> <p>AE consideration - Overuse of mimicry calls should be avoided</p>	1-2 nights
Ultrasonic bat Call Detectors	<p>Echolocation call detectors that record the ultrasonic calls of microchiropteran bats should be deployed over 3-4 nights and programmed to record continuously from sunset to sunrise. Detectors should be placed on the edge of flyways through vegetation, approximately 1-1.5m above ground level. Data can be recorded in full spectrum or memory efficient zero crossing formats depending on level of analysis required. The call sonograms are compared with those of reference calls from southern Queensland and/or with published call descriptions (Reinhold et al. 2001; Pennay et al. 2004) using a range of acoustic analysis software. Reporting should follow the Australasian Bat Society standards for the interpretation and reporting of bat call data (Reardon 2003). Species nomenclature should follow van Dyck et al. (2013) unless otherwise specified.</p>	3-4 nights
Harp Traps and Mist Nets	<p>For the capture of micro chiropteran bats. One harp trap or mist net per site open for two to four nights.</p> <p>Mist nets are ideal for catching bats over isolated and/or shallow waterbodies such as water tanks and watercourses and other open habitats. Mist nets are set for 3-4 hours after sunset and must be monitored constantly. Only contractors and their employees that have obtained an Australian bat lyssavirus vaccination and/or have maintained adequate titre levels against Australian Bat Lyssavirus will be responsible for handling bats. In the case of a scratch or bite, contractors or employees will follow the C3 bat protocol that involves wound washing; application of antiseptic solution; and follow up medical attention (Qld Health 2010).</p> <p>AE considerations - Harp traps should be checked every two hours to minimise stress caused to individuals. Harp traps will be cleared and closed at least 2 hours before daylight so that microbats are not housed during the day. All bats will be released at the capture site. Extreme caution should be exercised at times of the year when females are likely to be heavily pregnant or carrying young as they may become dislodged. The mist nets must not be used to capture bats at the entrance of caves or mines unless there is some prior knowledge of the number of bats within, and the number is not large.</p>	2-4 nights
Hair Tubes	<p>Different sizes of hair tubes should be left on site for a minimum of four nights and up to two weeks as an additional method of mammal detection. Recommended for targeted surveys of cryptic small to medium sized mammals (e.g. quolls).</p>	4-14 days
Scats, Tracks and Feed marks	<p>Evidence of fauna can be determined from scats, tracks, scratches, bones, or feed marks. Scat and sign search can coincide with the systematic diurnal active searches. Targeting Koala habitat assessment in known or predicted koala habitat (the Spot Assessment Technique or Koala Rapid Assessment Method are recommended)</p>	Coincidental
Camera Traps	<p>This method involves the setting of baited camera traps for the purposes of recording species as they move into a specific area.</p> <p>Remote camera traps are deployed, and GPS marked with two or three cameras per sampling location.</p>	Over 4-14 days

	<p>Camera traps are set for a minimum of 4 days per survey event with one visit per week of deployment to refresh baits.</p> <p>Camera traps are baited with either a chicken frame or a combination of peanut butter and oats or a few drops of truffle oil which act as a fauna attractant.</p> <p>In areas of dense vegetation, the vegetation between the camera and bait should be cleared by hand to increase the field of view and minimise the chance of wind-blown vegetation triggering the sensor.</p> <p>AE consideration - Wire used to tie chicken carcasses will be tied tightly and coiled at the ends to avoid eye injuries to approaching fauna.</p>	
Automated Acoustic Recording	Automatic recording devices allow acoustic surveys for extended periods of time and are useful to detect specific acoustically conspicuous species, particularly in combination with species recognition algorithms and expert listeners. Any automatic recording design needs to be specifically adapted to optimise detection of the target species (or group) in its habitat.	Unspecified
Thermal Infrared Imaging of Nocturnal Fauna	Thermal imaging provides an effective, non-invasive method for the survey of nocturnal fauna for which there is enough contrast in temperatures, such as bats and birds against a cooler night sky. Because of their high cost and the level of technical expertise required, thermal imaging cameras are best employed for surveys of targeted species or for specialised investigations (e.g. behaviour of nocturnal fauna around an impact).	As required to achieve purpose of survey
Aquatic Bait Trap or netting	<p>Various methods of aquatic surveying should be undertaken where there is a water body on the subject site.</p> <p>Fish or tadpole or aquatic invertebrate sampling with hand dip net should be carried out over 30 minutes to 2 hours depending on size of waterbody. Involves sampling using 5-10mm dip net for fish or tadpoles or 0.5um net for invertebrates, and multiple sweeps across various micro-habitats (e.g. pool or riffle) present.</p> <p>AE consideration - All fauna should be released unharmed.</p>	To be undertaken when water body is present on site
Other contemporary sampling methods	e.g. fauna detection dogs, drones	To be determined in consultation with Council

SC6.2 Bushfire management plans

SC6.2.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.2 Bushfire management plans as supporting an outcome.
2. The Bushfire overlay map used in the planning scheme is a state-wide detailed analysis of bushfire hazard areas. For more information about bushfire map methodologies, see SC6.2.5 Technical standards, below.

SC6.2.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the planning scheme and applies when development is proposed in an area identified on OM4 Bushfire hazard overlay.
2. This policy specifically relates to the assessment of section 8.4 Bushfire hazard overlay code and ensuring development is consistent with the purpose and performance outcomes specified in the code.

SC6.2.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. identify the qualifications required to be held by the author of a bushfire hazard risk assessment and management plan;
 - b. identify requirements for site assessments and management plans;
 - c. provide supporting technical information, where relevant;
 - d. provide supporting information on who should be consulted regarding adjoining landowners;
 - e. identify other relevant guidelines, standards, and information sources, where relevant.
2. The planning scheme policy is arranged into the following sections:
 - a. qualifications;
 - b. technical standards;
 - c. definitions;
 - d. minimum requirements for management plans;
 - e. technical information for different types of bushfire hazard risk assessment;
 - f. consultation of relevant stakeholders.
3. An information request will be requested where the information required by this policy is not supplied when a development application is made.

SC6.2.4 Qualifications

1. A Bushfire management plan should be prepared and certified by a qualified and experienced bushfire management consultant, who has a minimum five years' experience in the assessment of bushfire hazard and risks and has one of the following qualifications:
 - a. degree qualification in environmental science, environmental management or equivalent discipline; or
 - b. Bushfire Planning and Design Accredited Practitioner (BPAD) Accredited Practitioner Level 3.

SC6.2.5 Technical standards

1. The following guidelines and standards are relevant when preparing a Bushfire hazard risk assessment and management plan.
2. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document.

SC6.2.5.1 Guidelines

1. The following guidelines are relevant when preparing a Bushfire management plan:
 - a. Leonard et al, (2014) *A new methodology for State-wide mapping of bushfire prone areas in Queensland*, CSIRO;
 - b. Queensland Fire and Emergency Services (2017) *Queensland Emergency Risk Management Framework: Risk Assessment Process Handbook*, State of Queensland, Brisbane;
 - c. Queensland Fire and Emergency Services (2019) *Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience - Bushfire'*, State of Queensland, Brisbane;

- d. Queensland Government (2017) State Planning Policy Guidance Material;
- e. Queensland Reconstruction Authority (2020) *Bushfire Resilient Building Guidance for Queensland Homes*, The State of Queensland, Brisbane.

SC6.2.5.2 Standards

1. The following standards are relevant when preparing a Bushfire management plan:
 - a. Building Code of Australia (Australian Building Codes Board);
 - b. Australian Building Codes Board (2010) *Performance Standards for Private Bushfire Shelters*;
 - c. Standards Australia (2010) *Australian Standard 3745-2010 Planning for emergencies in facilities*, SAI Global Limited, Sydney;
 - d. Standards Australia (2012) *Australian Standard 1851-2012 Routine service of fire protection systems and equipment*, SAI Global Limited, Sydney;
 - e. Standards Australia (2018) *AS/NZS ISO 31000-2018 Risk management— Principles and guidelines*, SAI Global Limited, Sydney;
 - f. Standards Australia (2018) *Australian Standard 3959-2018 Construction of Buildings in Bushfire-Prone Areas*, SAI Global Limited, Sydney.

SC6.2.6 Consultation

2. Council may seek third party advice or comment about an application where:
 1. development may conflict with a code; or
 2. technical advice is required to assess the development.
3. Where technical advice is outsourced to an independent consultant an additional fee will apply

SC6.2.7 Definitions

Bushfire Management Plan - A living document that sets out short, medium, and long-term bushfire risk management measures for the life of the development.

Bushfire Hazard risk assessment - A broad three tier categorisation of vegetation into hazard levels based on fuel characteristics.

BAL Contour Map - A scale map illustrating a bushfires potential flame length and radiant heat flux for the development site or proposed lot.

SC6.2.8 Minimum requirements for management plans

1. The Bushfire hazard risk assessment and management plan should provide the minimum in Table below:

Table SC6.2-1: Standard requirements for Bushfire hazard risk assessments and management plans

SECTION	DETAILS
Section 1: Introduction	This section should state the purpose, aims and objectives of the Bushfire hazard risk assessment and management plan.
Section 2: Development details	This section should include: <ol style="list-style-type: none"> a. site details, real property description and street address b. description of the proposed development and resulting land use/s; c. details of any relevant previous approvals; d. the date on which the assessment and any plans were prepared, including any amendments; e. name and relevant professional qualifications of the person/s preparing the assessment and management plan; f. plans that show as a minimum: north point, scale, location of property boundaries, roads, street names, vegetation location.
Section 3: Environmental considerations	This section should include: <ol style="list-style-type: none"> a. bushfire risk management measures must be considered alongside environmental, biodiversity and conservation values; b. the bushfire management plan (BMP) should identify whether onsite clearing or modification of native vegetation will be required and whether areas are proposed to be revegetated as part of the

	<p>planning proposal;</p> <p>c. the BMP should provide evidence that the vegetation clearing can be achieved. If vegetation clearing is not possible this needs to be acknowledged in the BMP;</p> <p>d. where revegetation or restoration is proposed, the following should also be included:</p> <ol style="list-style-type: none"> i. a landscape plan demonstrating that how the restoration work will be undertaken; ii. what legislative instruments will be used to protect the restored area into the future; iii. who will be responsible for the ongoing bushfire management of the restored area.
Section 4: Bushfire hazard risk assessment and results	<p>This section should include:</p> <p>a. assessment inputs:</p> <ol style="list-style-type: none"> i. the nature of activities to be conducted on the site, intended future population size and characteristics, usage patterns on the site, estimated traffic generation etc.; ii. direction of bushfire attack and risks posed from adjoining or nearby sites; iii. proposed storage or handling of hazardous chemicals; iv. access to the site for emergency services or disaster response purposes, location of evacuation routes and safety zones, warning or evacuation requirements; v. environmental values and the total extent of any clearing, revegetation and landscaping proposed for the site as indicated on a site plan; vi. maps that show: <ol style="list-style-type: none"> 1. vegetation hazard class (VHC) survey locations within the site assessment area; 2. the extent and configuration of VHCs within the site assessment area before and after development, including any vegetation to be retained, revegetation areas and/or environmental offsets; <p>b. assessment outputs:</p> <ol style="list-style-type: none"> i. results of any reliability assessment; ii. Bushfire Attack Level (BAL) contour map showing potential flame length and radiant heat flux; iii. potential fire line intensity and potential rate of spread. <p>c. summary of the results of the bushfire hazard risk assessment.</p>
Section 5: Bushfire protection measures	<p>This section should provide clear recommendations regarding:</p> <ol style="list-style-type: none"> a. separation measures and location; b. siting, including development envelope area; c. access and evacuation routes; d. water supply; e. ongoing landscape and vegetation management practices and location.
Section 6: Assessment against the Bushfire hazard overlay code	<p>This section should provide:</p> <ol style="list-style-type: none"> a. an assessment demonstrating consistency with the acceptable outcomes and/or performance outcomes and/or the purpose of the code; b. justification for any variation from the assessment benchmarks of the Bushfire hazard overlay code.
Section 7: Implementation responsibilities for bushfire hazard management	<p>This section should:</p> <ol style="list-style-type: none"> a. identify the parties responsible for any initial implementation and ongoing maintenance identified in the Bushfire hazard management plan to mitigate ongoing risk (e.g. landowners or occupiers of land, the developer, Council or others). b. Prepare Evacuation Plans or Procedures for landowners or occupiers of land to follow: <ol style="list-style-type: none"> i. how to monitor for bushfires; ii. an interpretation of the triggers to shelter or evacuate; iii. shelter in place, site plan and procedures; iv. evacuation plan and procedures; v. bushfire season preparation ('get ready') plan (e.g. how to reduce fuel loads, maintain fire trails, evacuation drills etc.); c. details of consultation with any other agencies (e.g. Queensland Rural Fire Services) if applicable; d. Vegetation Management Plans, consistent with Planning Scheme Policy SC6.1 Biodiversity and section 8.4 of <i>Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest Natural Hazards, Risk and Resilience - Bushfire</i>; e. Landscape Management Plans, consistent with Planning Scheme Policy SC6.7 Landscaping and section 8.5 of <i>Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest Natural Hazards, Risk and Resilience - Bushfire</i>.
References	List of documents referred to in the report.
Appendices	For example, maps, plans and diagrams showing detailed assessment or supporting material.

SC6.2.9 Technical information for different types of bushfire hazard risk assessment

1. A bushfire hazard risk assessment (BHRA) determines the potential intensity of a bushfire in an area. The BHRA assessment is a pre-development decision-making tool used to inform the suitability of land for development. After a site-specific bushfire hazard risk assessment has been completed in accordance with *Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest Natural Hazards, Risk and Resilience - Bushfire*, further changes to the development may be necessary to demonstrate compliance with the Bushfire hazard overlay code.

SC6.2.9.1 Bushfire hazard risk assessment

1. A BHRA should be undertaken for any area in the Bushfire hazard overlay identified for development.
2. A BHRA assessment should be prepared in accordance with AS.3959 and this policy.
3. The assessment methodology categorises the bushfire hazard level as low, moderate, high, or very high.
4. Photographic evidence is to be provided in addition to aerial imagery and/or vegetation map data to verify low or moderate BHRA areas. Where evidence of the vegetation height is required (i.e. shrubland), a height stick, or other appropriate indicator of height should be included in the images.
5. Further evidence may be required if Council is not satisfied with the photographic evidence provided.
6. All slopes within the BHRA assessment area need to be defined with land contour information.
7. Information to be included should include:
 - a. an aerial image of the BHRA assessment area should form the base map and be overlaid with the following information:
 - i. areas of classified vegetation and excluded vegetation (if any) in the form of plots;
 - ii. land contours for slope calculation;
 - iii. areas where vegetation is proposed to be cleared or revegetated (if applicable);
 - iv. photo points to indicate where images of vegetation have been taken;
 - v. any other features of the subject site and assessment area that are relevant bushfire considerations;
 - vi. canopy crown density information should be provided for vegetation classifications that do not apply the worst case scenario.
 - b. the Vegetation Classification Map should be presented separately from the BAL Contour Map to ensure the information is legible.

SC6.2.9.2 Bushfire attack level (BAL) contour map

1. The BAL contours will assist by identifying:
 - a. land suitable for development;
 - b. bushfire risk management measures to reduce the potential bushfire impact to an acceptable level, such as BAL—29 or below.
2. The BAL Contour Map should be revised for each stage of a subdivision; and where a structure plan is modified.
3. A BAL Contour Map should be prepared in accordance with the principles of AS.3959 and based upon the bushfire hazard risk assessment.
4. Information on the BAL Contour Map should:
 - a. include a north point;
 - b. be at a scale where individual lots can be clearly identified;
 - c. include an aerial image of the subject site and surrounding area that forms the base map that is overlaid with the following information:
 - i. boundaries of the subject site, the surrounding 150m vegetation assessment area and 100m BAL Contour assessment area;
 - ii. the site plan of the proposed development including, where relevant, proposed lot numbers, development envelope area;
 - iii. BAL contours and proposed BAL ratings;
 - iv. BAL contours in the colours shown in the table below:

HAZARD LEVEL	COLOUR
BAL-40 and greater	Red
BAL-29	Orange
BAL-19	Yellow
BAL-12.5 and lesser	Blue

SC6.2.9.2.1 Compliance certification

1. Compliance certification should be undertaken by the Bushfire Planning Practitioner who prepared the original BAL Contour Map
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2. Certification that the indicative BAL ratings are still accurate should be provided after the development has been completed and, where relevant, ready to be placed on maintenance.
3. Certification will ensure prospective purchasers/operators are aware of the identified BAL rating.

SC6.2.10 Consultation of relevant stakeholders

1. The following agencies should be consulted during the preparation of a bushfire management plan:
 - a. Queensland Fire and Emergency Services (QFES) in relation to any elements of their proposal that do not conform to the acceptable outcomes in the bushfire hazard overlay code or where a performance based assessment is proposed;
 - b. State Assessment Regulation Authority in relation to any clearing permit requirements ahead of lodging a planning application;
 - c. Department of Environment and Science in relation to areas with significant environmental conservation values;
 - d. Council in relation to locally significant native vegetation and other planning requirements;
 - e. Seqwater for proposals abutting waterways;
 - f. Department of Regional Development, Manufacturing and Water for proposals involving taking of water or having water resource implications;
 - g. Local Rural Fire Brigade to be provided with a final copy of the approved Bushfire management plan, where in a rural or rural residential area, after the development has been completed.

SC6.2.11 Design requirements for fire trails

1. Fire trails are primarily used for fire management by QFES 4WD Medium and 4WD Light Response vehicles. Design criteria to ensure a fire trail can be safely traversed by 'heavy response vehicles' (i.e. 15 tonnes weight capacity) have not been included.
2. When designing fire trails for 'heavy response vehicles' the design criteria for fire trails should be considered guidance.

Table SC6.2-2: Fire trail and working area design requirements

ELEMENT	DESIGN REQUIREMENT
Width	A width of at least 20m including: <ol style="list-style-type: none"> 1. A <i>trafficable surface</i> (cleared and formed): <ol style="list-style-type: none"> a. with a minimum width of 4m that can accommodate a rural firefighting vehicle; b. with no less than 4.8m vertical clearance from canopy vegetation; c. with no adjacent inhibiting embankments or retaining walls; d. not on slopes that exceed 15%; 2. A <i>working area each side of the trafficable surface</i>: <ol style="list-style-type: none"> a. with a minimum width of 3m each side; b. cleared of all flammable vegetation more than 10cm in height; 3. The <i>balance</i> (i.e. 10m width (5m each side)) managed vegetation area: <ol style="list-style-type: none"> a. sited to separate the trafficable area from adjacent mapped medium, high or very high potential bushfire intensity areas managed vegetation; b. comprising managed vegetation that reduces the fuel load and is clear of major surface hazards (e.g. fallen branches).
Access Easements	Access easements are granted for Council and Queensland Fire and <i>Emergency Services</i> for firefighting purposes. <i>Note—An access easement that is provided for Council and QFES is to be maintained by the landowner.</i>
Egress	Contains trafficable vehicle routes in the low hazard areas, every 200m.

SC6.2.12 Fire trail construction guide

SC6.2.12.1 Introduction

1. The following provides a guide to the construction of functional and sustainable fire trails within land to be dedicated to Council.
2. The following section:
 - a. provides a framework for the construction of fire trails;
 - b. ensures safe access for bushfire suppression and hazard reduction burn operations;
 - c. provides the framework for construction techniques that ensure a sustainable outcome;

d. guides the construction of fire trails that can be safely traversed by medium and light response vehicles, only.

Table SC6.2-3: Definitions

TERM	DEFINITION
Asset protection zone (APZ)	A fuel reduced area surrounding or dividing built assets from potential bush fire risk. Vegetation within this planned zone is managed to minimise the transfer of fire to assets either from the ground level or through the tree canopy. The width of the APZ will vary with slope, aspect, vegetation and type of building construction.
Bank retention	A constructed wall to retain banks and the cut left after a trail bench is formed. This retaining wall maybe rock filled wire baskets or suitably placed large rock.
Batter	Where the high side of the trail has been cut leaving a vertical wall, the wall is battered or cut back at an angle to minimise collapse and subsequent erosion. The minimum angle will be 45 in stable soils (see Figure SC6.2-1: Typical trail bench utilising outfall).
Bench or benching	Achieving a basic trail profile and shaping the trail surface to create an outfall (5%-8%). This outfall is to ensure overland flow is shed across and off the trail. In falling trails are not to be constructed (see Figure SC6.2-1: Typical trail bench utilising outfall).
Box drain	An excavated trench or area of the trail that is filled with aggregate to catch and/or direct water across the fire trail and provide a firm trafficable surface (see Figure SC6.2-8: Typical box drain and Figure SC6.2-9: Typical box drain and table drain combination).
Cultural heritage	Historical or anecdotal evidence of Indigenous and European artefacts, infrastructure, cultural and spiritual sites.
Drain mouth or outlet	A drain mouth is the exit point for water being shed from the fire trail. The drain mouth should be at least 35% wider than the entrance point of the drain to ensure free flow and self-cleaning (see Figure SC6.2-5: Typical example of watershed in plan view).
Fall line	A line that runs downhill at right angles to the contour lines, the path of least resistance for water to flow or the area over the topography most susceptible to erosion once disturbed (see Figure SC6.2-15: Fire trails must not be constructed along the fall line).
Fire trails	For this guideline, fire trails are dedicated access trails, suitable for 4WD Medium & 4WD Light Response vehicles utilised by QFES. These trails are to provide access for wildfire suppression, hazard reduction burn and reserve management operations.
Grade reversal	Alignment of the trail is to rise and fall over the topography, to create a rolling contour that sheds overland flow from the trail at the lower points. Design will always include outfall (see Figure SC6.2-16: Example of grade reversal).
Interface zone (iZone)	The iZone is the area of land where the bushland meets the infrastructure of the built environment. This is not a defined line but encompasses both the bushland and infrastructure development and defines an area of bushfire risk.
Outfall or crossfall	The trail bench is shaped to slope down to the outside of the trail and will be a minimum of 5% (see Figure SC6.2-1: Typical trail bench utilising outfall).
Silt trap	A small dam or wall of spoil at the end of water bars and drains. The silt trap function is to catch silt and slow the water flow at the drain mouth or outlet, simply formed by leaving fill at the end of the drain mouth to catch water and allow it to soak or evaporate. The high point or wall of the silt trap must be low enough to ensure trapped water does not back up onto the trail bench.
Table drain	A table drain assists in lowering the water table in the trail and keeps the surface dry and firm where the boggy conditions are encountered. A constructed drain or trench is filled with aggregate that runs parallel to the trail where it intercepts and carries both surface and sub-surface water to a point where the water crosses the trail and exits with aid of a box drain at a water bar or relief culvert (see Figure SC6.2-6: Typical example of table drain in cut bench and Figure SC6.2-7: Typical example of table drains along level terrain).
Vegetation encroachment management (VEM)	Defines the extent of vegetation clearing required along the fire trail corridor necessary to allow uninterrupted vehicle movement.
Water bars	A combination of a raised and lowered area of the fire trail surface that directs water across and off the

(Whoa Boys)	trail. It is constructed by shaping the existing surface material to form a water diversion bar across the trail at a given angle (Figure SC6.2-4: Water bar orientation). The surface material used may need to be mixed with a high clay content road base, 25-40mm aggregate or 'geo-binder' to bind and harden the water bar against wear and movement if soil types are not suitable (see Figure SC6.2-2: Correct formation of water bar and Figure SC6.2-3: Incorrect formation of water bar).
Watersheds — Grade dips or spoon drains	A lowered section of the fire trail surface used to direct water across and off the trail. They are usually used on a curve, corner or at a natural change of grade (see Figure SC6.2-5: Typical example of watershed in plan view).

SC6.2.12.2 Environmental and legislative obligations

1. All relevant local, state and federal environmental legislative requirements must be met and necessary approvals granted.
2. All Cultural Heritage Assessments are to be completed over the proposed footprint prior to undertaking work consistent with the requirements of the *Aboriginal Cultural Heritage Act*.
3. Services such as electricity, telecommunications, water and sewage must not be affected by construction and all necessary service checks are to be undertaken prior to beginning construction.
4. Detailed flora and fauna assessments are to be completed over the proposed fire trail alignment prior to undertaking work and consistent with the requirements of the *Nature Conservation Act* and the *Vegetation Management Act*.
5. Damage to vegetation adjacent to the fire trail footprint is to be minimised.
6. All surplus introduced material must be removed from site.

SC6.2.12.3 Design criteria for fire trails

1. At times, it may be possible to use existing or renew disused trails. In some cases, these may have been established on a desirable contour and remain well grassed, well-shaped and adequately drained with negligible erosion impacts. In these cases, nothing further may need to be done to the trail surface. However, the trail may be covered by regrowth vegetation that will require removal. Some older, well-established trails may even contain larger trees within the Vegetation Management Zone (VMZ) that should not be removed when they can be isolated from elevated fuels and design criteria for vehicle clearance can be achieved. However, all regrowth is to be removed consistent with the VMZ Guideline (see Figure SC6.2-17: Vegetation encroachment management on fire trails).
2. New fire trails, in most cases, will be constructed across and or on steep slopes. It is critical the cut batter height is minimised to maintain stability on both the up slope and down slope batters. Where a fire trail is to be constructed in conjunction with an Asset Protection Zone (APZ), the trail must have a minimum cleared width of 5.8m and minimum formed width of 3m. Where terrain contains steep grades exceeding 15%, deep natural drainage lines and side slopes exceeding 25%, it is preferable to realign the trail on more suitable grades to achieve a sustainable alignment.
3. Due to the steep grades, passing or turning bays must be available every 200m along the trail. These passing or turning bays do not need to be constructed if the topography and side slope does not exceed 8%, and the vegetation density allows safe passing or turning.
4. Links to other fire trails, public roads and water supply infrastructure are to be provided for in the planning stage. These links are to be designed on safe and sustainable alignments.

SC6.2.12.4 Drainage

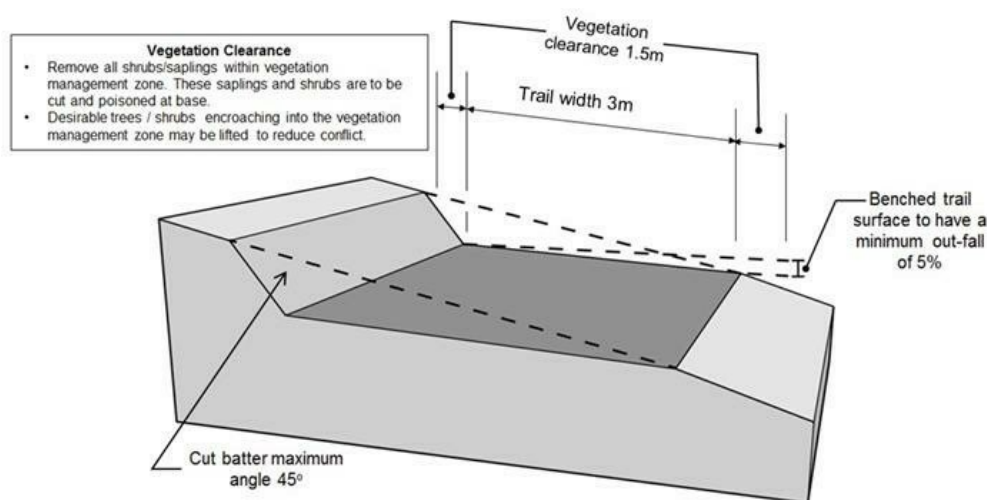
1. Drainage is the key factor in constructing sustainable low maintenance fire trails. Drains of various types when constructed correctly on existing soil types will save both construction and maintenance costs. Key elements for sustainable trail drainage and design, include:
 - a. avoiding the Fall Line;
 - b. utilising Grade Reversal;
 - c. ensuring Outfall;
 - d. utilising Watersheds - Grade Dips or Spoon Drains.
2. Road drainage structures must be located, constructed and maintained in such a way that they will have enough capacity to convey the peak flow from a 1:5 year storm event.
3. Water bars are required on trails where sections of straight trail exceed 50m with trail gradients between 5% and 20%. When exceeding 8% on straight sections of trail use the criterial in Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing as a reference.
4. Water's erosive capacity is influenced by the catchment directed onto the trail and the gradient on which the trail is constructed. The primary means used to decrease erosion is to locate trails on shallower slopes while ensuring effective drainage is installed to cope with both the velocity and volume of water movement on the trail.
5. Consideration of the catchment and overland flow above the trail is essential to plan the placement of drainage elements along the trail. In some cases, drainage may only direct water to the trail below. This can be acceptable as at least the flow has been removed off the trail above. Where water is directed to the trail below suitable drainage at this new point must be inserted into the trail.

6. A small outfall of 5% is recommended to be maintained along the trail surface with water bars installed at intervals and angles consistent with Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing. Soil type is a major consideration when constructing trails. Section SC6.2.7 Soil classes classifies the soil types likely to be encountered.
7. Other elements of drainage construction will be mentioned throughout the guideline. These elements of drainage will be used to improve drainage issues in specific locations where water bars would not be appropriate, effective or necessary.

SC6.2.12.4.1 Trail bench and outfall

1. The bench is the basic shape of the running surface of the trail and is constructed with 5-8% outfall (see Figure SC6.2-1: Typical trail bench utilising outfall). The bench will be a maximum of 3m wide with a vegetation clearance zone of 1.5m either side of the bench and vertical clearance consistent with Figure SC6.2-17: Vegetation encroachment management on fire trails. Grasses and ground cover are to remain to stabilise down slope edges.
2. The outfall is a critical component of the basic trail profile providing the primary element of drainage. The outfall is to ensure water is leaving the trail regularly, not running for any great distance along the trail and not relying entirely on other drainage elements to remove overland water flow.
3. A 5% outfall should be maintained along the nominal trail surface and gradually achieving a maximum of 8% to the drain mouth of the water bar, spoon drain or grade dip. When benching is complete, no spoil or vegetation is to remain along the outside edge of the trail. Water must be able to move freely off the trail. For vegetation clearances refer to Figure SC6.2-17: Vegetation encroachment management on fire trails.

Figure SC6.2-1: Typical trail bench utilising outfall



SC6.2.12.5 Water bar construction

1. Where water bars are necessary to remove overland flow across and off the trail at regular intervals, the following must be adhered to:
 - a. the recommended orientation angles and intervals for the construction of water bars are governed by the grade of the trail surface and the topography where the trail has been constructed. It is generally accepted that the steeper the trail, the more water bars must be constructed into the trail utilising a shallower angle of orientation (see Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing);
 - b. where a water bar exits onto steep side slopes, silt traps must be constructed across the drain mouth or outlet. The length and grade of the outlet must be minimised to prevent water moving at speed over long steep distance before dispersing slowly into vegetation. It is imperative that soil types are determined as part of the design;
 - c. the trough of a water bar is not to be excavated as a trench across the trail and the crest of a water bar rising out of the trough is not to be constructed as a hump trail (see Figure SC6.2-3: Incorrect formation of water bar);
 - d. water bars must be constructed so the crest of the water bar is a gradual slope downhill into the trough of the next water bar and should follow a simple saw tooth pattern trail (see Figure SC6.2-2: Correct formation of water bar);
 - e. the trough of the water bar must have an outfall of at least 5% with a wide mouth to minimise blockage and facilitate self-cleaning. The trough should fan out towards the mouth or outlet and maintain a good outfall ensuring no water pools within the trough;
 - f. the crest must be constructed to withstand wheel ruts that will channel water over the water bar. The water bars compacted finished height will be governed by the grade of the trail. The height must be high enough to direct all water

off the trail without topping over the crest and without impeding vehicle travel. In some soil types, the water bar crest will need to be hardened with a stabiliser or 25-40mm aggregate compacted into existing bulk material.

SC6.2.12.6 Water bars

1. Water bars must not be constructed primarily with road base or Cement Treated Base (CTB) materials.
2. Figure SC6.2-2: Correct formation of water bar shows the correct shape of water bars and how they should be incorporated into the trail surface. As a rule of thumb, the excess material taken from the trough should be used to construct the crest and trail surface leading down to the following trough. Any material used to form the crest or trail surface must be keyed into the existing surface and compacted to ensure no separation of the layers can occur. All organic matter must be removed from between the layers.

Figure SC6.2-2: Correct formation of water bar

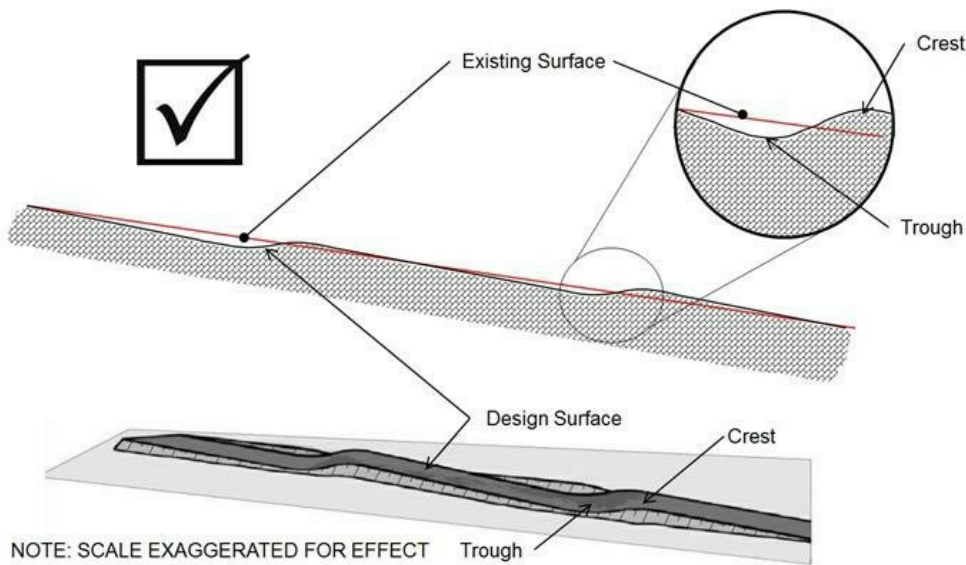
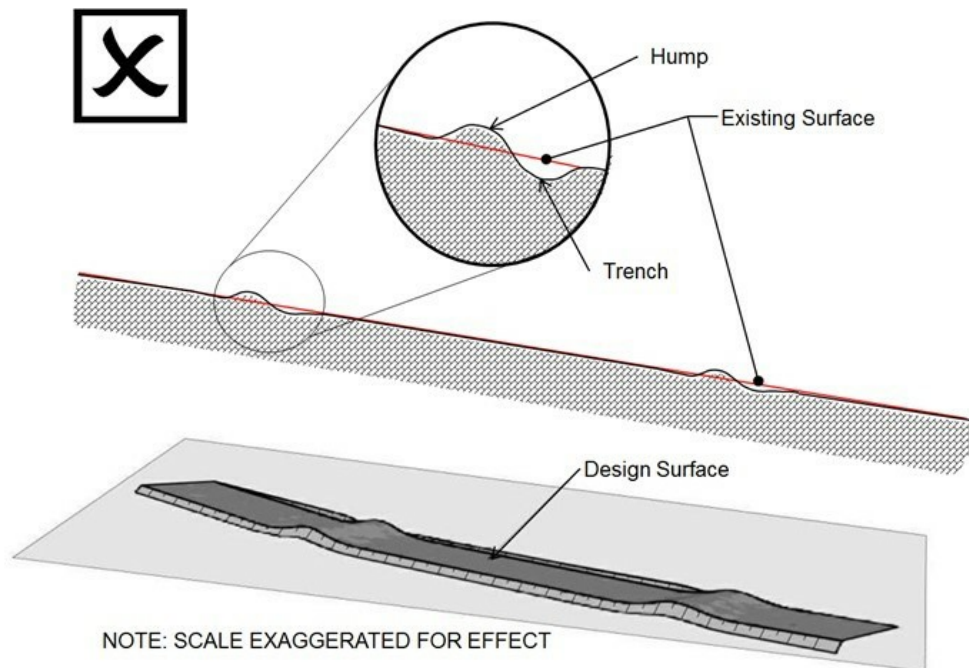


Figure SC6.2-3: Incorrect formation of water bar



SC6.2.12.7 Soil classes

1. Class A — Low susceptibility of soil erosion - Brown, red and yellow soils derived from finer sediments, metasediments including clays.
2. Class B — High susceptibility of soil erosion - Red soils on fine granites and basalts, fine sandstone and basalt.
3. Class C — Very high susceptibility of soil erosion - Grey and yellow soils derived from granites, sediments and metasediments. Especially coarse grained soil types.
4. The table below provides a guide for most situations likely to be encountered in the Lockyer Valley.

Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing

TRAIL GRADE	WATER BAR ORIENTATION	SOIL CLASS A WATER BAR SPACING	SOIL CLASS B WATER BAR SPACING	SOIL CLASS C WATER BAR SPACING	WATER BAR HEIGHT
Up to 10%	35°	15-20m	10-12m	7 10m	0.3-0.4m
11%-15%	25°	8-12m	7-10m	Undesirable	0.4-0.6m
15%-20%	15°	5-8m	Concrete	Concrete	Concrete & outfall
21%-25%	Concrete	Concrete	Concrete	Concrete	Concrete & outfall
26%-30%	Concrete	Concrete	Concrete	Concrete	Concrete & outfall
Above 30%	Relocate trail alignment	Relocate trail alignment	Relocate trail alignment	Relocate trail alignment	Relocate trail alignment

Note—Relaxation of the trail surface gradients is possible when other on ground factors are taken into consideration, such as but not limited to the following:

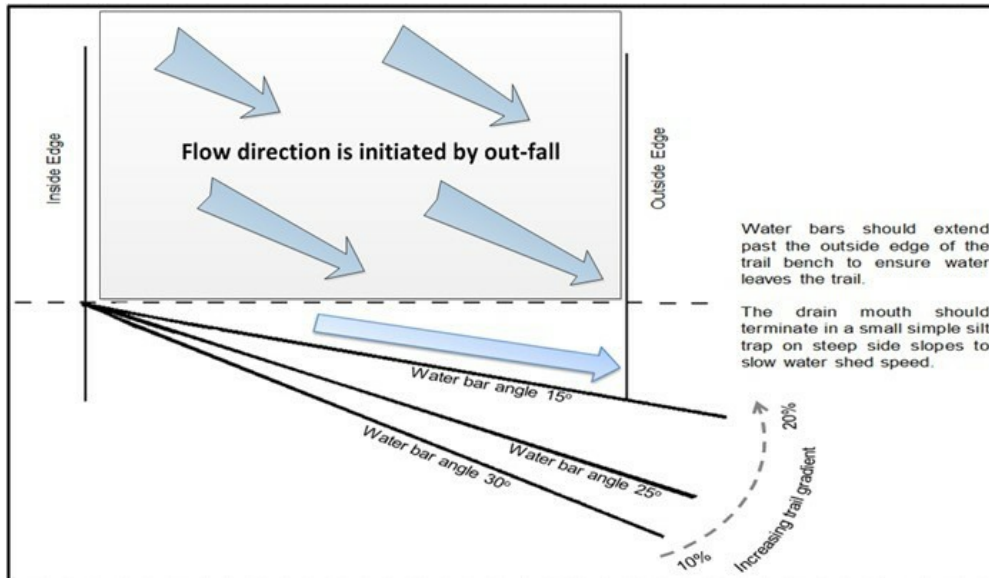
- a. utilisation of existing farm or logging trail;
- b. size of upstream catchment and expected overland flow velocity and volume;
- c. short linear length of trail (<50m).

SC6.2.12.8 Water bar orientation on the trail

1. The angle of orientation of a water bar is crucial. This angle will govern the self-cleaning ability of the water bar and the speed in which the water moves across the trail surface to the outside edge of the trail.

2. The outfall along the trail should increase (at least, 5-6m out) as it approaches the water bar to ensure the water is shed from the trail prior to being concentrated at the water bar.
3. The outside or down slope edge of the trail is most vulnerable to erosion. This erosion can be minimised by decreasing the spacing between water bars and decreasing the orientation angle across the trail (see Figure SC6.2-4: Water bar orientation and Figure SC6.2-15: Fire trails must not be constructed along the fall line). The addition of silt traps at the outlet and minimising the outlet grade will also assist in erosion control.

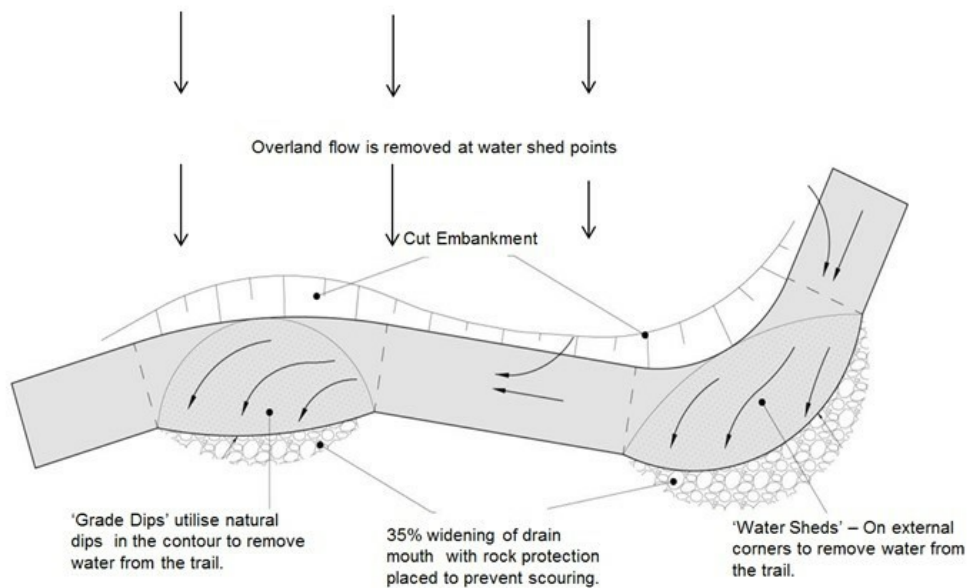
Figure SC6.2-4: Water bar orientation



SC6.2.12.8.1 Watersheds - grade dips and spoon drains

1. Watersheds are generally located on corners and are created by lowering the outside edge of the trail and gradually increasing from a minimum of 5% to an 8% outfall. This will ensure water travelling along the trail is quickly diverted at the corner and off the trail (see Figure SC6.2-5: Typical example of watershed in plan view).
2. Grade dips utilise natural dips in the trail surface or very shallow drainage lines to remove water from the trail replacing the need to construct a water bar. The drain mouth should be made at least 35% wider than where the dip enters on to the higher side of the trail. Create a minimum outfall of 5% across the trail gradually increasing to approximately 8% at the mouth. This will ensure good flow and self-cleaning ability (see Figure SC6.2-5: Typical example of watershed in plan view).

Figure SC6.2-5: Typical example of watershed in plan view



SC6.2.12.9 Table drains

1. The primary purpose of a table drain is to lower the water table within the trail body and keep the surface firm. Table drains must be constructed where sections of a trail remain wet due to long term or permanent soaks (see Figure SC6.2-6: Typical example of table drain in cut bench and Figure SC6.2-7: Typical example of table drains along level terrain). The preferred outcome would be to design the trail on a different alignment. However, when this is unavoidable, the inside of the trail below the batter is boxed out to a width and depth of 600mm. It is then filled with 75-150mm aggregate wrapped with suitable geotextile material. This will allow water to flow over and through the aggregate within the drain to the next down slope box drain or water bar and then off the trail. An outfall of a minimum 5% must be maintained along the trail.

Note—If water bars are used to move permanent water across the trail and the trail remains soft then the trough of these water bars are to be constructed as box drains while the simple saw tooth pattern described in Figure SC6.2-2: Correct formation of water bar is maintained (see Figure SC6.2-8: Typical box drain).

Figure SC6.2-6: Typical example of table drain in cut bench

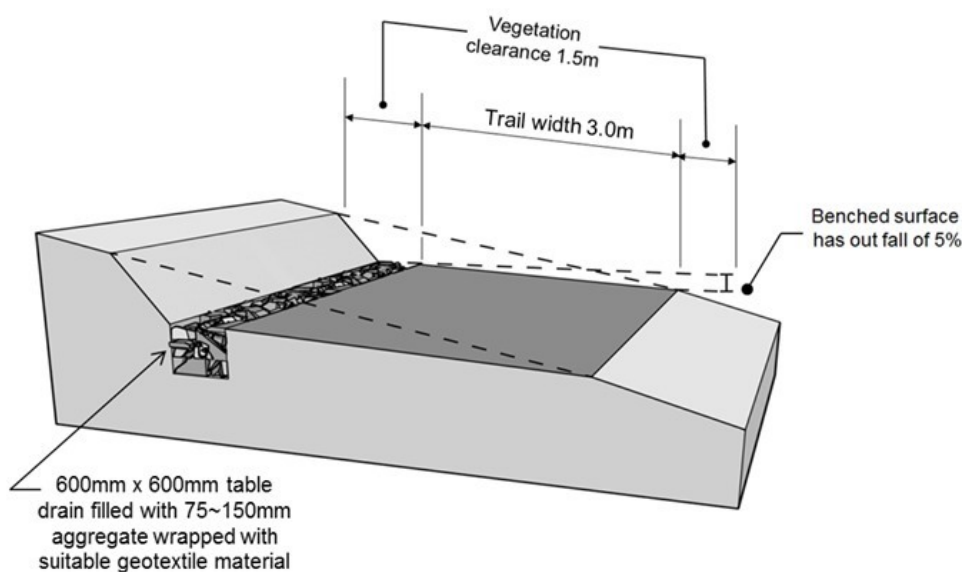
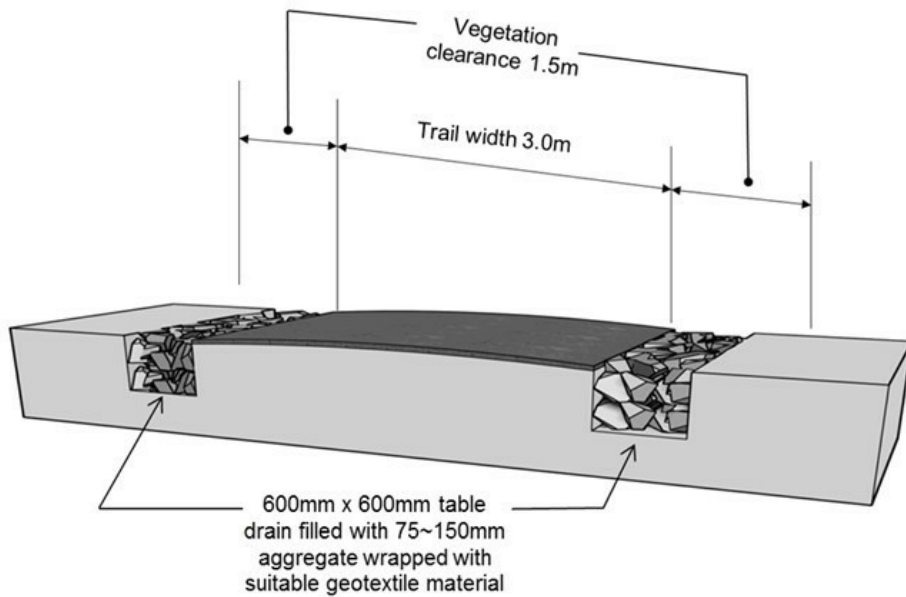


Figure SC6.2-7: Typical example of table drains along level terrain



SC6.2.12.10 Box drain

1. These types of drains will be placed on trails where a section of the trail continually experiences 'boggy' conditions. A box drain is constructed at a lowered section of the trail that is excavated and filled with 75—150mm aggregate and shaped to ensure water flow is maintained on and through the aggregate and directed across and off the trail. These drains must be designed to allow movement of fire fighting vehicles.
2. A box drain width may vary to suit different locations and vary from a depth and width of 600mm x 600mm crossing the trail at appropriate intervals. Outfall locations will require the installation of rock mattresses (installed as per manufacturer's specifications) extending along the full length and width of the wet section of trail (see Figure SC6.2-8: Typical box drain and Figure SC6.2-9: Typical box drain and table drain combination). On some occasions, the preferred outcome may be to design the trail on a different alignment. In locations where the trail is level and can only be located through an area with consistent sub surface soil moisture, an approved drainage cell system can be installed according to manufacturer's specifications.

Figure SC6.2-8: Typical box drain

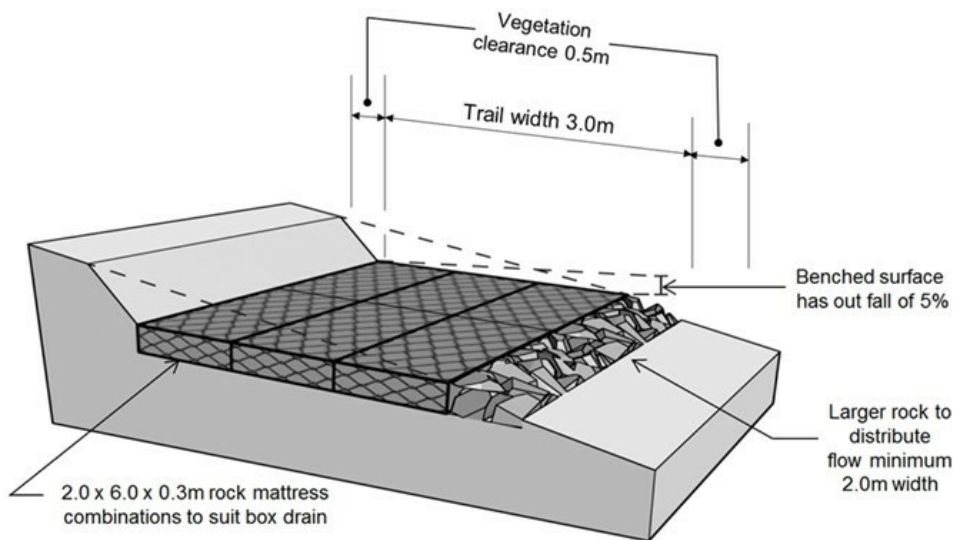
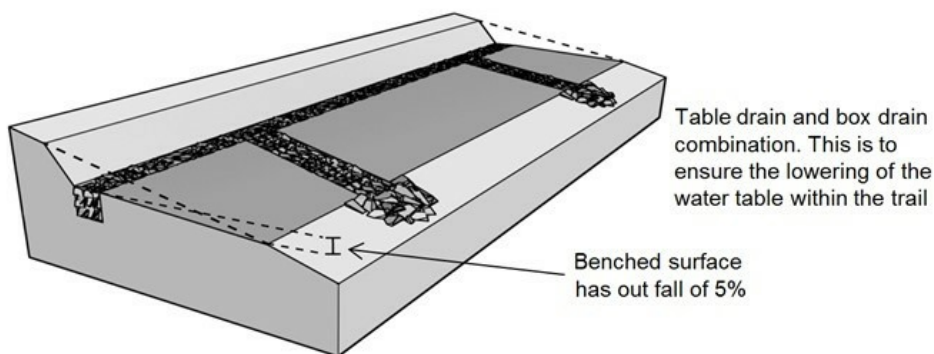


Figure SC6.2-9: Typical box drain and table drain combination



SC6.2.12.11 Trails on steep slopes greater than 20%

1. On occasions, it may be unavoidable to construct trails on slopes greater than 20%. It would always be preferable to alter the trail alignment to reduce the trail gradient. When trails exceed 20% gradient, concrete is an accepted surface material (see Figure SC6.2-10: Example of a concrete trail to be used on slopes >20%). Other erosion prone materials such as CTB must not be utilised as a substitute.

Figure SC6.2-10: Example of a concrete trail to be used on slopes >20%



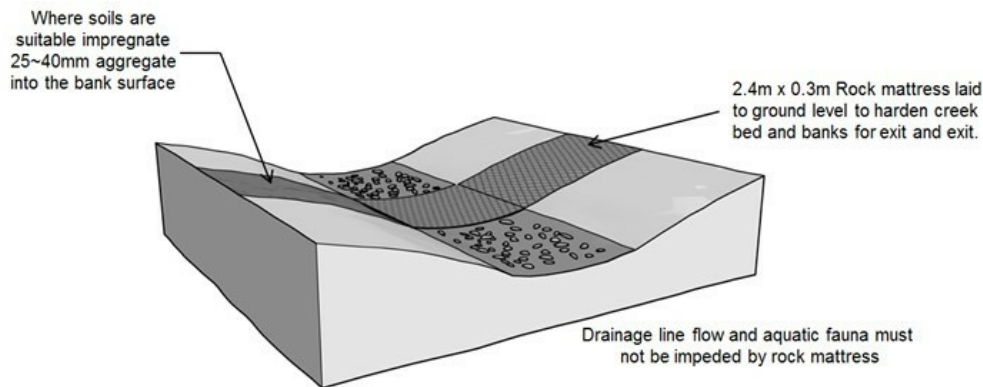
SC6.2.12.12 Creek crossings

1. Where possible, creek and water crossings should always be avoided. Where this cannot be achieved, appropriate and approved vehicle crossing points may be installed through creeks and drainage lines. A sustainable outcome may typically require one or a combination of acceptable outcomes.
2. In addition, the design and construction must be undertaken in such a way as to minimise water quality and environmental impact. The original bank line and direction of a creek or drainage line should not be altered without consulting relevant authorities for approval.
3. Vehicle crossings will not be constructed where a bend exists in a creek or drainage line unless it is already in place and is functioning in a sustainable manner. Where creek or drainage lines are shallow, alteration to the bed and banks must be minimised. State and federal approvals may be required to construct the creek crossing.

SC6.2.12.13 Soft bedded creek or drainage line

1. When the bed of the creek or drainage line combines soft soil and/or mobile surface material the crossing must be hardened to accept vehicular traffic. Concrete fords, rock filled mattress, large rock or approved drainage cell systems should be used (Figure SC6.2-11: Example of a crossing in soft bedded creek). The construction methodology is determined by the volume and velocity of water flow which will determine the extent of engineering design required and material to be used. The flow of water must not be impeded upstream or diverted around the built structure or create turbulence that will affect water quality of downstream aquatic habitat. The outcome is to maintain water flow at the original levels, minimise erosion during and after construction and limit impacts to water quality and in stream environmental values.
2. If the adjoining embankments are slippery, soft or steep it may also be necessary to extend the material used up the bank to maintain vehicle traction, and limit vehicular access, and egress impact.
3. Where the soil type is stable 25-40mm aggregate may be scarified into the embank surface and compacted to ensure traction up and down shallow banks. Aggregate should not remain loosely spread on the finished trail surface.

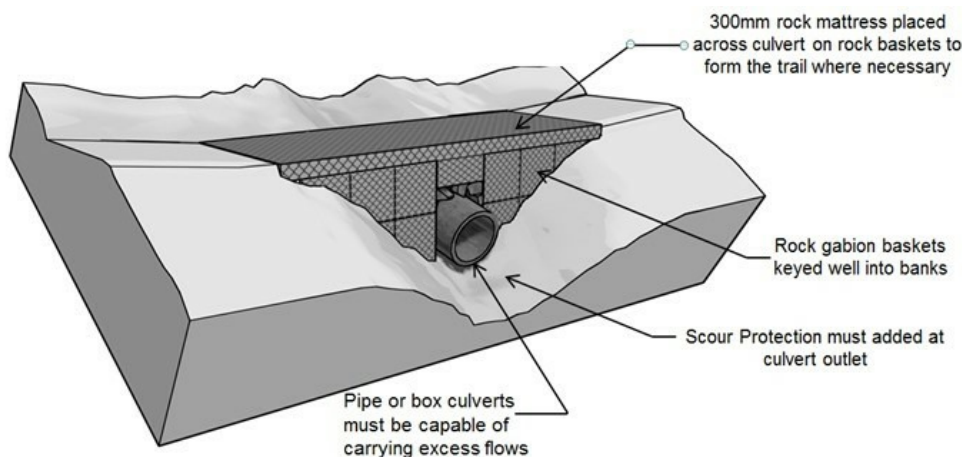
Figure SC6.2-11: Example of a crossing in soft bedded creek



SC6.2.12.14 Constructed culvert crossings and headwalls

1. Culvert crossings must be avoided where possible to minimise the cost of both trail construction and maintenance. The preferred outcome is to redesign the alignment of the trail to a more stable crossing location.
2. In a situation where a very steep banked drainage lines is not able to be avoided, it is critical the size of the culvert pipe and associated rock protection is designed and installed to effectively cope with the volume and velocity of water from the upstream catchment (Figure SC6.2-12: Typical constructed culvert creek crossing).
3. Concrete formed headwalls are to be avoided in these locations and a rock mattress combined with larger rock gabion baskets should be fitted around the pipe structure and keyed effectively into the drainage line banks. Rock filled gabion baskets are preferred as they act as the finished trail surface, provide effective bank retention and allow the percolation of water during rainfall events.

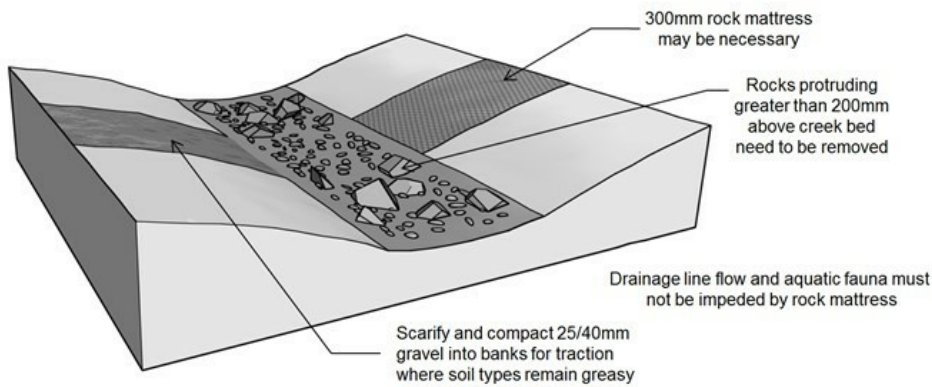
Figure SC6.2-12: Typical constructed culvert creek crossing



SC6.2.12.15 Stone or bedrock based creek and drainage lines

1. Where stony or bedrock crossings exist, the bed must be left unaltered. Some larger rocks may need to be manipulated to allow vehicular movement across the creek to ensure safety and avoid any possible vehicle damage. These rocks should only be moved if they are above the surface by 200mm (Figure SC6.2-13: Use of a stone or bedrock based creek).
2. Bank entrances and exits should be hardened with rock mattresses or (the preferred option) impregnated and compacted with 25-40mm aggregate to allow improved traction for vehicles whilst exiting the creek. Aggregate should remain loosely spread on the finished trail surface. Shaping of entrance and exit ramps must be minimised but need to be designed to cater for the approach and departure angles of the fire fighting vehicles.

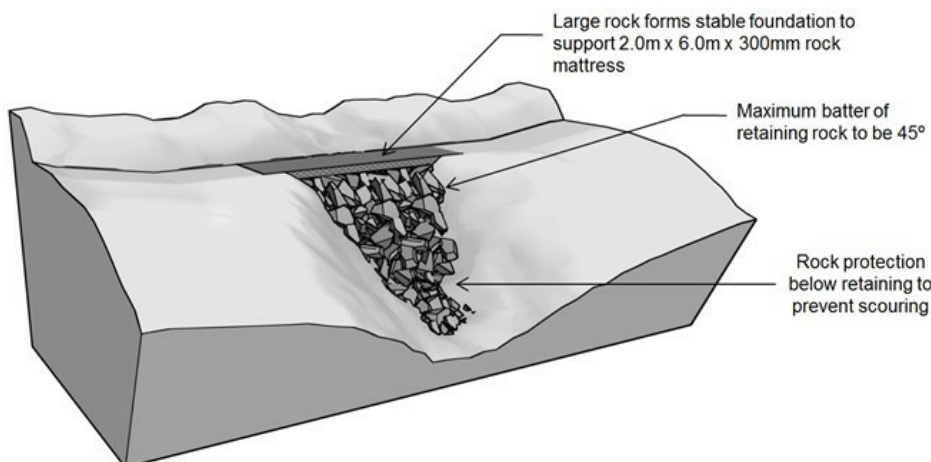
Figure SC6.2-13: Use of a stone or bedrock based creek



SC6.2.12.16 Step drainage lines that cross narrow contours

1. Step drainage line crossings should be avoided where possible to minimise cost of both construction and maintenance. At times, these drainage lines carry large volumes of fast flowing water. The preferred outcome is to redesign the route of the trail to a more suitable crossing location.
2. Where trails unavoidably run across steep contours and meet steep drainage lines, it will be necessary to minimise the width of the crossing to minimise the height of cut batters.
3. A 2.4m wide trail across the drainage line incorporating 1.5m of vegetation pruning each side of the trail will be enough to give good vehicular clearance. The crossing is constructed and retained with large rock of minimum 800mm diameter and filled with 75-150mm aggregate to provide a bed to place rock mattresses. The rock mattresses will form the trail surface. The outside edge of the trail is to be battered at maximum of 45 degrees to retain the lower side of the crossing. All rock must be well placed and stabilised to form and retain the lower side of the crossing (see Figure SC6.2-14: Typical solution for a steep and narrow crossing).
4. Rock baskets may also be used to form the crossings in place of large rock. The area below the remaining batter must be rock protected to prevent scouring during extreme rainfall events.

Figure SC6.2-14: Typical solution for a steep and narrow crossing

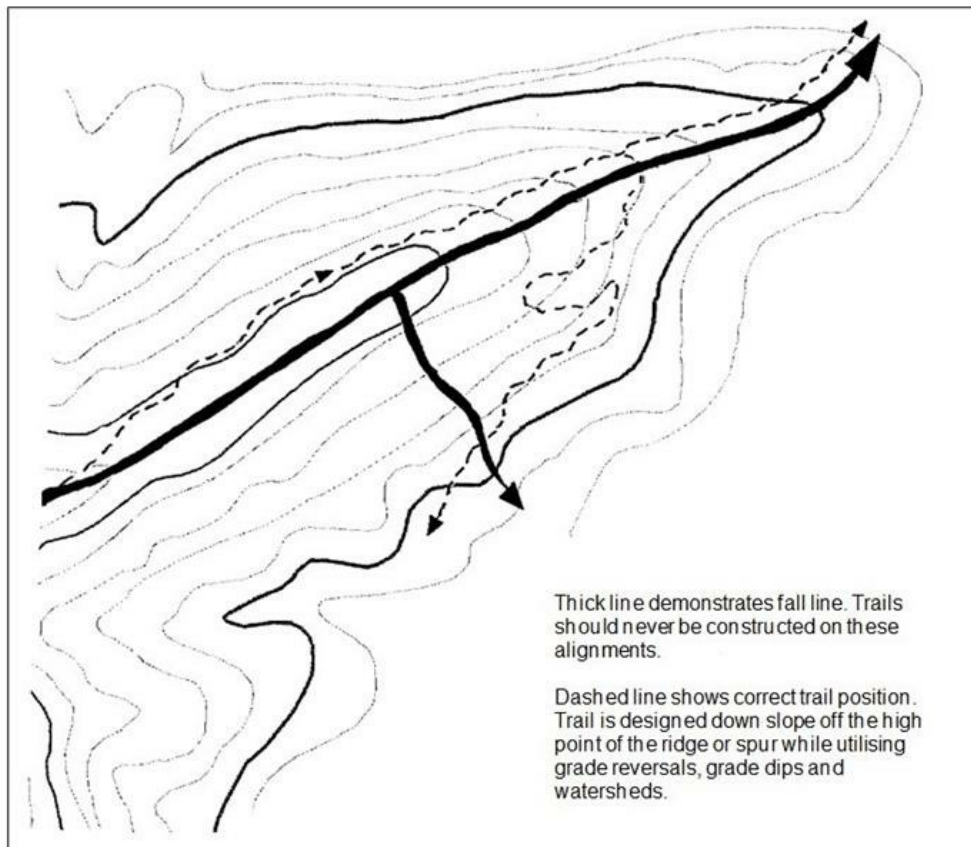


SC6.2.12.17 Fall line

1. Construction of fire trails along the fall line is not sustainable and must be avoided. The fall line is the line of least resistance for water movement down a slope, or the line directly at right angles to the contours. Trails constructed on the fall line are expected to suffer from high levels of erosion (see Figure SC6.2-15: Fire trails must not be constructed along

- the fall line).
2. Fire trails must not be constructed along a ridgeline or spur. The trail should always be constructed down slope and off to the side of the ridge or spur line far enough to enable the installation of the nominal outfall of 5% to ensure that water is shed. The trail may cross the ridge lines incorporating techniques such as grade reversals, watersheds and grade dips. Long straight sections of trail should be avoided, where this cannot be achieved, water bars must be used.
 3. Contours should be used to design trails across slopes to minimise trail grades on steep country, utilising switchbacks to decrease in elevation. Trails must never be constructed in straight lines down steep slopes for long distances (typically should not exceed 20m). Where this becomes unavoidable, water bars will need to be constructed using Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing and Figure SC6.2-2: Correct formation of water bar of this construction guide.

Figure SC6.2-15: Fire trails must not be constructed along the fall line



SC6.2.12.18 Grade reversal

1. Grade reversal is the technique of using the rise and fall of the trail across the contours as it decreases in elevation.
2. If this technique is adopted, then grade reversals are constructed into the trail at the same intervals as prescribed in Table SC6.2-4: Trail gradient based on soil class with nominal water bar spacing. The trail can be constructed far more economically and sustainably utilising grade reversals rather than relying on the construction of water bars (see Figure SC6.2-16: Example of grade reversal).

Figure SC6.2-16: Example of grade reversal

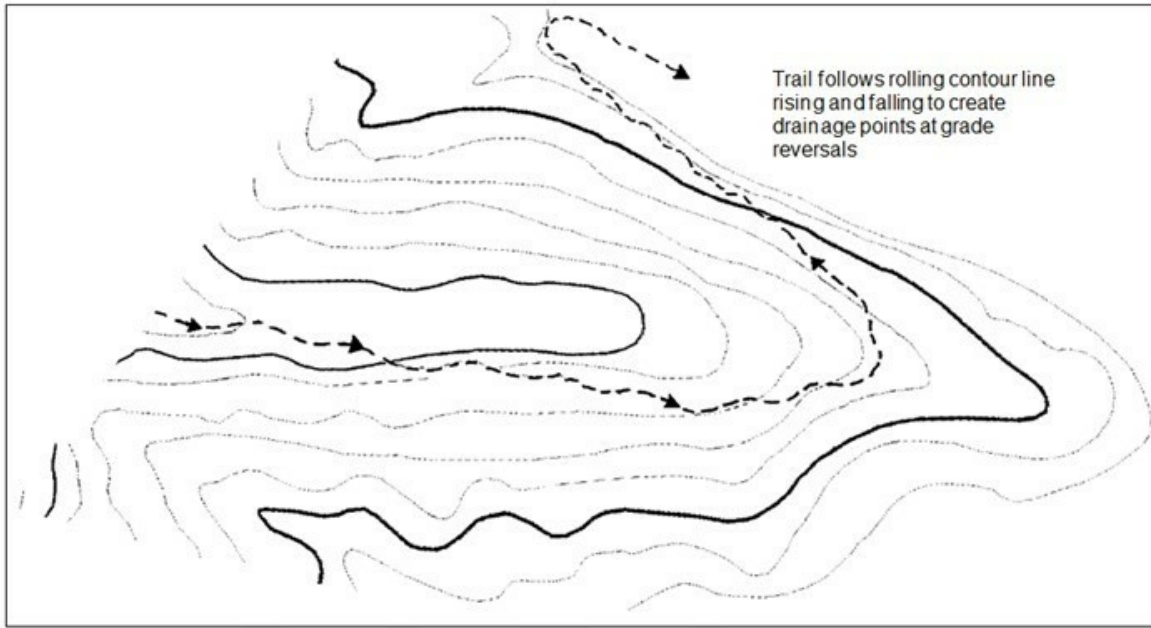
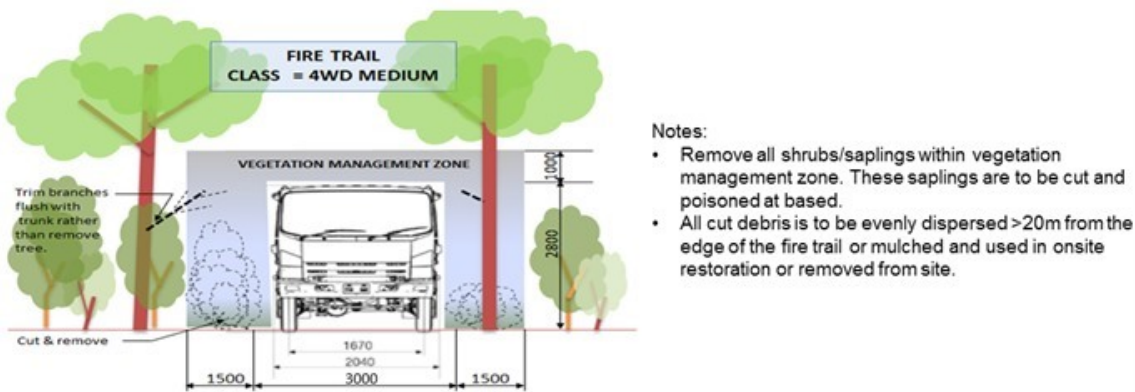


Figure SC6.2-17: Vegetation encroachment management on fire trails



SC6.3 Cultural heritage

SC6.3.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.3 Cultural heritage as supporting an outcome of that Cultural Heritage overlay code.

SC6.3.2 Relationship to the Planning Scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the Planning Scheme and applies when development is proposed in an area identified on OM5 Cultural heritage overlay map. This policy specifically relates to section 8.5 Cultural heritage overlay code and ensures development is consistent with the purpose and performance outcomes of the code.

SC6.3.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. provide supporting information about achieving outcomes of the planning scheme code;
 - b. identify requirements for site assessments and management plans;
 - c. provide supporting technical information, where relevant;
 - d. identify other relevant guidelines, standards and information sources, where relevant.
2. The planning scheme policy is arranged into the following sections:
 - a. qualifications;
 - b. technical standards;
 - c. minimum requirements for heritage impact assessment and management plans.
3. An information request may be made where the information required by this policy is not supplied when a development application is made.

SC6.3.4 Qualifications

1. A Cultural heritage impact assessment and management plan should be prepared and certified by a qualified and experienced consultant, who is a full member of ICOMOS Australia and has a minimum five years' experience in:
 - a. heritage impact assessment; or
 - b. conservation management plans; or
 - c. archaeological management plans.
2. The consultant who prepares the Cultural heritage impact assessment and management plan should have one of the following qualifications:
 - a. archaeology; or
 - b. heritage conservation; or
 - c. another related discipline.
3. The qualifications, experience, licences, approvals and permits of the person undertaking the Cultural heritage impact assessment must be stated within the assessment and management plan.
4. Where proposing to engage a suitably qualified person with qualifications other than those listed, prior approval by Council is required.

SC6.3.5 Technical standards

1. The following information sources may be relevant when preparing a Culture heritage assessment and management plan.
2. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document.

SC6.3.5.1 Guidelines

1. The following guidelines are relevant when preparing a Culture heritage site assessment and management plan:
 - a. Australian Heritage Commission (2002) *Ask First: A guide to respecting Indigenous heritage places and values*, Canberra
 - b. Australian International Council on Monuments and Sites Inc. (2013) *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance*, Deakin University, Burwood

- c. Australian International Council on Monuments and Sites Inc., (2013) 'Practice Note: Understanding and assessing cultural significance', Canberra
- d. Australian International Council on Monuments and Sites Inc.,(undated) National Scientific Committee on Cultural Landscapes and Cultural Routes, 'Understanding Cultural Landscapes',
- e. Blake, Thom, (2005) 'Queensland Cultural Heritage Places Context Study'
- f. Heritage Council of New South Wales (2019) *Better Placed: Design Guide For Heritage*
- g. Kerr, J.S. (2013) Conservation Plan: A Guide to The Preparation of Conservation Plans for Places of European Cultural Significance (7thed), The National Trust of Australia, Sydney
- h. State of New South Wales & Royal Australian Institute of Architects (2005) *Design in Context: Guidelines for Infill Development in the Historic Environment*, Heritage Office, Sydney
- i. Queensland Heritage Guidelines:
 - i. Carrying out a heritage survey
 - ii. Archaeological investigations
 - iii. Archival recording of heritage places
 - iv. Caring for war memorials
 - v. Conservation management plans
 - vi. Developing heritage places
 - vii. Assessing cultural heritage significance
 - viii. Identifying and assessing places of local cultural heritage significance in Queensland
- j. Royal Australian Institute of Architects, Education Division (1990) *Measure for Measure: A Practical Guide for Recording Buildings and Landscapes*, Red Hill, Australian Capital Territory
- k. Royal Australian Institute of Architects, NSW Chapter (2005) *Design in Context: Guidelines for Infill Development in the Historic Environment*, New South Wales Heritage Office
- l. Royal Australian Institute of Architects, NSW Chapter (2008) *New uses for heritage places: guidelines for the adaptation of historic buildings and sites*, New South Wales Heritage Office
- m. State of Queensland (2005) *Cultural Heritage Management Plan Guidelines*, Department of Aboriginal and Torres Strait Islander Partnerships
- n. State of Queensland, (2019) Land use planning, Aboriginal and Torres Strait Islander cultural heritage and native title: An overview of their relationship in Queensland, Department of State Development, Manufacturing, Infrastructure and Planning, Brisbane
- o. The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance;
- p. The Illustrated Burra Charter: good practice for heritage places.
- q. Walker, M., Marquis-Kyle, P., & Australia International Council on Monuments and Sites Inc. (2004) *The Illustrated Burra Charter: good practice for heritage places*.

SC6.3.5.2 Studies

1. The following studies are relevant when preparing a local heritage site assessment and management plan:
 - a. Gatton Shire Cultural Heritage Study 2000;
 - b. Gatton Streetscape Plan 1998;
 - c. Laidley Shire Cultural Heritage Study 2001.

SC6.3.5.3 Information sources

1. The following registers and databases may be relevant where development adjoins a Local, State or National heritage place:
 - a. Queensland Aboriginal and Torres Strait Islander Cultural Heritage Database and Register;
 - b. Queensland Heritage Register;
 - c. National Heritage List;
 - d. World Heritage List.
2. The following information sources may be relevant when preparing a heritage site assessment and management plan:
 - a. Australia ICOMOS Heritage Toolkit;
 - b. House Histories: House and Suburban Histories from South East Queensland;
 - c. Ian Evans World of Old Houses;
 - d. International Scientific Committee on Cultural Landscape;
 - e. Lockyer Valley Libraries;
 - f. Museum of Lands, Mapping and Surveying;
 - g. National Archives of Australia;
 - h. National Library of Australia;
 - i. Queensland Heritage Technical Notes on conserving and repairing heritage places;
 - j. State archives;
 - k. State Library of Queensland.

SC6.3.6 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.3.7 Minimum requirements for impact assessments and management plans

1. A heritage impact assessment and management plan should be prepared based on following technical standards. Where the guideline or standard refers to the State, the local equivalent should be substituted.
 - a. for all heritage places and areas:
 - i. Queensland Heritage Guideline: Archival Recording of Heritage Places;
 - ii. Queensland Heritage Guideline: Identifying and assessing places of local cultural heritage significance in Queensland;
 - b. for development involving ground disturbance:
 - i. Queensland Heritage Guideline: Archaeological Investigations;
 - c. for Aboriginal cultural heritage:
 - i. Cultural Heritage Management Plan Guidelines;
 - ii. Land use planning, Aboriginal and Torres Strait Islander cultural heritage and native title;
 - d. for local heritage place:
 - i. Queensland Heritage Guideline: Conservation Management Plan;
 - ii. Queensland Heritage Guideline: Developing heritage places: Using the development criteria;
 - iii. NSW Heritage Office;
 - iv. Heritage Council of NSW, Better Placed: Design Guide For Heritage.
2. The Heritage impact assessment and management plan should meet the standard requirements shown in the table below:

Table SC6.3-1: Standard requirements for Heritage impact assessment and management plans

SECTION	DETAILS
Summary	1. This section should include: <ol style="list-style-type: none"> a. Authorship details including contact information; b. Industry accreditation; c. Key findings, recommendations and conclusions; d. Any areas of non-compliance with the Cultural heritage overlay code; e. How areas of non-compliance with the Cultural heritage overlay code will be managed or overcome.
1 Introduction	This section should include a brief background summary explaining: <ol style="list-style-type: none"> a. the purpose, aims and objectives of the cultural heritage assessment and report; b. scope of study including any limitations.
2 Proposed Development	This section should include: <ol style="list-style-type: none"> a. site details, real property description and street address; b. description of the proposed development and resulting land use/s; c. reasons for undertaking the development, including any relevant background information and approvals; d. a list of the proposed changes or types of changes proposed to the heritage place with reference to plans of development; e. the date on which the assessment and any plans were prepared, including any amendments; f. name and relevant professional qualifications of the person/s preparing the assessment and management plan; g. plans that show as a minimum: north point, scale, location of property boundaries, roads, street names, vegetation location; h. drawings that show the design including a site plan, floor plans, elevations, sections, plan projections, elevations, architectural drawings, artist's representations, imagery; i. plans showing the extent of any alterations or demolition of the heritage place.
3 Analysis of cultural heritage status	This section should include: <ol style="list-style-type: none"> a. a heritage survey and/or archaeological investigation; b. details of the cultural heritage significance; c. a condition report; d. an archival recording of the heritage place.

3 Summary of Heritage conservation management plan	This section should include: a. a heritage conservation management plan or if a management plan already exists the changes that are required to protect heritage issues affected by the development proposal; b. the conservation priorities; c. a statement of how the development has incorporated or addressed the conservation priorities into the design.
4 Heritage impact assessment	This section should include: a. A heritage impact assessment including a statement of how the development will affect the property's significance as a local heritage place and whether Appendix 1 will need to be amended.
5 Heritage protection measures	This section should include: a. a construction management plan to show how damage will be avoided during construction at or on land adjoining a heritage place. Specific risks relevant to the heritage place should be addressed including but not limited to impact of vibration, vehicular movement and storage of materials; b. A construction methodology and schedule of works that that references rooms and areas of the place, to ensure demolition is limited to certain elements as well as temporary protection measures to protect delicate elements from incidental damage or the effects of increased weathering.
6 Assessment against the Cultural heritage overlay code	This section should include assessment against the Cultural heritage overlay code.
7 Implementation responsibilities for heritage management plan	This section should include a statement about who is responsible for implementing the various elements of the heritage management plan and what happens if there is failure of responsibilities.
8 References	List of documents referred to in the study
9 Appendices	As required but examples include: a. primary source material that has been relied upon; b. copy of the conversation management plan; c. archival recording; d. archaeological investigations.

SC6.3.7.1 Measured drawing requirements

1. Measured drawing are to be consistent with 'Measure for Measure: A Practical Guide for Recording Buildings and Landscapes'.
2. A typical measured drawing package for a build structure should include:
 - a. location plan;
 - b. site plan (1:200) - showing setting including adjacent properties, buildings, trees and structures such as fences;
 - c. streetscape elevation/s (1:200);
 - d. landscape plan (1:100);
 - e. floor plan/s (1:100 or 1:50) including basement or mezzanine levels;
 - f. roof plan/s (1:100 or 1:50);
 - g. elevations – showing all sides of the building (1:100 or 1:50);
 - h. sections – two sections, through the building in different planes (not parallel) (1:100 or 1:50);
 - i. ceiling and joinery details (1:20 or 1:10) – cornice, veranda posts, skirtings, mouldings;
 - j. other significant details (rainwater heads, construction joints);
 - k. fencing, machinery and services details (1:50); and
 - l. perspectives (1:200).
3. Measured drawings:
 - a. include external materials and colours in a schedule;
 - b. should be cross-referenced to each other, clearly titled and show scale, orientation and date of execution;
 - c. should not include any conjectural detail such as inaccessible elements that cannot be measured such as footings or framing;
 - d. are annotated and/or hatched to:
 - i. reveal more about the heritage significance of the site or object;
 - ii. differentiate between dates of construction, materials and finishes;
 - e. record all major fixtures such as machinery or building services; and
 - f. for industrial sites, record the position, relationship and function of all fixtures, machinery and services is particularly

important and maker's names, model numbers etc.

SC6.3.7.2 Other supporting information for an application

1. All heritage buildings nominated in the Planning Scheme are to be retained on site. This includes the relocation of the buildings on site. Any redevelopment is to support the prevailing character of the area.

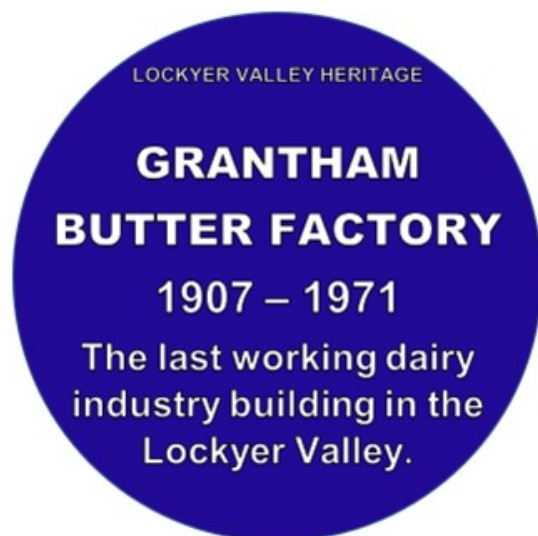
SC6.3.7.3 Plaques

1. Where a heritage place is moved or destroyed, interpretive signage is to be provided. Plaques are a preferred option where they can be attached to an existing building or new structure.
2. Plaques can be used to designate the former siting of heritage places. Where existing plaques exist these should be reused.
3. The design of plaques should be as follows:
 - a. minimum 500mm diameter circle;
 - b. aluminium a minimum of 3mm thick with weatherproofed finish;
 - c. minimum 4 pins are to be included on the back to allow installation.
4. Text content of plaques should include:
 - a. Arial font, consisting of white text with a 0.5pt black outline, and blue background:

COLOUR	RED	GREEN	BLUE
White	255	255	255
Blue	35	10	150

- b. 'Lockyer Valley Heritage' located at the top.
 - c. Name of the Place is to be in the largest font size possible, and extend over no more than two lines.
 - d. Year the place was established and closed or removed (if removed). The years are to be the same or smaller font size than the name and fit on a single line.
 - e. If the place is related to a person, the person's profession. The font size is smaller than the name and extend over no more than two lines.
 - f. Context - Why the person or place is important. This text is not to exceed 20 words so that the font can be read from afar.
 - g. The text is to be approved by Council
5. The location of the plaque should be as follows:
 - a. attached to the heritage place at the front of the property;
 - b. visible from the footpath.

Figure SC6.3-12: Plaque example



SC6.3.8 Identifying a place as a local heritage place

1. Local heritage places are identified in Appendix 1 and shown on OM5 Cultural heritage overlay map of the Planning Scheme. The process of identifying a local heritage place involves:
 - a. identification;
 - b. application;
 - c. assessment; and
 - d. notification.
2. Council assesses a place based on the cultural heritage criteria listed below. Appendix 1 provides information about each heritage place. It highlights the criteria that were originally identified for each place and its heritage significance. A building, site or place may be a local heritage place if it meets one or more of the cultural heritage criteria listed below:
 - a. it is important in demonstrating the evolution or pattern of Lockyer Valley's history;
 - b. it demonstrates rare, uncommon or endangered aspects of Lockyer Valley's cultural heritage;
 - c. it has potential to yield information that will contribute to the knowledge and understanding of Lockyer Valley's history;
 - d. it is important in demonstrating the principal characteristics of a particular class or classes of cultural places;
 - e. it is important because of its aesthetic significance;
 - f. it is important in demonstrating a high degree of creative or technological achievement at a particular period;
 - g. it has a strong or special association with the life or work of a particular community or cultural group for social, cultural or spiritual reasons;
 - h. it has a special association with the life or work of a particular person, group or organisation of importance in Lockyer Valley's history.
3. For a place to be no longer identified as a local heritage place, there must be evidence provided to sufficiently demonstrate that a place has no cultural heritage significance, based on the criteria listed above.
4. Following the lodgement of an application, Council will decide to retain, to include or remove a place from Appendix 1 and OM5 Cultural heritage overlay map. It should be noted that if a place is included or removed, Council will undertake an amendment to the Lockyer Valley Planning Scheme as required by the *Planning Act 2016*.

SC6.3.8.1 Research resources for houses

1. The following resources may assist researching a house for heritage consideration:
 - a. Butler, Graeme, (1992) *The Californian Bungalow in Australia*, Port Melbourne: Lothian Publishing Co.
 - b. Cuffley, Peter, (1989) *Australian Houses of the '20s and '30s*, Melbourne: The Five Mile Press
 - c. Cuffley, Peter, (1993) *Australian Houses of the Forties and Fifties*, Mile Press, Knoxfield
 - d. Evans, I. et al., (1979) *Restoring Old Houses: A Guide to Authentic Restoration*, Macmillan, Melbourne
 - e. Evans, Ian, (1983) *The Australian Home*, Sydney: The Flannel Flower Press
 - f. Fisher, Rod and Crozier, Brian (eds.) (1994) *The Queensland House: a roof over our heads*, South Brisbane: Queensland Museum
 - g. Howells, Trevor and Nicholson, Michael (1989) *Towards the Dawn: Federation Architecture in Australia 1890-1915*, Sydney: Hale & Iremonger
 - h. Irving, Robert et al (1985) *The History and Design of the Australian House*, Melbourne: Oxford University Press
 - i. Lane, Terence & Serle, Jessie (1990) *Australians at Home: a documentary history of Australian domestic interiors from 1788 to 1914*, Melbourne: Oxford University Press
 - j. Queensland State Archives (2020) *History of your house: Research Guide to the history of your house*
 - k. Raworth, Bryce (1991) *Our Inter-War Houses: How to Recognise, Restore and Extend Houses of the 1920s and 1930s*, Melbourne: National Trust of Australia
 - l. Stapleton, I. & M., (1997) *Australian House Styles*, The Flannel Flower Press, Sydney
 - m. Stapleton, I., (1991) *How to Restore the Old Aussie House*, Flannel Flower Press, Mullumbimby
 - n. Watson, Donald and McKay, Judith (1994) *Queensland Architects of the 19th century: a biographical dictionary*, Brisbane: Queensland Museum

SC6.3 Appendix 1 Local heritage places

PLACE NUMBER	NAME	ADDRESS	DISTRICT	RPD OR GPS	STATEMENT OF HERITAGE SIGNIFICANCE
LH0801	Blanchview Methodist Church	327 Blanchview Road (corner Church Road)	Blanchview	Lot 1 RP21376	Significant as a good example of a simple country church. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the rural landscape.
LH0802	Blanchview House	339 Blanchview Road	Blanchview	Lot 2 RP130372	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house,

					with its surrounding trees and garden, contributes aesthetically to the streetscape. Important for its association with an early family of the district.
LH0803	Hughs House	35 Church Road	Blanchview	Lot 45 RP835157	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century, possibly with a section dating from the period of early selection (mid-1860s). Associated with an early family of the district. The farm buildings are recorded and demonstrate early construction techniques.
LH1001	Caffey Cemetery	977 Mount Sylvia Road	Caffey	Lot 228 CC466 & Lot 227 CC466	Important for its demonstration of the characteristics of a small country cemetery; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on the history of local families and the general social history of the region.
LH1002	Graves of William and Sarah Philp	East Haldon Road	East Haldon	Lot 1 RP58209	William and Sarah Philp buried on the land that they owned. The boulder bears a metal cross and a plaque recording the family details.
LH1003	Uniting Church Lockyer Parish, Flagstone Creek	55 Flagstone School Road	Flagstone Creek	Lot 1 RP13881	An example of a simple country church. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the rural landscape. It has a strong association with the spiritual and social life of the surrounding community.
LH1004	Flagstone Creek State School and residence	56 Flagstone School Road	Flagstone Creek	Lot 8 CC2973	A good and intact example of an early country school, demonstrating many of the typical features including classrooms, residence, play shed and tree plantings. It is important for its demonstration of traditional forms and materials, and, with its landscaping, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period.
LH1005	Stockyard Creek Public Hall	111 Stockyard Creek Road	Flagstone Creek	Lot 1 SP184799	Significant as an example of a simple community hall. It has a strong association with the social life of the surrounding community.
LH1006	Gorman's Gap Trail	Gorman's Gap Road reserve	Flagstone Creek		Gorman's Gap road was the first track to be included in the Register of the National Estate. Important as a route which played a significant role in the early settlement and development of south-east Queensland.
LH1007	Fordsdale School of Arts	2085 Gatton Clifton Road	Fordsdale	Lot 217 CC2361	A good example of a simple country hall of rudimentary construction. It has a strong association with the social life of the surrounding community.
LH0201	35 Allan Street residence	35 Allan Street, Gatton	Gatton	Lot 93 RP21582	The house is significant as a good example of the use of materials, form and detailing typical of the interwar period. The house, with its surrounding garden, makes an aesthetic contribution to the streetscape.
LH0202	Gatton Water Tower	48 Cochrane Street (corner East Street)	Gatton	Lot 2 CC807885	A stylistic example of a functional water tower which is a landmark, and which makes an aesthetic contribution to the town. At the time of

					its construction, it was technically advanced in terms of water softening and purification. It is important in demonstrating the development of Gatton as a town centre.
LH0203	62 Cochrane Street residence	62 Cochrane Street	Gatton	Lot 1 RP135891	The house is significant as an example of the use of materials, form and detailing typical of the interwar period. The house, with its surrounding garden, makes an aesthetic contribution to the streetscape.
LH0204	Gatton Post Office	42 Crescent Street	Gatton	Lot 24 RP14763353	The group is important as an example of adaptation of historic buildings by Australia Post. The 1908 Post Office and Post Master's residence are individually significant as demonstrations of early form and materials and early building techniques. The group contributes aesthetically to the streetscape. The group is important for its association with the provision of postal services and the development of Gatton as a town centre.
LH0205	Gatton Railway Station and trees	Crescent Street	Gatton	Lot 381 SP121744	Important as an intact and representative railway station of comparative economic importance. It exhibits the principal characteristics of a country town railway complex. The footbridge is a rare surviving example as many such footbridges have been replaced or raised with electrification.
LH0206	35 East Street residence	35 East Street	Gatton	Lot 6 RP102788	The house is significant as an example of the use of materials, form and detailing typical of the interwar period. The house, with its surrounding garden, makes an aesthetic contribution to the streetscape.
LH0207	Gatton & District Historical Society	Freemans Road	Gatton	Lot 2 RP802604	Important for its demonstration of a variety of aesthetic characteristics and building techniques typical of the region. Through its displays, the place has the potential to yield information that will contribute to an understanding of Gatton's history.
LH0208	4 Gaul Street residence	4 Gaul Street	Gatton	Lot 26 RP21578	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0209	14 Gaul Street residence	14 Gaul Street	Gatton	Lot 21 RP21578	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century, now becoming rare. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.
LH0210	Railway Station Masters residence	16 Hickey Street	Gatton	Lot 385 SP121744	Important for its demonstration of early form and materials and for its demonstration of early building techniques. Important for its association with the railway.
LH0211	Gatton Cemetery	Lake Apex Drive and Denis Minson Drive	Gatton	Lot 83 CC2850	Important for its demonstration of the characteristics of a country town cemetery with graves dating back to early settlement; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on local social history and individual family histories.
LH0212	8 Larkin Street residence	8 Larkin Street	Gatton	Lot 29 G1236	The house is significant as a good example of the use of materials, form and detailing typical of the interwar period. The house, with its

					surrounding garden, makes an aesthetic contribution to the streetscape.
LH0213	St Mary's Presbytery	15 Maitland Street	Gatton	Lot 6 RP122589	Important for its demonstration of aesthetic characteristics typical of the period between World War I and World War II.
LH0214	The Daniel Walsh Centre	20 Maitland Street	Gatton	Lots 21 & 22 G121	An important example of a substantial and stylistic ecclesiastical building. Significant for its association with an important early architect. Important as an evocation of the religious and social life of the community. Makes a significant aesthetic contribution to the streetscape.
LH0215	Lockyer Parish Uniting Church	25 Maitland Street	Gatton	Lot 3 RP118318	Important as an evocation of the religious and social life of the community. A local landmark valued by the community.
LH0216	Lockyer Parish Uniting Church Children's Ministry	25 Maitland Street	Gatton	Lot 3 RP118318	Important as a demonstration of the use of traditional form and materials. It makes an aesthetic contribution to the streetscape. Important for its association with the religious and social life of the community.
LH0217	Our Lady of Good Counsel Convent	30 Maitland Street	Gatton	Lots 43-45 G124	An important example of a substantial and stylistic ecclesiastical building. Significant for its association with an important early architect. Important as an evocation of the religious and social life of the community. Makes a significant aesthetic contribution to the streetscape.
LH0218	21 Old College Road residence	21 Old College Road	Gatton	Lot 5 & 6 RP42674	A good example of a style rare for Gatton Shire and which makes a distinctive aesthetic contribution to the streetscape.
LH0219	26 Old College Road residence	26 Old College Road	Gatton	Lot 2 RP63650	The house is significant as an example of the use of materials, form and detailing typical of the interwar period. The house makes an aesthetic contribution to the streetscape.
LH0220	60 Old College Road residence	60 Old College Road	Gatton	Lot 1 RP99843	The house is significant as a good example of the use of materials, form and detailing typical of the interwar period. The house, with its surrounding garden, makes an aesthetic contribution to the streetscape.
LH0221	83 Old College Road residence	83 Old College Road	Gatton	Lot 15 RP156787	The house is significant as a good example of the use of materials, form and detailing typical of the interwar period. The house, with its surrounding garden, makes an aesthetic contribution to the streetscape.
LH0222	Commercial Hotel	1 Railway Street (corner Crescent Street)	Gatton	Lot 2 RP99478	The Commercial Hotel is significant for the contribution it makes to the streetscape as a local landmark at an important intersection in Gatton.
LH0223	Royal Hotel	2 Railway Street (corner Crescent Street)	Gatton	Lot 1 RP98977	The hotel is an important building of its type forming a local landmark on a prominent urban intersection. It is a demonstration of the prosperity of the town of Gatton in the early years of the twentieth century and remains substantially intact.
LH0224	Commercial building	21-35 Railway Street	Gatton	Lot 8 RP98976	The significance of this building is in the contribution it makes to the streetscape of central Gatton. It forms part of the only continuous two storey group of buildings fronting the main street.

LH0225	Gatton Civic Centre	26 Railway Street (corner North Street)	Gatton	Lot 120 G126	The Civic Centre is a significant example of the modern architectural style of the 1950s. The design is an important example of a highly idiosyncratic architect — Fredrick Abraham Scorer who amongst his achievements was awarded the Sulman Medal for work in New South Wales.
LH0226	Commercial building	37-39 Railway Street	Gatton	Lot 30 SP150234, Lot 2 RP115618	The significance of this building is in the contribution it makes to the streetscape of central Gatton. It forms part of the only continuous two storey group of buildings fronting the main street. The building contains rare structural elements pre-dating the 1934 fire.
LH0227	Gatton Dry Cleaners	42 Railway Street	Gatton	Lot 1 RP179724	Significant as an interesting example of main street redevelopment of the 1950s in a provincial town. The shop with its street awning makes an important contribution to the aesthetics of the street.
LH0228	H Freeman Building	48-50 Railway Street	Gatton	Lot 2 RP179724	This building is a well-constructed example of 1950s commercial architecture in a provincial town setting. Its architectural detail is restrained, and it contains some quality details and material selections, indicative of a discerning owner with civic pride.
LH0229	Braeside	97 Railway Street	Gatton	Lot 3 RP21565	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house is associated with an early Gatton family.
LH0230	Gatton Former burial ground	Road reserve adjoining 21 Riddell Street	Gatton		A rare example of an early burial place in a town, unmarked by headstones, demonstrating the pattern of development of Gatton.
LH0231	17 Smith Street residence	17 Smith Street	Gatton	Lot 3 RP63243	A good example of a style rare for Gatton Shire and which makes a distinctive aesthetic contribution to the streetscape.
LH0232	1 Spencer Street residence	1 Spencer Street	Gatton	Lot 11 RP844544	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape.
LH0233	Colleen	50 Spencer Street	Gatton	Lot 1 RP118318	A good example of a style which is rare for Gatton, and which makes a distinctive aesthetic contribution to the streetscape.
LH0234	65 Spencer Street residence	65 Spencer Street	Gatton	Lot 26 RP102788	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape.
LH0235	73 Spencer Street residence	73 Spencer Street	Gatton	Lot 22 RP102788	A good example of an unusual variant on traditional style and which makes a distinctive aesthetic contribution to the streetscape.
LH0236	77 Spencer Street residence	77 Spencer Street	Gatton	Lot 2 RP59734	An unusual variant on the inter-war style which makes a distinctive aesthetic contribution to the streetscape.
LH0237	79 Spencer Street residence	79 Spencer Street	Gatton	Lot 1 RP59734	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape.

LH0238	4 Whittle Street residence	4 Whittle Street	Gatton	Lot 42 G1223	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century, now becoming rare.
	Gatton town centre	Railway Street (from Spencer Street to Crescent Street), Crescent Street (from Railway Station to 44 Crescent Street) and Park Lane, Hickey Street and Old College Road fronting Littleton Park.	Gatton	Various	This area is important for the evidence it contains of the early development of the town centre and there are elements surviving in this precinct which are evocative of its commercial enterprise and growth. This precinct is valued by the community and is important for imparting a sense of place.
LH0301	Sandy Creek Bridge	Dutchman's Road (Over Sandy Creek)	Grantham	Lot 207 CSH482	This footbridge was constructed at Toowoomba Railway Station in 1905. It was dismantled by July 1985 and later relocated to this position.
LH0302	Summit	9 Christopher Street	Grantham	Lot 1 RP172377	Important for its demonstration of aesthetic characteristics and building techniques typical of the early 20th century. It contributes aesthetically to the streetscape.
LH0303	2 Harris Street	2 Harris Street	Grantham	Lot 10 RP25736	The building is important for the evidence it contains of the traditional form, detailing and materials of a small shop. It is important as a demonstration of the history of commercial activity in the community.
LH0304	William Street Trees	William Street road reserve	Grantham		Important for the contribution they make to the streetscape.
LH0305	Grantham Butter Factory	6 Victor Street	Grantham	Lot 1 RP189736	Important for its association with the dairy industry, one of the Shire's most important early industries. It is a substantial building which demonstrates the typical form and materials of a dairy factory.
LH0306	Grantham State School	15 Victor Street	Grantham	Lot 40 SP154108	Significant as an example of an early country town school. Important for its association with the educational and social life of the local community over a long period. The World War I Honour Board is a significant memorial.
LH0307	22 Victor Street residence	22 Victor Street	Grantham	Lot 6 RP25729	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. It contributes aesthetically to the streetscape.
LH0308	Old General Store	6 William Street	Grantham	Lot 1 RP91609	The building is important for the evidence it contains of the traditional form, detailing and materials of a small shop. It is important as a demonstration of the history of commercial activity in the community and for its contribution to the streetscape.
	Old Grantham town centre	William Street (from Anzac Avenue to Victor Street), Victor Street (from William Street to Christopher	Grantham	Various	This area is important for the evidence it contains of the early development of the town centre and there are elements surviving in this precinct which are evocative of its commercial enterprise and growth.

		Street), Railway Street (from Henderson Street to William Street), Gatton Helidon Road (from Harris Street to Anzac Avenue) and part of Anzac Avenue.			
LH0401	Comerford Sandstone	521 Airforce Road	Helidon	Lot 2 CSH1127	An important example of a freestone quarry. The place demonstrates the progression of technology associated with stone quarrying over the past 100 years and still retains examples of early equipment including a steam crane. It has the potential to yield information which will contribute to an understanding of quarrying methods. As one of a group of quarries in this area, it was important to the local economy and is associated with the growth and development of townships in the region. The place is associated with construction of many important Queensland buildings and hence with the development and aesthetics of Queensland cities.
LH0402	12 Arthur Street residence	12 Arthur Street	Helidon	Lot 1 RP52940	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden and striking date palm, contributes aesthetically to the streetscape.
LH0403	20 Arthur Street residence	20 Arthur Street	Helidon	Lot 2 RP2591	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding garden, contributes aesthetically to the streetscape.
LH0404	1 Bowen Street residence	1 Bowen Street	Helidon	Lot 101 H1261	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0405	10 Bowen Street residence	10 Bowen Street	Helidon	Lot 203 H1261	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. It contributes aesthetically to the streetscape.
LH0406	24 Bowen Street residence	24 Bowen Street	Helidon	Lot 302 H1261	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0407	Helidon Cemetery	Cemetery Road	Helidon	Lot 146 CA311190	Important for its demonstration of the characteristics of a small country cemetery; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on local social history and the individual family histories of residents.
LH0408	8 Deviney Street residence	8 Deviney Street	Helidon	Lot 5 H1268	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0409	15 Deviney Street residence	15 Deviney Street	Helidon	Lot 1 RP146973	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.

LH0410	15 George Street residence	15 George Street	Helidon	Lot 10 H1268	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0411	Australian Sandstone Industries	Goldmine Road	Helidon	Lot 50 SP163235	The place demonstrates the progression of technology associated with stone quarrying over the past 100 years. It has the potential to yield information which will contribute to an understanding of quarrying methods. As one of a group of quarries in this area, it was important to the local economy and is associated with the growth and development of townships in Gatton Shire. The place is associated with construction of many important Queensland buildings and hence with the development and aesthetics of Queensland cities.
LH0412	St. Joseph's Catholic Church complex	35 Gunn Street	Helidon	Lot 3 RP897079	The complex is important in demonstrating the principal characteristics of a substantial church and educational complex in a country town. The buildings individually exhibit aesthetic characteristics valued by the community. The place has a strong association with the Helidon community for social, spiritual, educational reasons and evolution of the surrounding district. Cemetery important for its demonstration of the characteristics of a small country cemetery and for its ability to yield information on local social history and the individual family histories of residents.
LH0413	Sisters of St. Joseph Convent	37 Gunn Street	Helidon	Lot 4 RP897079	Significant as a former part of the St. Joseph's Church Complex which is important in demonstrating the principal characteristics of a substantial church and educational complex in a country town. The building individually exhibits aesthetic characteristics valued by the community. The place has a strong association with the Helidon community for social, spiritual, and educational reasons. The place is associated with the prominent architectural firm G.H.M. Addison and Son.
LH0414	30 Laidley Street residence	30 Laidley Street	Helidon	Lot 1 RP23164	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape/rural landscape.
LH0415	35 Laidley Street residence	35 Laidley Street	Helidon	Lot 2 RP164477	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0416	14 Lawlers Road residence	14 Lawlers Road	Helidon	Lot 8 RP146973	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.
LH0417	War Memorial and avenue of trees	Railway Street (in median strip)	Helidon		The monument is significant as a demonstration of the participation of local people in major world conflicts and has a strong association with the local community as a demonstration of the wish of local people to commemorate those who died. The median strip and monument make an important aesthetic contribution to the streetscape.

LH0418	Criterion Hotel	1 Railway Street (corner Turner Street)	Helidon	Lot 1 RP53098	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The hotel has a prominent corner position opposite the railway and contributes aesthetically to the streetscape of Helidon. The scale and location of the hotel indicate the early importance of the town and the pattern of development of Helidon.
LH0419	Commercial building	14 Railway Street	Helidon	Lot 1 RP199749	The building is important for the evidence it contains of the traditional form, detailing and materials of a substantial country town shop. It is important as a demonstration of the history of commercial activity in the Helidon community.
LH0420	Butchers Shop residence	16 Railway Street	Helidon	Lot 2 RP199749	The building is important for the evidence it contains of the traditional form, detailing and materials of a small shop. It is important as a demonstration of the history of commercial activity in the Helidon community. It contributes aesthetically to the streetscape.
LH0421	Butchers Shop	18 Railway Street	Helidon	Lot 2 RP84646	The building is important for the evidence it contains of the traditional form, detailing and materials of a small shop. It is important as a demonstration of the history of commercial activity in the Helidon community. It contributes aesthetically to the streetscape.
LH0422	26 Railway Street	26 Railway Street	Helidon	Lot 8 RP23157	The building is important for the evidence it contains of the traditional form, detailing and materials of a small shop. It is important as a demonstration of the history of commercial activity in the Helidon community. It contributes aesthetically to the streetscape.
LH0423	28 Railway Street residence	28 Railway Street	Helidon	Lot 9 CSH1370	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0424	32 Railway Street residence	32 Railway Street	Helidon	Lot 12 RP840606	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape/rural landscape.
LH0425	39 Railway Street residence	39 Railway Street	Helidon	Lot 1 & 2 CSH2483	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and gardens, contributes aesthetically to the streetscape of Helidon.
LH0426	St. Paul's Lutheran Church	60 Railway Street	Helidon	Lot 28 RP23148	Significant as a good example of a simple church. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the streetscape. It has a strong association with the spiritual and social life of the surrounding community.
LH0427	14 Russell Street residence	14 Russell Street	Helidon	Lot 10 SP112158	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees, contributes aesthetically to the streetscape.

LH0428	9 School Street residence	9 School Street	Helidon	Lot 40 RP214041	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0429	28 School Street residence	28 School Street	Helidon	Lot 17 RP203794	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.
LH0430	445 Seventeen Mile Road	445 Seventeen Mile Road	Helidon	Lot 150 CA311265	This is an important example of a freestone quarry. The place demonstrates the progression of technology associated with stone quarrying over the past 110 years and still retains examples of early equipment including steam cranes on an adjacent forestry site formerly leased to the quarry. As one of a group of quarries in this area, it was important to the local economy and is associated with the growth and development of townships in Gatton Shire. The place is associated with construction of many important Queensland buildings and hence with the development and aesthetics of Queensland cities.
LH0431	18 Station Street residence	18 Station Street	Helidon	Lot 207 H1261	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0432	22 Station Street residence	22 Station Street	Helidon	Lot 209 H1261	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.
LH0433	23 Station Street residence	23 Station Street	Helidon	Lot 318 H1261	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.
LH0434	31 Station Street residence	31 Station Street	Helidon	Lot 314 H1261	Important for its demonstration of early form and materials and for its demonstration of early building techniques. Contributes to the aesthetics of the streetscape.
LH0435	Helidon Post Office	13 Turner Street	Helidon	Lot 1 SP303410	Important for its demonstration of early form and materials and for its demonstration of early building techniques. It contributes aesthetically to the streetscape. Important for its association with the provision of postal services and the development of Helidon township.
LH0436	Helidon Post Master's residence	15 Turner Street	Helidon	Lot 2 SP303410	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape. Important for its association with the postal service and the development of Helidon.
LH0437	Helidon Police Station	21 Turner Street	Helidon	Lot 142 H1263	A substantial and important example of a local police station. Important for its demonstration of early form and materials and for its demonstration of early building techniques. The building contributes aesthetically to the streetscape. Important for its association with the development of Helidon township.

LH0438	5 William Street residence	5 William Street	Helidon	Lot 220 H1261	An interesting and rare example of a house built using local sandstone.
LH0439	14 William Street residence	14 William Street	Helidon	Lot 1 RP148530	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0440	10 Wrights Road residence	10 Wrights Road	Helidon	Lot 1 RP149759	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
LH0441	18 Wrights Road residence	18 Wrights Road	Helidon	Lot 1 RP59783	An interesting and rare example of a house built using local sandstone.
LH0442	22 Wrights Road residence	22 Wrights Road	Helidon	Lot 2 RP59783	Important for its demonstration of early form and materials and for its demonstration of early building techniques.
	Helidon town centre	Piccadilly Lane (from Warrego Highway to Gatton Helidon Road), Railway Street (from Warrego Highway to Turner Street), Turner Street (from Piccadilly Lane to Gunn Street), Arthur Street (from Railway Station to Mary Mackillop Street), Mary Mackillop Street (from Arthur Street to Turner Street)	Helidon	Various	This area is important for the evidence it contains of the early development of the town centre and there are elements surviving in this precinct which are evocative of its commercial enterprise and growth. This precinct is valued by the community and is important for imparting a sense of place.
LH1008	Junction View State School and residence	7 East Haldon Road	Junction View	Lot 107 CC2843	Significant as a good and intact example of an early country school, demonstrating many of the typical features including classrooms, residence, play shed, tennis court and tree plantings. It is important for its demonstration of traditional forms and materials, and, with its landscaping, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period.
LH1009	Junction View Public Hall	2275 Mount Sylvia Road	Junction View	Lot 2 RP78634	Significant as a good example of a simple community hall. It has a strong association with the social life of the surrounding community
LH1010	Lower Tenthill State School	90 Lower Tenthill Road	Lower Tenthill	Lot 289 SP200131	Significant as a good and intact example of an early country school, demonstrating many of the typical features including classrooms, play shed and tree plantings. It is important for its demonstration of traditional forms and materials and, with its landscaping including extremely large bottle trees, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period. The Honour board (not inspected) is significant as evidence of the impact of World War I on local communities.

LH1011	216 Back Ma Ma Creek Road residence	216 Back Ma Ma Creek Road	Ma Ma Creek	Lot 1 RP210317	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century, now becoming rare. The house, with its surrounding trees/garden/farm buildings, contributes aesthetically to the streetscape/rural landscape. The surrounding farm buildings demonstrate early building techniques and may have the ability to yield information about early farming practices.
LH1012	Ma Ma Creek School	803 Gatton-Clifton Road	Ma Ma Creek	Lot 3 CH312323	Significant as a good and intact example of an early country school, demonstrating many of the typical features including classrooms, play shed and tree plantings. It is important for its demonstration of traditional forms and materials, and, with its landscaping, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period. Important for its association with providing manual training and domestic science training for both children and adults.
LH1013	St. Stephens Anglican Church and Cemetery	815 Gatton-Clifton Road	Ma Ma Creek	Lot 2RP32703 & Lot 4 SP290646	Important for its contribution to the rural landscape and its contribution to the village precinct of Ma Ma Creek. It has a strong association with the spiritual and social life of the surrounding community. The graveyard is important for its demonstration of the characteristics of a small country graveyard; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on local social history and the family history of residents.
LH1014	Ma Ma Creek Church of Christ complex	837-841 Gatton-Clifton Road	Ma Ma Creek	Lot 1 RP32702 & Lot 1 RP32704	Significant as an example of a country church complex. It is important in exhibiting a range of aesthetic characteristics valued by the community, the buildings' traditional form, scale, and materials. The buildings and the large fig tree make an aesthetic contribution to the Ma Ma Creek village streetscape.
	Ma Ma Creek town centre	Gatton Clifton Road (from 803 Gatton-Clifton Road to Petersens Road), Lot 286 CH312323, Lot 93 CP892908 and Lot 148 CP892908 extending to Petersens Road.	Ma Ma Creek	Various	This area is important for the evidence it contains of the early development and social life of Ma Ma Creek. This precinct is valued by the community and is important for imparting a sense of place.
LH1015	Uniting Church, Lockyer Parish	387 Back Mount Sylvia Road	Mount Sylvia	Lot 1 RP36790	Significant as an example of a simple country church, including a shelter shed now relatively uncommon. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the rural landscape. It has a strong association with the spiritual and social life of the surrounding community.

LH1016	Cross Lutheran Church	143 Left Hand Branch Road	Mount Sylvia	Lot 1 RP36829	Significant as a good example of a simple country church. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. With its line of trees, it is important for its contribution to the rural landscape. It has a strong association with the spiritual and social life of the surrounding community.
LH1018	St. Patrick's Catholic Church	1240 Mount Sylvia Road	Mount Sylvia	Lot 1 RP149899	It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. It is important for its aesthetic contribution to the rural landscape.
LH1019	Mount Sylvia Post Office and residence	1304 Mount Sylvia Road	Mount Sylvia	Lot 1 RP165014	The residence is significant as a typical example of a post office residence in a small community. The post office is significant as a modest building performing an important community function.
LH1019	Mount Whitestone Non-Denominational Church	1305 Gatton Clifton Road	Mount Whitestone	Lot 1 RP123274	Significant as an example of a simple country church. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the rural landscape. It has a strong association with the spiritual and social life of the surrounding community and with the Philp family.
LH1020	Mount Whitestone School and residence	1313 Gatton Clifton Road	Mount Whitestone	Lot 287 CC2440	Significant as an example of an early country school. It is important for its demonstration of traditional forms and materials, and, with its landscaping, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period.
LH0601	Murphy's Creek Cemetery	Cemetery Road (corner McCannes Road)	Murphy's Creek	Lot 274 CC3194	Important for its demonstration of the characteristics of a small country cemetery; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on local social history and the individual family histories of residents.
LH0602	162 Costello's Road residence	162 Costello's Road	Murphy's Creek	Lot 111 RP151357	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape. If a removal house, it demonstrates the pattern of history of Gatton Shire and its development.
LH0603	17 Freya Street residence	17 Freya Street	Murphy's Creek	Lot 502 MC1281	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century.
LH0604	Jessie's Cottage and Lockyer Station	18 Jessie's Lane	Murphy's Creek	Lot 56 CH3135	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape. The house is associated with an early Murphy's Creek family, the Taylors.
LH0605	65 Ossian Street residence	65 Ossian Street	Murphy's Creek	Lot 21 RP825748	Important for its demonstration of aesthetic characteristics and building techniques typical of

					the early 20th century. The house, with its surrounding trees (particularly the bunya pine) and outbuildings, contributes aesthetically to the rural landscape.
LH0606	3 Penfolds Road	3 Penfolds Road	Murphy's Creek	Lot 1 RP182501	The buildings are important for the evidence they contain of the traditional form, detailing and materials of a pair of small shops. They are important as a demonstration of the history of commercial activity in the Murphy's Creek community in the vicinity of the railway.
LH0607	Murphy's Creek Presbyterian Church	10-12 Thor Street	Murphy's Creek	Lot 510 MC1281	It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Important for its contribution to the rural streetscape. It has a strong association with the spiritual and social life of the surrounding community.
LH0608	Skye	48 Watts Road	Murphy's Creek	Lot 1 RP835159	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The complex, with its surrounding garden, contributes aesthetically to the rural landscape. As removal buildings, they demonstrate the pattern of history of the region and its development.
LH0901	Ropeley State School and residence	2 Hogers Road	Ropeley	Lot 242 CC1819	Significant as a good and intact example of an early country school, demonstrating many of the typical features including classrooms, residence, play shed, tennis court and tree plantings. It is important for its demonstration of traditional forms and materials, and, with its landscaping, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period.
LH0902	Immanuel Lutheran Church	396 Ropeley—Rockside Road	Ropeley	Lot 1 RP58307	Significant as a good and rare example of an intact country church complex in an isolated position, containing a church, hall, shelter shed, residence, graveyard, and major tree plantings. It is important in exhibiting a range of aesthetic characteristics valued by the local community, the traditional form and scale of the buildings. The trees, including formal rows of mature hoop pines, are an important part of the setting. The complex makes an important contribution to the rural landscape. It has a strong association with the spiritual and social life of the surrounding community.
LH0903	Lutheran Cemetery	Ropeley-Rockside Road	Ropeley	Lot 2 RP32605	Important for its demonstration of the characteristics of a small country cemetery; for its association with the social and spiritual evolution of the surrounding district; and for its ability to yield information on local social history and the family history of residents, particularly the German residents of the community. The large proportion of cast iron burial markers with raised inscriptions, some in the German language, is uncommon.
LH0904	Ropeley Apostolic Church	86 Steinmuller Road (Corner Katts Road)	Ropeley	Lot 7 RP880414	It has a strong association with the spiritual and social life of the surrounding community.

LH1101	Bicentennial National Trail	Thornton to White Mountain	Thornton to White Mountain	Various	
LH0804	36 Larnook Street residence	36 Larnook Street	Upper Lockyer	Lot 27 RP143017	Important for its demonstration of early form and materials and for its demonstration of early building techniques. The house, with its surrounding garden, contributes aesthetically to the streetscape. As a removal house, it demonstrates the pattern of history of Gatton Shire and its development.
LH0805	Gibbon's Camp Burial Ground	Thomas Road (adjoins 64 Thomas Road)	Upper Lockyer	Lot 127 CA311526	The first railway in Queensland was built between Ipswich and the Darling Downs. Work started at Ipswich and the first section, as far as Grandchester, was opened in July 1865. The line reached Toowoomba in 1867. Gibbon's Camp was one of several camps set up by sub-contractors during construction of the railway for workers, some of whom were accompanied by their families. This burial ground was set up near the camp. At least 15 people are believed to have been buried here, including some from nearby Holmes' Camp and Ballard's camp. Four of the known burials were men, the remainder were women and young children. Originally on private land, the area was gazetted as a cemetery reserve on 17 July 1992.
LH1022	Ingoldsby Cemetery	Ingoldsby Road (before Goulds Road)	Upper Tenthill	Lot 1 RP36786	Important: a. for its demonstration of the characteristics of a small country cemetery; b. for its association with the social and spiritual evolution of the surrounding district; and c. for its ability to yield information on local social history and the family history of residents.
LH1023	Tent Hill Cricket Club Pavilion	Ropehill Road	Upper Tenthill	Lot 2 RP214734	It is important in exhibiting a range of aesthetic characteristics valued by the local community, the building's traditional form, scale, and materials. Although relocated to this site, it fits well into the setting and contributes to the rural landscape. It has a strong association with the sporting and social life of the surrounding community.
LH1024	Upper Tenthill School and residence	51 Upper Tenthill School Road	Upper Tenthill	Lot 285 SP161917	Significant as a good and intact example of an early country school, demonstrating many of the typical features including classrooms, residence, play shed and tree plantings. It is important for its demonstration of traditional forms and materials and, with its landscaping including large fig trees, it makes an aesthetic contribution to the rural landscape. Important for its association with the educational and social life of the local community over a long period.
LH1025	Fourways Garage complex	2 Winwill Connection Road (corner Gatton Clifton Road)	Winwill	Lot 1 RP63651	The building is significant as an example of a small local business premises and as a demonstration of the history and growth of the community.
LH0806	1 Jones Street residence	1 Jones Street	Withcott	Lot 1 RP63651	Important for its demonstration of aesthetic characteristics and building techniques typical of the late 19th or early 20th century. The house, with its surrounding trees and garden, contributes aesthetically to the streetscape.

SC6.4 Flood hazard

SC6.4.1 Application

1. This planning scheme policy applies to development where the Flood hazard overlay code identifies Planning Scheme Policy SC6.4 Flood hazard as supporting an outcome of Flood hazard overlay code.

SC6.4.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the Planning Scheme and applies when development is proposed in an area identified on Flood hazard overlay map. This policy specifically relates to section Flood hazard overlay code and ensuring development is consistent with the purpose and performance outcomes of the code.

SC6.4.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. provide supporting information about achieving outcomes in the planning scheme code;
 - b. identify the process and requirements for flood risk management plans;
 - c. provide supporting technical information, where relevant;
 - d. identify other relevant guidelines, standards and information sources, where relevant;
 - e. provide information about Council's flood regulation data, tools and processes to assist proponents in preparing well informed supporting documentation for development in flood affected areas.
2. An information request may be made where the information required by this policy is not supplied when a development application is made.

SC6.4.4 Qualifications

1. A flood hazard risk management plan is to be prepared and certified by a qualified and experienced Registered Professional Engineer of Queensland (RPEQ) with demonstrated competency in the field of flood risk management.

SC6.4.5 Technical standards

1. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document. Refer also to Planning Scheme Policy SC6.9 Stormwater management.
2. The listed technical standards are not intended to be exhaustive. It is expected that appropriate references are also used in accordance with accepted best practice.

SC6.4.5.1 Guidelines

1. The following guidelines may be relevant when designing flood resilient buildings:
 - a. Hawkesbury-Nepean Floodplain Management Steering Committee (2006) *Reducing Vulnerability of Buildings to Flood Damage: Guidance on Building in Flood Prone Areas*, Parramatta;
 - b. Queensland Reconstruction Authority (2019) *Flood Resilient Building Guidance for Queensland Homes*, The State of Queensland, Brisbane.

SC6.4.5.2 Standards

1. The following standards may be relevant when preparing a Flood risks assessment and study.
 - a. Australian Building Codes Board (2012) *Buildings in Flood Hazard Areas*, Commonwealth of Australia, Canberra;
 - b. Australian Institute for Disaster Resilience (2017) *Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia*, Commonwealth of Australia;
 - c. Australian Institute of Disaster Resilience (2017a) *Evacuation Planning*. Australian Disaster Resilience Handbook Collection Handbook 4;
 - d. Australian Institute of Disaster Resilience (2017b) *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia*;
 - e. Australian Institute of Disaster Resilience (2017c) *Flood Hazard*, Australian Disaster Resilience Handbook Collection,

Guideline 7-3;

- f. Ball J, Babister M, Nathan R, Weeks W, Weinmann E, Retallick M, Testoni I, (Editors), Commonwealth of Australia (Geoscience Australia) (2019) *Australian Rainfall and Runoff: A Guide to Flood Estimation*;
- g. Department of Environment, Land, Water and Planning (2015) *Guidelines for riparian fencing in flood-prone areas*, East Melbourne, Victoria;
- h. Queensland Urban Drainage Manual (QUDM);
- i. Queensland Urban Drainage Manual, Background Notes;
- j. Red Cross Australia (2015) Preferred Sheltering Practises for Emergency Sheltering in Australia.

SC6.4.5.3 Information sources

1. The following information sources may be relevant when preparing a Flood risk assessment:
 - a. Australian Rainfall and Runoff (ARR) and Data Hub;
 - b. Bureau of Meteorology;
 - c. Commonwealth Scientific and Industrial Research Organisation;
 - d. Intergovernmental Panel on Climate Change;
 - e. Queensland Water Monitoring Information Portal.

SC6.4.6 Policy specific definitions and abbreviations

1. Policy specific definitions are listed in the below Table SC6.4.6-1: Definitions of terms.
2. Policy specific abbreviations are listed in the below Table SC6.4.6-2: Abbreviation of terms.

Table SC6.4.6-1: Definitions of terms

TERM	DEFINITION
Acceptable risk	Means where the risks are negligible or small (being managed by existing systems). <i>Note—Low-risk hazards should be assessed and documented with the risk assessment. This process should include sensitivity testing. If a risk can be reduced with minimal effort, it should be implemented.</i>
defined flood level (DFL)	The level to which it is reasonably expected flood waters may rise (see Section 8 of the <i>Building Regulation 2021</i>).
Design events for assessments	Should include an assessment of the catchment, as pertaining to the development area and include the following events adjusted for climate change: <ol style="list-style-type: none"> a. the defined flood level 1% AEP; b. a severe storm (as part of sensitivity testing); c. a range of frequent floods including but not limited to: 63% AEP, 39% AEP, 50% AEP, 20% AEP, 10% AEP, 5% AEP, 2% AEP if relevant to the type of development or any other relevant event agreed to by Council (if relevant); d. slightly rarer or more extreme flood events including 0.5% AEP, 0.2% AEP and 0.05% AEP events, if relevant to the type of development or any other relevant event agreed to by Council (if relevant); e. the PMF (if relevant); f. 1:2000 year AEP, if involving a bridge; or any other relevant event agreed to by Council. <i>Note—the following are considered to be the minimum events required based on development type:</i> <ol style="list-style-type: none"> a. Major subdivision more than 10 lots = All events b. Dwelling house, Dual occupancy, Multiple Dwellings where on an existing single lot, Minor subdivision 10 lots or less = DFL, 10% AEP, 0.2% AEP representing a severe storm event¹. c. Roads = *minor and major assessment based on QUDM d. Detention basin = QUDM requirements¹ e. Levees = Levee regulation f. Stormwater quality = Table 9.4.7-5: Post construction phase - Stormwater management design objectives. g. Easements = DFL¹ h. Drainage = A locality may be affected by Regional and Local flood events and in this case, both need to be assessed separately and in combination¹. Refer to QUDM for tailwater considerations. i. Emergency Services and access = QUDM and DFE specified in the Flood hazard overlay code.
Exposure	Means the number of people and properties and extent of land and infrastructure exposed to the hazard

Flood emergency management plan (FEMP)	As a minimum a flood emergency management plan should: <ol style="list-style-type: none"> a. Identify the heights of: <ul style="list-style-type: none"> • the finished floor level of the building property • of the roads to be used as an evacuation route (if required), b. Identify the trigger/s to activate the flood emergency plan; c. the steps to take to protect your household and your property; d. key contacts e. routes to reach a safer place. <p><i>Note—A FEMP is an operational management response to flood hazard to acceptable or tolerable flood risk.</i></p>
Flood risk management plan	is a process that includes conducting and recording a flood risk assessment, determining the flood impact on the proposed development and surrounding people and property, and selecting and documenting practical operational responses for reducing flood risk to people and property.
Intolerable risk	A flood hazard risk that not acceptable or tolerable.
Items of value	Items that cannot be easily repaired, replaced or restored and include: <ol style="list-style-type: none"> a. personal, organisational or historical records; b. cultural heritage artefacts of importance such as museum collections, unique artworks, rare books, etc.
Tolerable risk	A risk that, following an understanding of the likelihood and consequences, is low enough to allow the exposure to continue, and at the same time high enough to require new treatments or actions to reduce risk. People and society prepared to take or accept a risk in order to secure benefits. Society can live with this risk but believes that as much as reasonably practical should be done to reduce the risks further (refer to Appendix E Guidance on determining tolerable risk).

Table SC6.4.6-2: Abbreviation of terms

ABBREVIATIONS	MEANING
AEP	Annual exceedance probability
ARI	Average recurrence interval
ARR	Australian Rainfall and Runoff
CC	Climate change
DEM	Digital elevation model
DFE	Defined flood event
DFL	Defined flood level
DRAINS	Urban hydrology and hydraulics software
HEC-RAS	Steady State One Dimensional Hydraulic Model
ISIS	Fully Dynamic One Dimensional Hydraulic Model
LiDAR	Light Detection and Ranging (Aerial Laser Survey)
MIKE11	Fully Dynamic One Dimensional Hydraulic Model
MIKE21	Fully Dynamic Two Dimensional Hydraulic Model
MIKE FLOOD	Fully Dynamic Coupled One & Two Dimensional Hydraulic Model
QUDM	Queensland Urban Drainage Manual
RAFTS	Runoff Routing Software
RORB	Runoff Routing Software
SWMM	Fully Dynamic One Dimensional Hydraulic Model
TUFLOW	Fully Dynamic Coupled One & Two Dimensional Hydraulic Model
URBS	Runoff Routing Software
WBNM	Runoff Routing Software

PMF	Probable Maximum Flood
PMP	Probable Maximum Precipitation
WSL	Water Surface Level

SC6.4.7 Consultation

1. Council may seek third party advice or comment about an application where the development may conflict with a code or where technical advice is required to assess the development. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.4.8 Flood mapping

1. The Flood hazard overlay map shows flood hazard derived from numerous sources.
2. Flood modelling studies are complex technical investigations requiring a detailed understanding of catchment hydrological processes and floodplain hydraulic controls. Computer simulations are used to quantify runoff from rainfall and evaluate flow patterns and flooding extents around floodplains. There are numerous flood modelling studies which have been completed for the Lockyer Valley local government area. Results from these flood modelling studies have been combined to provide the Flood hazard overlay map.
3. Flood modelling studies are under constant development due to the construction of infrastructure and the acquisition of new data. This information is available on Council's Flood Information Portal and digital copies of the latest and current flood modelling studies can be obtained under a data sharing agreement.

Note—A flood study must be conducted to determine the DFL and the flood hazard risk in an overland flow path.

SC6.4.8.1 Hydraulic risk (HR)

1. To formulate hydraulic risk, Hazard category (H) is used. A Hazard category (H) is a general classification of flood hazard on a floodplain. The categories relate to the vulnerability of people and property during a flood. There are six categories, where H1 is the lowest level of risk and H6 is the highest level of risk:
 - a. H1 Generally safe for vehicles, people and buildings. Relatively benign flood conditions. No vulnerability constraints.
 - b. H2 Unsafe for small vehicles.
 - c. H3 Unsafe for vehicles, children and the elderly.
 - d. H4 Unsafe for vehicles and people.
 - e. H5 Unsafe for vehicles and people. Buildings require special engineering design and construction.
 - f. H6 Unsafe for vehicles and people. All building types considered vulnerable to failure.
2. Potential hydraulic risk (HR) combines the hazard with the likelihood of it occurring at a particular location. An essential component of flood management studies is to determine flood function or hydraulic categorisation of the floodplain. Assessment of hydraulic risk aids the development of appropriate flood risk management strategies into the future. The Hydraulic risk categories, HR1 to HR5, are shown below in the Hydraulic risk matrix as shown in the Temporary Local Planning Instrument Flood Regulation.
3. Hydraulic risk does not take into consideration non-hydraulic risk factors such as the land use or development exposure to flooding, the vulnerability of the community at risk, specific challenges associated with evacuation or isolation during flooding, or risks associated with loss of essential services during a flood (Brisbane River Strategic Floodplain Management Plan, Technical Evidence Report BMT 2018). A flood hazard risk assessment management plan should consider and address all relevant flood risks.

SC6.4.8.2 Flood hazard categories

1. The below table shows Flood hazard category parameters that form the Flood hazard categories shown in the Flood hazard overlay.

Table SC6.4.8-1: Flood hazard category parameters for site-specific flood risk assessments

CRITERIA	FLOOD HAZARD CATEGORY		
	LOW	MEDIUM	HIGH
Maximum flood depth	Less than 0.5m	0.5m to 1.2m	More than 1.2m
Maximum flood velocity	Less than 3.0m/s	Less than 3.0m/s	More than 3.0m/s
Depth by velocity (d*V)	Less than 0.4m ² /s	0.4m ² /s to 0.6m ² /s	More than 0.6m ² /s

SC6.4.8.3 Flood islands

1. Flood islands are areas within the floodplain that remain dry but are surrounded by floodwaters. They may stay dry or become wet if a flood reaches a higher magnitude. Flood islands pose a higher risk to people, as they can become trapped. People in areas of flood islands may need to evacuate before water encroaches into their property.
2. Three types of flood islands are to be considered in categorising flood risk:
 - a. Low flood island category A — areas which are dry and surrounded by floodwaters in the 5% (1 in 20 years) AEP event but become inundated once the event reaches a 1% (1 in 100 year) AEP event.
 - b. Low flood island category B — areas which are dry but surrounded by floodwaters in the 1% (1 in 100 year) AEP event but become inundated once the event reaches a Probable Maximum Flood (PMF).
 - c. High flood islands — areas surrounded by floodwaters, and the land is located above the Probable Maximum Flood (PMF).

SC6.4.8.4 Warning time

1. Flash flooding occurs when the warning time is less than 6 hours. Warning time is an important measure in categorising flood risk. If not in a suitable 'sheltering in place' arrangement, people who may be affected by flood need sufficient time to evacuate to a safer place.

SC6.4.9 Guiding principles of assessment

1. The following principles are to be used in the assessment of development. An assessment must have due regard to relevant regulations and accepted engineering practice.

SC6.4.9.1 Safety and access: Protect human life and ensure people are safe from flood hazard

1. Applies to all development applications except Critical infrastructure.
2. Safe place of shelter (if safe to so).
3. Safe evacuation by residents during floods (if identified as being required).
4. Safe evacuation by employees during floods (if identified as being required).
5. Property based services are operational during and after floods.
6. Conditions of approval may be applied including:
 - a. approved development envelope area for the location of buildings, services and vehicle access;
 - b. floor level height.
7. Applications that are unable to meet the safety objectives will be refused.

SC6.4.9.2 Safety and access: Protect and minimise flood damage to property and infrastructure

1. Applies to all development applications.
2. Buildings and allotments (or development envelopes) are clear of the DFL plus freeboard.
3. Buildings (including those for people to shelter in place) are able to withstand impacts from flood debris and water intrusion.
4. Businesses and services are able to operate after flood events.
5. A business continuity plan is provided (if identified as being required).
6. Conditions of approval may be applied including:
 - a. floor level heights;
 - b. service locations;
 - c. resilient building materials;
 - d. restrictions on building form;
 - e. evacuation procedures.
7. Applications that are unable to meet the safety objectives will be refused.

SC6.4.9.3 Flood plain function: Improve flood conveyance and behaviour

1. Applies to all development near waterways and those parts of the floodplain that are regularly flooded.
2. The objective is usually satisfied by siting the works appropriately.
3. Natural function of the flood plain is protected.

4. Flood plain storage is not reduced.
5. Flood water conveyance is improved or unchanged.
6. Flood water is not diverted to any adjoining property or create an actionable nuisance.
7. Riparian corridors and overland flow paths are retained and improved.
8. Conditions of approval may be applied including:
 - a. Setbacks to prevent harm and incorporate appropriate vegetation into site plans;
 - b. Fencing restrictions;
 - c. Easements over overland flow paths and 5% AEP event to the DFL in the flood plain;
 - d. Design modifications to subdivisions.

SC6.4.9.4 Disaster management recovery: Protect and minimise flood impact on essential community infrastructure and critical infrastructure

1. Applies to Essential community infrastructure and Critical infrastructure.
2. Services are located and configured to minimise impacts from flood events.
3. Services are operational during and after flood events.
4. Safe access by emergency services during floods.
5. Suburb based services (public and privately owned) are operational during and after flood events.
6. Conditions of approval may be applied.

SC6.4.10 Preparation of flood hazard risk assessments and mitigation plan

1. The purpose of an individual Flood hazard risk assessment and management plan is to:
 - a. describe the values and features of the site to be managed;
 - b. meet the outcomes of the relevant planning scheme codes.
2. The Flood risk assessment should provide the minimum in the Table below.

Table SC6.4.10-1: Standard requirements for flood hazard risk assessments and mitigation plans

SECTION:	DETAILS
Executive Summary	This section should include: <ol style="list-style-type: none"> a. authorship details including contact information; b. industry accreditation number; c. document certification by RPEQ; d. key assumptions, assessment approach and outcomes of the risk assessment; e. key measures to mitigate flood risk; f. any areas of non-compliance with the Flood hazard overlay code; g. how areas of non-compliance with the Flood hazard overlay code will be managed.
Section 1: Introduction	This section should include: <ol style="list-style-type: none"> a. the purpose and objectives of the Flood hazard risk assessment and management plan; b. scope of study including any limitations.
Section 2: Development details	This section should include: <ol style="list-style-type: none"> a. site details, real property description and street address; b. description of the proposed development and resulting land use/s; c. details of any relevant previous approvals; d. the date on which the assessment and any plans were prepared, including any amendments; e. name and relevant professional qualifications of the person/s preparing the assessment and management plan; f. plans that show as a minimum: north point, scale, location of property boundaries, roads, street names, vegetation location.
Section 3: Flood considerations	This section should include information on: <ol style="list-style-type: none"> a. details of the relevant overlays impacting the site; b. data used and sources and assumptions; c. catchment drainage characteristics; d. any previous studies relevant to the site; e. hydrology Model setup and assessment; f. hydraulics Model setup and assessment; g. calibration method; h. results and findings. <p><i>Note—See also Planning Scheme Policy SC6.9 Stormwater management.</i></p>
Section 4: Modelling of design events for assessment	This section should include information on: <ol style="list-style-type: none"> a. Flooding mechanisms (e.g. regional and local catchments, overland flow paths and creek to be used); b. Existing catchment mapping using the Floodplain Management Guidelines of Australia methodology; c. Comparison of design event results with historic observation; d. Developed catchment mapping using the Floodplain Management Guidelines of Australia methodology; e. Impacts of development (afflux and hydrology i.e timing, volume, velocity, flow, velocity x depth and hazard H1-H6), includes afflux mapping for design events (as relevant); f. Sensitivity Testing showing how an adverse change in flood risk or flow characteristics (i.e. flow, depth, volume, velocity, hazard, warning time) is avoided, taking into account and applying relevant extreme events; g. Qualifications and limitations relevant to the methodology.
Section 5: Flood protection measures	This section should provide clear information and advice on how flood consequences are managed by the design of the development including but not limited to: <ol style="list-style-type: none"> a. Future habitable floor level of dwellings if a residential subdivision or residential use; b. Floor level of non-habitable buildings;

	<p>c. Operational responses to be documented in Flood emergency management plan including but not limited to:</p> <ul style="list-style-type: none"> i. management of occupants and vehicles before, during and after flood events; ii. evacuation routes including vehicles accesses, driveways, and carparks; iii. places of shelter on site in a design event; iv. details about flood preparedness and response. <p>d. Functioning of network services during and after the event;</p> <p>e. Functioning of Community infrastructure during and after the event;</p> <p>f. Public safety measures to minimise flood intrusion of Hazardous material storage areas;</p> <p>g. Impact on basements and areas under the natural ground level;</p> <p>h. Backflow flooding (from a regional event).</p>
Section 6: Assessment against code Flood hazard overlay code	<p>This section should provide:</p> <ul style="list-style-type: none"> a. demonstrate the risk to people and property is acceptable; b. an assessment demonstrating consistency with the acceptable solutions or performance outcomes or purpose of the code; c. justification for any variation from the measures outlined in the Flood hazard overlay code.
Section 7: Conclusions and Recommendations	<p>This section should provide clear information and advice on how flood will affect development:</p> <ul style="list-style-type: none"> c. inconsistency and consistency with the Flood hazard overlay code; d. flood mitigation measures including but not limited to: <ul style="list-style-type: none"> i. recommended minimum floor heights; ii. structural and building design measures including flood resilient materials; iii. management of development envelope areas; iv. driveway and basement designs; v. bulk earthworks plans are provided where filling is proposed to achieve flood immunity and certification that the proposed filling has been fully included in all post-development modelling; vi. operational matters such as a Flood emergency management plan (if required); e. specific qualification and limitations that are relevant to the methodology, conclusions or recommendations of the report.
References	List of documents referred to in the study.
Appendices	<p>As required but as a minimum should include:</p> <ul style="list-style-type: none"> a. Flood emergency management plan (if required); b. relevant reference material and models that have been relied on; c. documenting model methodology and setup; d. time to and duration of inundation. e. all modelled outputs that are mapped are provided to Council including: <ul style="list-style-type: none"> i. pre and post development ii. impact mapping for all flow characteristics f. all maps within the report are to include as high resolution A3 PDFs with reporting points included at key locations (e.g. critical infrastructure, road crossings, vulnerable sites, impacted property improvements, cropping lands, etc.). g. sensitivity Testing being an adverse change in flood risk or flow characteristics (i.e. flow, depth, volume, velocity, hazard, warning time) this includes consideration and application of relevant extreme events.
Digital file	Model files (input and output), output files for each event (including difference mapping) - elevation, depth, velocity, velocity x depth, hazard (H1 to H6) in suitable format.

3. A flood study is to consist of the following parts as a minimum:
 - a. a hydrological determination to calculate the likely volume and distribution of water that results from the storm under consideration;
 - b. a hydraulic determination to calculate the inundation levels depths, velocities, velocity x depth, and hazard that will most likely occur from the flow of water determined in the hydrological determination (i.e. H1 to H6); and
 - c. subsequent modelling to determine and manage development impacts for the proposed development including evaluation of works to mitigate the impacts of development.
4. Flood studies will be accepted based on ARR and best practice, e.g. approved inundation estimation calculation procedures and relevant observed historical records that can be quantified and related to an AEP by the use of the appropriate statistical flood frequency analysis procedure. It should be noted, use of historical records may allow for determination of relative impacts, however, will not be able to quantify the impacts on flooding of a development.
5. For analysis purposes a specific storm event is nominated as the benchmark event or standard to which Council requires immunity against inundation for a development. That event is called the Defined Flood Level (DFL). The outcomes of the

flood study are to be used as the inputs for any subsequent flood risk management plan.

SC6.4.10.1.1 Documentation

Editor's note—Access to the local government's adopted flood model can be obtained by entering a data sharing agreement. Completing a flood study in accordance with the tenets identified in appendix 2 of SPP Guideline 01/03 is acceptable.

1. A flood study report shall include:
 - a. an assessment of the catchment, as pertaining to the development area, for the full range of design events for assessments plus climate change and lower probability flood events if applicable to the type of development proposed along with extreme events (as applicable);
 - b. details of the tail water level (for each event considered) methodology adopted during the assessment of the catchment;
 - c. details of sensitivity analysis undertaken, assessing the influence of, but not limited to:
 - i. variation of all Mannings 'n' values by 10% to 20%;
 - ii. variation of the tail water level;
 - iii. blockage considerations as outlined in the Queensland Urban Drainage Manual and Australian Rainfall and Runoff Project 11 Blockage of Hydraulic Structures;
 - d. details of, where possible, calibration of the model to known, recorded flood levels within the catchment or waterway or equivalent;
 - e. an assessment of flood level, flow, depth, velocity, velocity x depth, and hazard (i.e. H1 to H6) with a view to ensuring that changes in any of these do not create potential actionable nuisance as generally defined in law;
 - f. an assessment demonstrating that no significant or sudden change in distribution of the defined flood event flow, flood level, velocity or hazard shall occur which may result in:
 - i. the failure of a levee or dam;
 - ii. blockage and/or breakout;
 - iii. excessive scour;
 - iv. realignment of the waterway;
 - v. sedimentation;
 - vi. bank instability and collapse;
 - vii. a substantive reduction in flood warning times;
 - viii. a substantive extension of the duration of inundation;
 - ix. hindrance to emergency evacuation routes;
 - x. disruption to critical infrastructure, services or access routes;
 - xi. exacerbation of risk to people, property and community infrastructure;
 - g. an assessment of any general decrease in amenity;
 - h. an assessment of any impacts of the development upon the uses identified in the LinkTable 10:Flood immunity — Minimum design requirements of the Flood hazard overlay code of the planning scheme;
 - i. details of safe access and egress for the development, including the calculation and documentation of timing, access, road flood depths and depth x velocity products;
 - j. details of all flood level and flow calculations made in the assessment of the existing site and the proposed development impact;
 - k. current Australian Rainfall and Runoff methodology for rainfall runoff generation and hydrograph estimation;
 - l. details of the methodology and input data for any hydraulic or hydrologic modelling undertaken;
 - m. provision of flood maps, as digital files, depicting the following:
 - i. flood extents for the full range of AEP storm events modelled for various scenarios including pre-developed (existing case), developed case, and if applicable, ultimate developed case;
 - ii. elevation, depth, velocity x depth mapping;
 - iii. flood hazard H1 to H6 mapping;
 - iv. flood velocity range and vectors;
 - v. shear stress;
 - vi. the effects of sensitivity analyses;
 - vii. impact maps portraying effects of various increment levels to demonstrate compliance with the Flood hazard overlay code.

SC6.4.10.1.2 Certification

1. The certifying RPEQ must provide a signed a statement of certification, which is to be included at the beginning of the report, similar to the example below.

I, JOHN SMITH, RPEQ Licence Number: 123456 certify that this flood risk assessment is consistent with the Planning Scheme Policy SC6.4 Flood hazard and best practice and addresses the following matters outlined in the table below:

Signature: _____

Date: _____

<p>Mechanisms of Flooding</p> <p>This flood risk assessment has considered that the following mechanisms of flooding are relevant to the site:</p> <ul style="list-style-type: none"> • Flooding from a regional catchment; • Flooding from a local area catchment; • Concurrent flooding from regional and local flood events; • Flood mapping and impact mapping has been included in this report for all relevant flood mechanisms. <p>The flood risk assessment has identified and included boundary conditions that represent backflow flooding of the local stormwater network from a regional event.</p>
<p>Flood Analyses</p> <p>Flood modelling has been completed for a base case and developed case, [design events for flood risk assessments - list all events that apply] and extreme events (as relevant) Flood mapping has been produced and included in this report for the following parameters, water surface level, depth, velocity, velocity x depth, and hazard.</p> <p>Flood level hydrographs are produced at relevant locations to demonstrate that actionable nuisance changes are not created and that maximum inundation times for roads are not exceeded.</p> <p>This information has been used to demonstrate that the development design does not create a potential actionable nuisance.</p> <p>Afflux mapping has been produced for the 63% AEP (Q1), 39% AEP (Q2), 10% AEP and 1 in 100 AEP current climate flood events and the 1% AEP future climate (2090) event and extreme events (as relevant). This information has been used to demonstrate that this development design does not create a potential actionable nuisance.</p> <p>Where the use (current or future) on properties external to the development is sensitive to changes in the flow characteristics (depth, hazard, timing, duration of inundation, frequency, location, extent, scour velocity and water quality) from the development site, then the relevant characteristics (for which there is a sensitivity) have been assessed.</p>
<p>Provision of specification to manage flood consequence and protect property</p> <p>Pad levels for essential network infrastructure within a site (e.g. electricity, water supply, sewerage, and telecommunications) have been specified in this report, in accordance with the flood immunity requirements of the Flood hazard overlay code.</p> <p>Where the development design requires materials with a high level of water resistance to improve the flood resilience of infrastructure, these have been specified in this report.</p> <p>Where community infrastructure forms part of the development design, floor levels for the infrastructure have been specified in this report consistent with the flood immunity requirements of the Flood hazard overlay code.</p> <p>Essential community infrastructure will be able to function effectively during and immediately after a flood event. It has been demonstrated that access to the infrastructure is consistent with the requirements for evacuation routes as prescribed in the Flood hazard overlay code.</p> <p>Where new lots are created as part of the development design, a minimum flood immunity to the DFE is provided for the protection of property. Pad levels and floor levels have been specified for each lot as part of the lot table information, with consideration of a minimum 500mm freeboard requirement.</p> <p>Where an open air carpark forms part of the development design, the level of the carpark has been specified to have:</p> <ul style="list-style-type: none"> • a flood immunity of XX% AEP; • a flood depth no greater than XXXmm in the DFL; • a velocity no greater than X.0m/s; • a depth x velocity ratio no greater than 0.Xm²/s. <p>Where a basement forms part of the development design, the report has specified the provision of waterproofed perimeter walls, air vents and the level of entry/exit ramps on the basis that these are at least above the 1% AEP plus climate change flood level plus freeboard (at 2090) or the provisions of the code.</p> <p>Where driveways with a downhill slope form part of the development design, a raised entry ramp from the roadway (to satisfy the requirements of QUDM for containment of flood flows) has been designed and the information noted in the comments field of the lot table information.</p> <p>It has been demonstrated by the methodology that the development design provides an acceptable flood risk.</p>
<p>Protection of Life</p> <p>The development design has addressed the residual flood risk beyond the DFE, for the protection of life; OR</p> <p>The development design does not rely on evacuation routes to offsite locations; OR</p>

The development design does not rely on evacuation routes that are shown to be flood affected. This requirement is for the purpose of managing the residual flood risk beyond the DFE for the protection of life.
The development design has provided a direct route to enable progressive evacuation to safer place above the level of the PMF.
The development design does not rely on the assistance of emergency services personnel, to manage residual risk beyond the DFE for the protection of life (i.e. development does not place additional demands on emergency services).
The development design ensures that public safety and the environment are not adversely affected by the detrimental impacts of floodwater on hazardous materials manufactured or stored in bulk during the DFE.
Where a detention basin or levee (where relevant) forms part of the development design, a dam failure impact assessment (FIA) has been prepared in accordance with the Guideline for failure impact assessment of water dams and other relevant regulations.
The FIA: a. is based on information that is accurate at the time of assessment; b. analyses are appropriate and sufficiently accurate to account for any failure impact zone to justify the failure impact rating.
The FIA is a reasonable estimate of the population at risk currently and into the future for the purpose of the FIA and that the estimate is consistent with: a. the detail and accuracy of the modelling used; b. the extent of the failure impact zone.
Floodplain Storage and Waterway Conveyance Protection
Floodplain storage and waterway conveyance have been considered and consistent with the requirements of the Planning Scheme:
Queensland Development Code requirements
Where residential lots form part of the development design, a lot table has been provided to satisfy the requirements of the Queensland Development Code (MP3.5).

Note—Where a dam failure impact assessment shows more than two or more people at risk, the dam becomes a referable dam under the Water Supply (Safety and Reliability Act) 2008. In the case of levees refer to the relevant regulation.

SC6.4.10.1.3 Freeboard requirements

1. The floor levels of buildings or lots are to be consistent with Table 10: Flood immunity - Minimum design requirements. The floor level must be above flood levels from the following sensitivity analyses:
 - a. a severe storm that is the defined flood event with 100% structure blockages;
 - b. a severe storm that is the 1 in 2000 AEP event;
 - c. the defined flood event with roughness values reflective of unmaintained channels/site areas.

SC6.4.10.1.4 Documenting the data sources

1. The below table is an example of how data source information may be represented.

Table SC6.4.10-2: Summary of data sources to be documented

DATA USED	DATA SOURCE	MATTERS OF NOTE
Catchment boundaries	Determined from ALS	
Topographic Information	2018 ALS, site survey	
Hydraulic structure details	Hydraulic structure reference sheets: Mulgowie Road Culvert crossing	
Land use	Planning Scheme	
Historical flood levels	Search Certificate No:123455	Peak flood levels for 2011 flood event
Existing Flood Studies	Tenthill Creek Flood Study, 2020	
Historic Rainfall data	BoM	Daily rainfall, Station No. 123456

		Pluviometer data, Station No. 123456
Streamflow data	Water Monitoring Information Portal	Daily volumes, Station No. 123456
Design Rainfall Data	BoM	2017 IFD at 4 locations within model extent
Site photographs	Taken by Water Consultants Pty Ltd, 7 February 2022	Site photographs for predevelopment conditions

SC6.4.10.1.5 Catchment boundaries

1. Most hydrological techniques will require a catchment analysis and stream slope analysis. The catchment boundaries should be presented on as large a scale map (smallest reduction ratio) as possible. The following scales for catchment sizes are recommended for use.

Table SC6.4.10-3: Recommended drawing scale based on catchment size

SCALE	CATCHMENT AREA
1:1,000	up to 0.5 sq. kms (50 ha)
1:2,000	up to 1.0 sq. kms (100ha)
1:5,000	up to 1.5 sq. kms (150ha)
1:10,000	up to 50 sq. kms (5,000ha)
1:25,000	limited to 300 sq. kms per sheet

2. Maps should be well presented with catchments contained upon one sheet where possible. Standard sized sheets should be used. Sub-catchments should be boldly defined, and the contours should be clearly defined to enable easy verification of the catchments in relation to the contours. Where sub-catchments are not consistent with the contour information then reasons should be stated in the text and clearly labelled on the map. Good drafting standards should be maintained in the presentation of these maps.

SC6.4.10.1.6 Topographic information

1. Topographic data used for the hydraulic determination will be dependent on hydraulic method:
 - a. one-dimensional models employ cross-sections along branches to represent the study area topography; and
 - b. two-dimensional models employ digital elevation models to represent the study area topography.
2. The accuracy of the topographic data governs the accuracy of the hydraulic determination.
3. The accuracy of the topographic data should be clearly stated.

SC6.4.10.1.7 Cross-sections

1. Cross-sections are required at representative locations along a stream reach and at locations where changes occur in discharge, slope, shape or roughness, and at bridges, culverts or control structures such as weirs. Where abrupt changes occur, several cross-sections should be used to describe the change in shape regardless of the distance between sections. Cross-section spacing is also a function of stream size, slope and uniformity of cross-section shape. For one-dimensional models, the cross-sections should be wide enough so that the water surface is contained within the extent of the cross-sections. The accuracy of the hydraulic modelling will be dependent upon the spacing of cross-sections and the accuracy of the cross-section survey.

SC6.4.10.1.8 Digital elevation models

1. Digital elevation models used for two-dimensional models should use a grid spacing fine enough to resolve watercourses within the study area. As a general rule, a watercourse should be represented by a minimum of 5 grid cells across the width of the watercourse. Coupled models can be used as an alternative to maintain the resolution within the watercourse. Linear features should be included in critical locations to capture key flood operations.
2. The digital elevation model should be orientated to minimise disturbance of flows by the grid cell orientation. Aligning grid cells with streets (often part of the major drainage system) helps to achieve an appropriate orientation.
3. Digital elevation models are often captured from aerial surveying methods such as LiDAR or Photogrammetry. These methods can lose accuracy in areas of dense vegetation or below water surfaces. It should be clearly demonstrated what steps (including ground survey) have been taken to improve the accuracy in areas potentially obscured by vegetation.

SC6.4.10.1.9 Catchment land use

1. Catchment land use is an important consideration for flood studies. The level of urbanisation within a catchment influences the volume of runoff and magnitude of peak discharges by:
 - a. increasing the impervious fraction of the catchment which reduces the volume of infiltration and increases the total volume of runoff;
 - b. decreasing the time to peak discharge due to construction of open drains and stormwater networks which concentrates flows and may increase the magnitude of peak discharges.
2. Strategies to manage impacts on in flooding as a result of any works may include:
 - a. mitigation of flows at the individual development;
 - b. catchment wide approach to mitigation of flows; or
 - c. allowance for additional flow capacity within flow paths.
3. The strategy for accommodating flows will depend on existing land uses within the catchment and the environmental value of the watercourse. In preparing a flood study, Council must be consulted to identify the proposed approach to flood mitigation within the catchment. The flood study may require assessment beyond the planning horizon in the current planning scheme, and to the potential ultimate development.
4. As a general principle, drains are an opportunity to have several functions including providing flood mitigation for an area, however for the rest of the time they can be quite an effective open space for the community, subject to management of hazards for the proposed use including implementation of CPTED strategies, access and awareness strategies.

SC6.4.10.1.10 Documenting the model setup

1. The below table outlines the matters that need to be documented when preparing and presenting the models to Council.

Table SC6.4.10-4: Summary of model documentation

SECTION	DETAILS
Hydrology	
Model software	Details of the adopted model software should be documented in this section, including software version number.
Model setup	Describes detail of the model setup undertaken for the existing and post development catchment conditions.
Sub-catchment delineation	Provide a plan showing the configuration of the model, in particular the extent of sub-catchments and the location of the proposed development. Discharges at points of interest should not be calculated using the output from a single sub-catchment. Where distinct areas of different land use occur within a catchment, the catchment sub-division should reflect land use boundaries wherever possible.
Summary details	Presented in tabular form: <ul style="list-style-type: none"> ● catchment areas; ● fraction imperviousness; ● catchment lag; ● routing parameter.
Rainfall design intensities and temporal patterns	Provide details of the adopted design rainfall intensities and temporal patterns and details of any historic rainfall events used for either calibration or validation (if relevant). ARR temporal patterns and rainfall sites are to be used for peak WSL estimation.
Hydraulics	
Model software	Details of the adopted model software should be documented in this section, including software version number.
Model setup	Provide an overview of the method of analysis used to estimate design flood levels and justification for selection of steady or unsteady flow and whether a one or two dimensional model.
Inflow points	Provide details on how the inflows from the hydrological model are integrated into the hydraulic model.
Topography	Provide a plan showing the location and extent of cross-sections, or the arrangement and extent of the two-dimensional grid used in the model. Data used in deriving model cross-sections, or the two-dimensional grid should be specified in the source data table. Where two-dimensional grid data (ALS — aerial laser survey) is used, then a plan must be provided of the difference between pre and post development ground levels.
Structures	Provide a plan showing the location of structures that are included in the hydraulic model setup. State

	blockage assumptions based on ARR guidance and document sensitivity testing.
Hydraulic roughness	Provide a plan showing how hydraulic roughness has been applied spatially in the model. Include details of any sensitivity testing of roughness parameters
Boundaries	Provides details on the boundary conditions that were adopted in preparation for model calibration.
Floodplain storage	Provide earthworks plans and tables of storage volume calculations at each reduced level demonstrating whether flood storage has been preserved or lost at the site. Where compensatory earthworks are proposed to preserve flood storage such earthworks must maintain their storage function in all circumstances. That is, they cannot fill with water, or any other material, and lose their flood storage capacity. It must be demonstrated there is no adverse impact on floodplain function.

- The hydrologic and hydraulic methods adopted should be fit for purpose as stated in the Hydrologic method and Hydraulic method.

SC6.4.10.1.11 Justifying the calibration method

- Calibration is to be stated and justified based on the availability of existing Council model results, recorded historic flows and/or levels or use of flood frequency analysis or best practice.
- Commentary should be provided on the quality of the calibration and the confidence in the calibrated model for design flood estimation. The quality of the calibration should be informed by a fit for purpose qualification, between modelled and observed flood data.
- The parameters derived from the calibration of the hydrologic and hydraulic models should be clearly tabulated in this section of the report.
- Calibration based on observed inundation events is preferred. Information is generally available from the Bureau of Meteorology or relevant Queensland Government departments.
- Records from stream gauging stations will be required to reasonably match to hydrologic calculations and are generally available from the relevant Queensland Government departments.

SC6.4.10.1.12 Sensitivity testing

- Minimum requirements for sensitivity analyses that inform floor levels include:
 - Regional Catchment Flooding – 0.2% AEP Design Flood Event (Severe Storm);
 - Local Area Flooding – 1 in 2000 AEP Design Flood Event (Severe Storm) or as otherwise required by this policy;
 - Regional and Local Area Flooding with:
 - Blockages: No Blockages and 100% Blockages;
 - Boundary Conditions: Backwater flooding and free draining conditions;
 - Manning’s Roughness: Channel roughness 50% higher to check for inundation of properties associated with unmaintained channels and 50% lower to check for scour of the channel due to higher velocities.

SC6.4.10.1.13 Lot information

- The following information is to be provided as part of the planning application design phase and at plan sealing so that it can inform the construction of dwellings on lots as consistent with the requirements of the Queensland Development Code:
 - estate stage number;
 - lot number;
 - developed DFE level - Regional & Local Area;
 - design event level (Local Area, with design structure blockages) – 1% AEP and 1 in 2,000 AEP;
 - developed severe storm - Regional and Local Area 0.2% AEP;
 - largest sensitivity analysis flood level (e.g. 0.5%);
 - what sensitivity analysis produces the largest flood level;
 - developed PMF level;
 - developed PMF velocity;
 - minimum floor level;
 - minimum building pad level;
 - floor level below road level;
 - any additional comments.

SC6.4.10.1.14 Constructed immunity — Bulk earthworks plan

- A bulk earthworks plan and supporting information shall include:
 - a plan showing:

- i. existing and finished surface level contours (to AHD) of the development site, including survey point density and accuracy in accordance with Council's standards;
- ii. the compensatory free-draining excavation area for any proposed filling within the flood plain as justified by the impact assessment;
- iii. the alignment of the toe of the batter slope which is proposed to retain the fill;
- iv. the grading of the proposed cut and fill surfaces demonstrating the finished surface is free draining;
- v. level notations that identify the line of the defined flood event and the proposed area of filling and excavation (before and after filling);
- b. section drawings showing level notations which identify the line of the defined flood event and the proposed area of filling and excavation (before and after filling);
- c. details of:
 - i. the hydraulic design of the development, using topographic data which includes at least one surveyed cross-section of the floodway aligned through the proposed fill area;
 - ii. pre and post development finished surface level and the defined flood event level;
 - iii. the flood modelling undertaken;
 - iv. any adverse effects on the behaviour of a flood in excess of the defined flood event and how this has been managed and mitigated;
 - v. any proposed batter slopes and retaining walls on the premises;
 - vi. the provisions for stormwater run-off from any proposed area of filling and excavation;
 - vii. how the natural drainage of adjacent premises has been catered for;
 - viii. calculations of the cut, fill and balance to confirm compensatory earthworks and loss of floodplain storage;
 - ix. plots of pre and post earthworks flood storage against distance below the water surface;
 - x. plots of pre and post earthworks conveyance against distance below the water surface;
 - xi. cross-sections at regular intervals showing the extent of cut and fill works to confirm earthworks and, if applicable, no loss of floodplain storage.

SC6.4.10.1.15 Numerical modelling requirements

1. All modelling used to demonstrate compliance with the flood plain management requirements shall be provided to Council with the development application.

Note—Numerical modelling is to be provided in TUFLOW (hydraulic) and URB's (hydrologic) compatible file formats.

Table SC6.4.10-5: Guidance for satisfying the Flood hazard overlay code

OUTCOME	GUIDANCE
Open car parking located below the DFL.	<p>Development involving a single open car parking areas, carports or similar located below the DFL and not used for storage, is designed to be consistent with a low degree of exposure as shown in Table 12: Flood hazard exposure for carparking and non-habitable buildings of the Temporary Local Planning Instrument 2024 Flood Regulation.</p> <p>Development, involving more than one open car parking space, located below the DFL ensures that:</p> <ul style="list-style-type: none"> a. any increase in stormwater runoff is mitigated; b. car park access is inundated to a maximum depth of 300mm; c. the carparking is designed to be consistent with a low degree of exposure as shown in Table 12: Flood hazard exposure for carparking and non-habitable buildings of the Temporary Local Planning Instrument 2024 Flood Regulation; and d. has a minimum 6hr flood warning time. <p>Development, involving more than one car parking space that is located in an undercroft of a building and where all of the perimeter is open or part of the perimeter is enclosed no more than 50%, is designed to:</p> <ul style="list-style-type: none"> a. satisfy car parking requirements for the use; b. allow the flow of flood water through the car park without impediment; c. preserve flood plain storage. <p>A building with an undercroft that has an enclosed perimeter of more than 50% is a basement and must be designed to be consistent with the basement carparking provisions of the Temporary Local Planning Instrument 2024 Flood Regulation.</p>
Flood storage and discharge capacity	

<p>The natural conveyance of flood waters and natural overland flow paths are protected and maintained without adversely affecting adjoining premises.</p>	<p>An overland flow path is designed and constructed to convey the unmitigated 1% AEP plus climate change storm event.</p> <p>Rehabilitated overland flow paths are designed in accordance with section 9 of the Queensland Urban Drainage Manual, Australian Rainfall and Runoff and the Brisbane City Council Technical Design Guidelines for Natural Channel Design and this policy.</p> <p>An existing overland flow path is:</p> <ol style="list-style-type: none"> retained, maintained and protected; the existing waterway values are protected, enhanced and rehabilitated; the waterway stream flow lengths are not reduced; not altered to the extent that an actionable nuisance is created; a minimum 500mm freeboard between the overland flow path 1% AEP plus climate change flow level and all finished floor levels; a naturalised channel design. <p>The extent of flow in an overland flow path during the 1% plus climate change event is to be contained entirely within any of the following:</p> <ol style="list-style-type: none"> a drainage reserve; a park, open space or local government easement. <p>Where modification of the overland flow path is unavoidable or necessary, the new overland flow path design is to comply with the requirements of the Queensland Urban Drainage Manual and this policy:</p> <ol style="list-style-type: none"> conform to the principle of no worsening; not result in the loss of or changes to flood paths; not reduce flood warning times; not reduce flood storage; provide beneficial environmental enhancement. <p>Development is to ensure that the maximum overland sheet flow length is:</p> <ol style="list-style-type: none"> 50m in urban areas; or 200m in rural residential areas. <p>Development is to ensure that overland sheet flow travel time is calculated using either:</p> <ol style="list-style-type: none"> Friend's Equation; or the Kinematic Wave Equation. <p>Concentrated overland flow path travel time is to be determined using Manning's equation and fall within the accepted time periods identified in the Queensland Urban Drainage Manual.</p> <p>Development in a rural residential area is to ensure that either an overland flow path is retained, or an open channel is constructed to achieve the following:</p> <ol style="list-style-type: none"> the depth multiplied by velocity safety provisions of the Queensland Urban Drainage Manual; a minimum freeboard of 500 mm to all finished floor levels within the site; the batter slopes on any swale are no greater than 1V:6H. <p>Development in a rural residential area is to ensure that where an overland flow path is conveyed within a road on site:</p> <ol style="list-style-type: none"> the maximum depth within kerb and channel is 300mm; a minimum freeboard of 500mm is provided to all adjacent finished floor levels.
<p>Development does not result in:</p> <ol style="list-style-type: none"> substantive increase in the potential to cause damage; ponding of flood water; adverse impacts on the flood discharge capacity of the floodplain; decrease in the flood resilience of properties and infrastructure; adverse impacts v's actionable nuisance. 	<p>Achieving this performance outcome needs to be demonstrated through the documentation of a flood risk assessment, in accordance with this planning scheme policy.</p>
<p>Adversely changing the flood characteristics for all flood events up to and including the defined flood event:</p> <ol style="list-style-type: none"> peak flow; 	<p>Development is to achieve the principle of no worsening or no actionable nuisance, in accordance with the Queensland Urban Drainage Manual and the Flood hazard overlay code.</p>

<p>b. flow of any part of the flood before the peak; c. flood flow velocity; d. level of flooding; e. flood time to peak; f. hazard.</p>	<p>In achieving the principle of no worsening or no actionable nuisance, development is to achieve the following:</p> <p>a. not result in a detrimental impact on the flooding, or flood risk of any area; b. not result in adverse impacts of any other property in terms of changes in peak discharge, flood levels, the frequency of flooding, flow velocities, water quality, sedimentation or scour effects for all events up to and including the defined flood event and the major storm event; c. not result in an adverse outcome of the flood characteristics for the range of required events; d. ensure that the time of concentration to the peak of the event does not decrease and where it increases, consideration is given to the impacts up and downstream of the property boundary to ensure runoff from the site does not bring the hydrograph peak closer to coincidence with the peak flow in adjoining catchments; e. undertake modelling upstream of the site and where appropriate downstream of the site.</p>
<p>Filling and excavation</p>	
<p>Earthworks, filling and excavation carried out above the 5% AEP event level protects streams, waterways and wetlands.</p>	<p>Earthworks on a floodplain may be considered where:</p> <p>a. flooding is predominantly due to backflow; b. the peak velocity is less than the maximum permissible velocity for considerable bare earth channels in accordance Queensland Urban Drainage Manual velocities for consolidated bare earth channels and grassed channels; c. the cut and fill batters are not steeper than 1V:6H and the exposed earth surface is landscaped with erosion resistant vegetation cover; d. no adverse impact is assessed in accordance with this policy.</p>
<p>Access</p>	
<p>Road network and vehicular access for evacuation</p>	<p>During events up to and including the DFL, development provides access to the road network consistent with Table 10: Flood immunity - Minimum design requirements.</p>
<p>Access to a safer location on site</p>	<p>Development where an internal road is proposed is to achieve a low flood hazard internal road network.</p>

2. The minimum flood immunity standards for infrastructure should meet the requirements of the Flood hazard overlay code.

Table SC6.4.10-6: Low Hazard Evacuation Routes

CRITERIA	DEGREE OF FLOOD HAZARD			
	LOW	MEDIUM	HIGH	EXTREME
Wading ability	If necessary, children and the elderly could wade. (Generally, safe wading velocity depth product is less than 0.25).	Fit adults can wade. (Generally, safe wading velocity depth product is less than 0.4).	Fit adults would have difficulty wading. (Generally, where wading velocity depth product is less than 0.6.)	Wading is not an option.
Evacuation distances	<200 metres	200-400 metres	400-600 metres	>600 metres
Maximum Flood Depths	<0.3 metres	<0.6 metres	<1.2 metres	>1.2 metres
Maximum Flood Velocity	<0.4 metres per second	<0.8 metres per second	<1.5 metres per second	>1.5 metres per second
Typical means of egress	Sedan	Sedan (early), but 4WD or trucks later.	4WD or trucks only in early stages, boats or helicopters	Large trucks, boats or helicopters.

SC6.4.11 Special areas

1. Special areas are specific locations where buildings are to be designed to be resilient to flood water intrusion and flood debris impacts. The location and design requirements for special areas are provided below.

Figure SC6.4-1: Special area map - Forest Hill



Table SC6.4.11-1: Special areas designated requirements for Forest Hill

DECLARED FINISHED FLOOR LEVEL	DEFINED FLOOD LEVEL 1% AEP	MAXIMUM FLOW VELOCITY
94.5m AHD	94m AHD	1 m/s

Figure SC6.4-2: Special area map - Laidley North

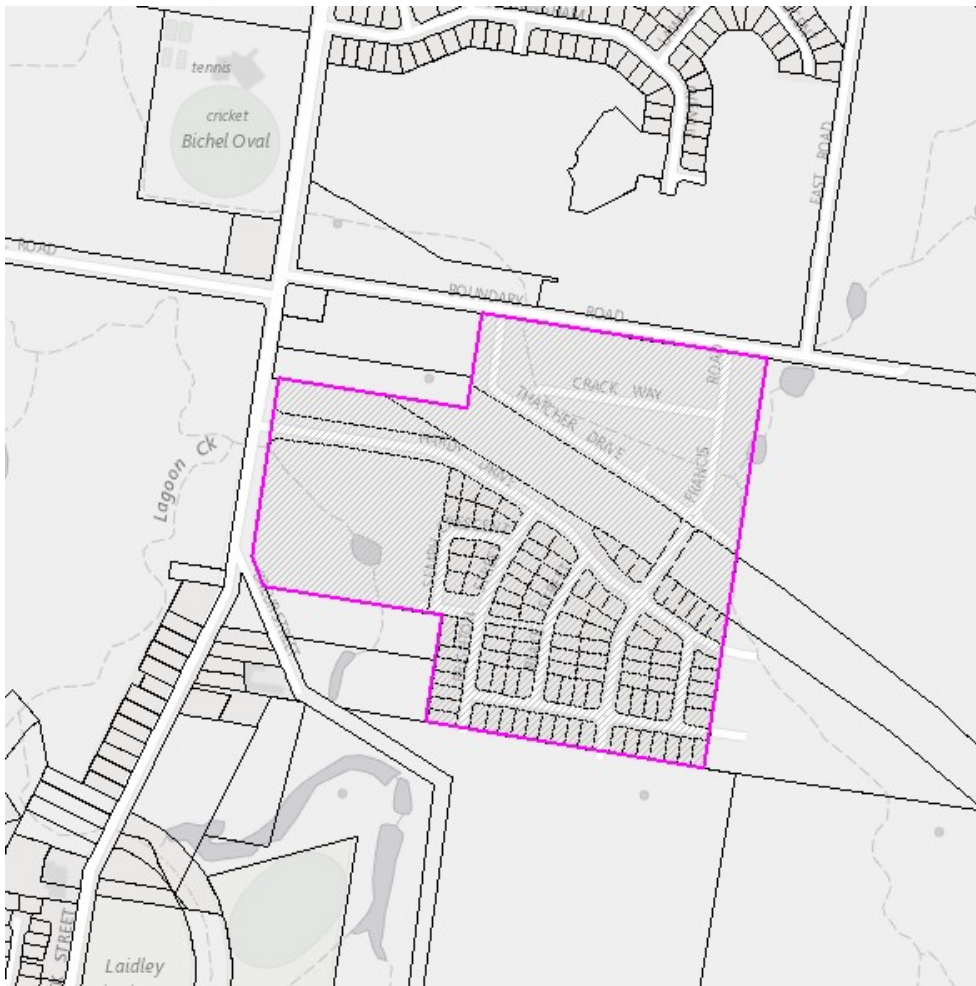


Table SC6.4.11-2: Special areas designated requirements for Laidley North

LOT & PLAN	DECLARED FINISHED FLOOR LEVEL (M AHD)	DEFINED FLOOD LEVEL 1% AEP (M AHD)	MAXIMUM FLOW VELOCITY (M/S)
65	101.2	100.7	0.50
66	101.2	100.7	0.50
67	101.3	100.8	0.75
68	101.4	100.9	1.00
69	101.4	100.9	1.25
70	101.3	100.8	0.50
71	101.3	100.8	<0.25
72	101.3	100.8	<0.25
73	102.1	101.6	1.50
74	102.1	101.6	1.00
75	102.1	101.6	0.50
76	102.1	101.6	0.75
77	102.1	101.6	0.75
78	102.1	101.6	0.75
79	102	101.5	1.00

80	102	101.5	0.75
81	102	101.5	0.75
82	102	101.5	0.75
83	101.9	101.4	0.75
84	101.9	101.4	1.00
85	101.9	101.4	1.25
86	101.4	100.9	<0.25
87	101.5	101	<0.25
88	101.5	101	1.00
89	101.4	100.9	1.00
90	101.4	100.9	<0.25
91	101.4	100.9	<0.25
92	101.5	101	1.00
93	101.8	101.3	>1.50
94	101.8	101.3	1.25
95	101.8	101.3	1.25
96	101.9	101.4	1.00
97	101.9	101.4	0.75
98	101.9	101.4	>1.50
99	101.8	101.3	>1.50
100	102.1	101.6	0.75
101	102.1	101.6	0.75
102	102.1	101.6	<0.25
103	102.1	101.6	>1.50
104	102.1	101.6	>1.50
105	102	101.5	>1.50
106	101.9	101.4	1.50
107	102	101.5	1.00
108	102.1	101.6	>1.50
109	102	101.5	1.25
110	102.2	101.7	1.00
111	102.5	102	1.00
112	102.6	102.1	1.50
113	102.5	102	<0.25
114	102.5	102	<0.25
115	102.5	102	<0.25
116	102.5	102	<0.25
117	102.5	102	<0.25
118	102.5	102	>1.50
119	102.5	102	>1.50
120	102.4	101.9	>1.50

121	102.2	101.7	>1.50
122	102.2	101.7	<0.25
123	102.1	101.6	1.00
124	102.1	101.6	1.00
125	102.1	101.6	0.50
126	102.1	101.6	0.75
127	103	102.5	>1.50
128	103.2	102.7	>1.50
129	103.2	102.7	0.75
130	103.2	102.7	0.75
131	103.2	102.7	0.75
132	103.2	102.7	>1.50
133	103.1	102.6	>1.50
134	103	102.5	>1.50
135	102.9	102.4	>1.50
136	103	102.5	<0.25
137	103.1	102.6	<0.25
138	103	102.5	0.50
139	103.1	102.6	1.25
140	102.2	101.7	>1.50
141	102.5	102	1.00
142	102.7	102.2	1.25
143	102.9	102.4	>1.50
144	103	102.5	>1.50
145	103.1	102.6	>1.50
146	103.2	102.7	>1.50
147	103.2	102.7	>1.50
148	103.5	103	>1.50
149	103.4	102.9	>1.50
150	103.4	102.9	0.75
151	103.4	102.9	1.00
152	103.5	103	1.50
153	103.5	103	>1.50
154	103.6	103.1	>1.50
155	103.5	103	>1.50
156	103.2	102.7	>1.50
157	103.2	102.7	>1.50
158	103.1	102.6	>1.50
159	102.9	102.4	>1.50
160	102.8	102.3	>1.50
161	102.5	102	>1.50

162	102.5	102	>1.50
163	102.3	101.8	>1.50
164	102.2	101.7	>1.50
165	102.2	101.7	>1.50
166	102.1	101.6	>1.50
167	101.9	101.4	>1.50
168	101.9	101.4	>1.50
169	101.9	101.4	>1.50

SC6.4.9.1 Special areas designated requirement for Helidon Spa

Figure SC6.4-3: Special area map - Helidon Spa



2. The accepted development requirement for each lot is:
 - a. the finished floor level of the habitable areas of the dwelling house is no less than the nominated height of the finished floor level above the level of the defined flood event indicated for the lot;
 - b. the construction method for the dwelling house is that which is indicated for the lot;
 - c. where boundary setbacks are specified, all buildings comply with the boundary setbacks indicated for the lot;
 - d. where the dwelling is raised on stumps:
 - i. the area below the dwelling house remains open to allow for the free flow of floodwaters;
 - ii. those parts of the building that support the building and elevate it above the level of the defined flood or overland flow event are designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by flood water;
 - iii. all electrical services are located at least 300mm above the level of the defined flood event.

Table SC6.4.11-3: Acceptable outcomes for Accepted development in Special areas designated requirements for Helidon Spa

LOT ON SP191206	DFL M AHD	FREEBOARD ABOVE DFL	FLOOD VELOCITY	CONSTRUCTION METHOD	MAX BUILDING PAD	MANDATORY SETBACKS FOR BUILDING PAD
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1	148.47	300mm 390mm (SOG)	1.65m/s	Stumps or Slab on ground (SOG)	280m ²	Front: 18m, Side (North): 3m Rear: 92m, Side (South): 37m
2	148.40	300mm	1.50m/s	Stumps (1)	280m ²	Front: 15m, Side (North): 20m Rear: 19m, Side (South): 87m
3	148.20	300mm	1.30m/s	Stumps (1)	N/A	Front: 19m, Side (North): 22m Rear: 82m, Side (South): 17m
4	148.00	300mm	1.30m/s	Stumps or Slab on ground	325m ²	Front: 16m, Side (North): 15m Rear: 80m, Side (South): 33m
5	147.91	300mm	0.752m/s	Stumps (1)	N/A	Front: 10m, Side (North): 28m Rear: 84m, Side (South): 21m
6	147.8	300mm	0.60m/s	Stumps (1)	275m ²	Front: 56m, Side (North): 49m Rear: 32m, Side (South): 7m
7	147.77	300mm 320mm (SOG)	0.65m/s	Stumps or Slab on ground	330m ²	Front: 13m, Side (North): 27m Rear: 82m, Side (South): 30m
20	147.25	300mm	0.65m/s	Stumps (1)	330m ²	Front: 16m, Side (North): 13m Rear: 56m, Side (South): 27m
21	147.47	300mm	1.65m/s	Stumps (1)	N/A	Front: 14m, Side (North): 25m Rear: 81m, Side (South): 23m
22	147.45	300mm	1.1m/s	Stumps (1)	325m ²	Front: 18m, Side (North): 19m Rear: 51m, Side (South): 26m
23	147.45	300mm 310mm (SOG)	1.75m/s	Stumps or Slab on ground	325m ²	Front: 18m, Side (North): 6m Rear: 51m, Side (South): 41m
24	148.87	300mm	2.20m/s	Stumps (1)	430m ²	Front: 19m, Side (North): 13m Rear: 53m, Side (South): 24m
25	148.40	300mm	1.75m/s	Stumps or Slab on ground	N/A	Front: 19m, Side (North): 21m Rear: 85m, Side (South): 20m
26	148.42	300mm 350mm (SOG)	1.30m/s	Stumps or Slab on ground	280m ²	Front: 16m, Side (North): 4m Rear: 65m, Side (South): 33m
27 E	149.0	300mm 400mm (SOG)	1.55m/s	Stumps or Slab on ground	280m ²	Front: 17m, Side (North): 32m Rear: 65m, Side (South): 54m
27 W	148.8	300mm 360mm (SOG)	1.3m/s	Stumps or Slab on ground	280m ²	Front: 17m, Side (North): 36m Rear: 89m, Side (South): 70m

Editor's note—Where a slab on ground method of construction for a dwelling house is proposed modelling will always be required to be provided with the application to demonstrate that there are no adverse impacts on neighbouring properties.

1. Where not Accepted development (as above) the following are the Accepted outcomes (right hand column) for Code assessable development:
 - a. the finished floor level of the habitable areas of the dwelling house is no less than the nominated height of the finished floor level above the level of the defined flood event indicated for the lot;
 - b. the construction method for the dwelling house is that which is indicated for the lot;
 - c. where boundary setbacks are specified, all buildings comply with the boundary setbacks indicated for the lot;
 - d. where the dwelling is raised on stumps:
 - i. the area below the dwelling house remains open to allow for the free flow of floodwaters;
 - ii. those parts of the building that support the building and elevate it above the level of the defined flood or overland flow event are designed and constructed to resist hydrostatic and hydrodynamic forces as a result of inundation by flood water;
 - iii. all electrical services are located at least 300mm above the level of the defined flood event.

Table SC6.4.11-4: Acceptable outcomes for Code assessable development in Special areas designated requirements for Helidon Spa

PROPERTY	CONSTRUCTION METHOD	MINIMUM BOUNDARY SETBACKS
1 SP191206	Slab on ground	Setback 25m from east and western boundaries
2 SP191206	Slab on ground	Setback 25m from east and western boundaries
4 SP191206	Slab on ground	Setback 25m from western boundary
20 SP191206	Stumps (1)	In a location of least hazard
21 SP191206	Slab on ground	In a location of least hazard
22 SP191206	Stumps (1)	In a location of least hazard
24 SP191206	Stumps or Slab on ground (2)	In a location of least hazard
25 SP191206	Slab on ground	In a location of least hazard
26 SP191206	Slab on ground	In a location of least hazard
27 SP191206 E	Slab on ground	In a location of least hazard
27 SP191206 W	Stumps (1)	Setback 25m from east and western boundaries

Editor's notes—

- a. *A slab on ground method of construction for a dwelling house is not an acceptable solution.*
- b. *Where a slab on ground method of construction for a dwelling house is proposed modelling is required to be provided with the application to demonstrate that there are no adverse impacts on neighbouring properties.*

SC6.4.12 Investigation areas

1. Investigation areas within the Flood Hazard overlay are locations where the flood model requires further investigation and warrants a further flood risk assessment.
2. The location of Investigation areas is shown in the Figures below.

Figure SC6.4-4: Brightview flood investigation area

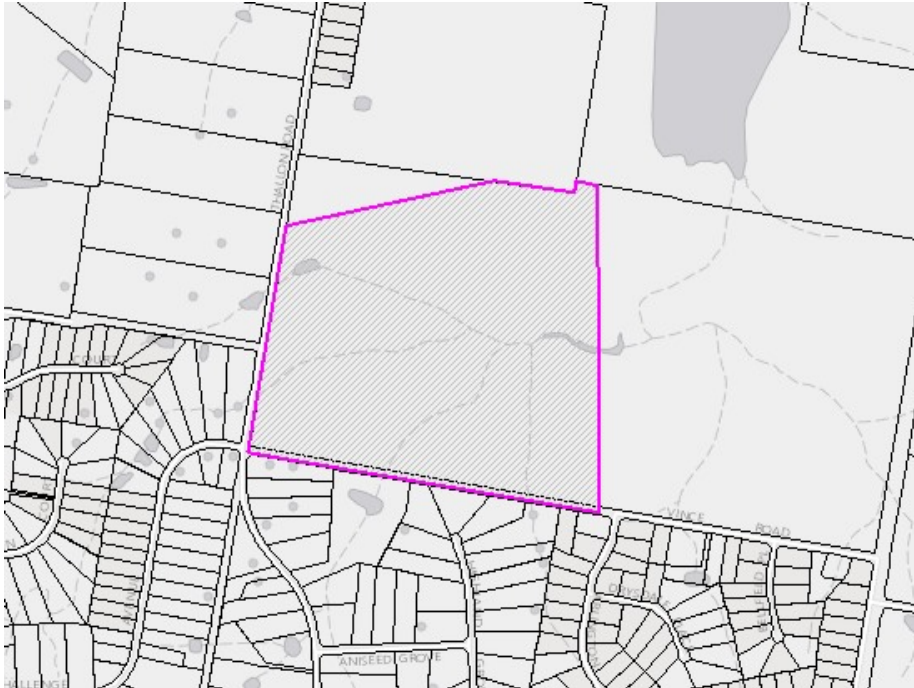


Figure SC6.4-5: Gatton racecourse flood investigation area

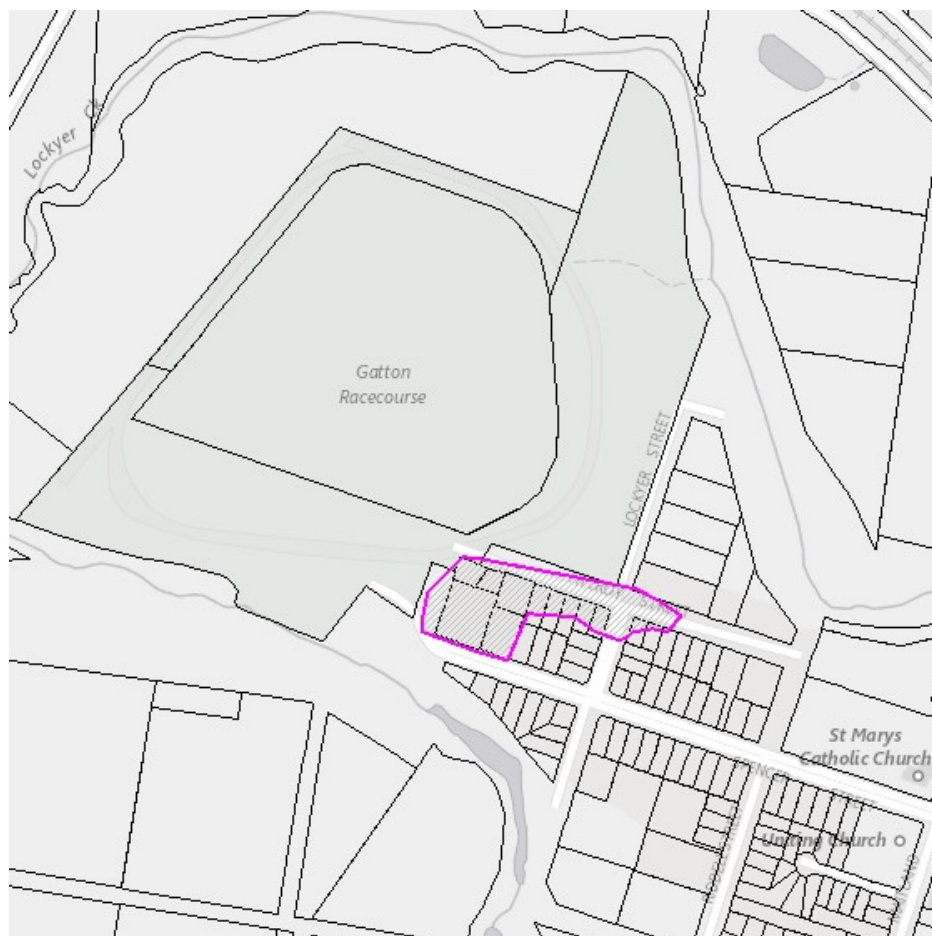


Figure SC6.4-6: Gatton industry flood investigation area

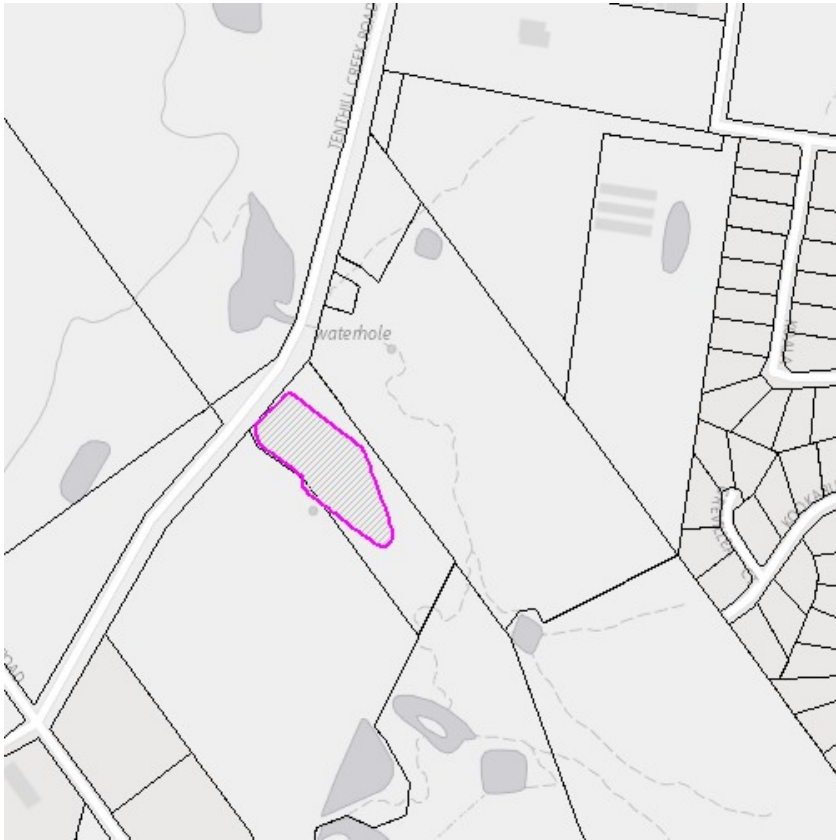


Figure SC6.4-7: Hatton Vale flood investigation area



Figure SC6.4-9: Laidley Heights flood investigation area



Figure SC6.4-10: Plainland flood investigation area



Figure SC6.4-11: Withcott north flood investigation area



Figure SC6.4-12: Withcott south flood investigation area



SC6.4 Appendix 1: Flood emergency management plan template

1. This reporting template should be considered in conjunction with this guideline as well as the Flood hazard overlay code. Provision of a FEMP may be an alternative solution for demonstrating that an acceptable level of flood risk is achieved to ensure the safety of people in all flood events as required by the Flood Hazard Overlay Code. It may also form one of the requirements from a FRMP (e.g. to manage flood operations). It will not be acceptable to Council as an alternative to achieving the minimum levels for property and infrastructure specified by the Code and will only be considered as an alternative solution for safety where:
 - a. The use does not involve permanent residential aspects; and
 - b. The flooding characteristics are not flash flooding (defined as having a time to peak of less than 6 hours).
2. The completed FEMP is required to be registered with Council’s Disaster Management Team.
3. Further guidance on developing evacuation plans can be obtained from Evacuation Planning (AIDR, 2017a).

SC6.4.13 AP2 Document details and certification

1. Details of the authorship of the FEMP should be provided and must be prepared by someone having not less than 5 years’ experience in disaster management.
2. All flood modelling used to inform the plan must be undertaken and certified by an RPEQ with experience in Flood Modelling and Management.

Note: It is a requirement of the Act that professional engineering services in Queensland are carried out by a RPEQ, or alternatively by a person who carries out the services under the direct supervision of a RPEQ who is ultimately responsible.

Table SC6.4.AP2-1: Standard requirements for flood emergency management plan

SECTION:	DETAILS
Executive Summary	This section should include: <ol style="list-style-type: none"> a. authorship details including contact information; b. industry accreditation number; c. document certification by RPEQ; d. any areas of non-compliance with the Flood hazard overlay code; e. overview of the development proposal, f. the findings, recommendations and conclusions.
Section 1: Introduction	This section should include: <ol style="list-style-type: none"> a. the purpose and objectives of the Flood hazard risk assessment and management plan; b. overview of the development - site details, real property description and street address; description of the development; c. relevant background information; d. scope of plan including any limitations; e. List of technical terms used in the document such as “DFE”, “AEP” or “PMF” should be defined and explained for non-technical readers. As the document must be able to be read and followed by non-technical readers it may be appropriate to define terms such as “Minor”, “Major” and “Extreme” flood events and then use these terms throughout the document.
Section 2: Flooding characteristics and flood information	This section should include: <ol style="list-style-type: none"> a. the nature of flood threat by identifying the sources of flooding and the risk posed to the use. Element to consider should include: <ol style="list-style-type: none"> i. sources of flooding: riverine, creek, stormwater drainage network or overland flow ii. sensitivity of the proposed use to flooding iii. degree of inundation iv. inundation of the access routes between the use and flood-free refuge. v. Where there is more than one source of flooding, the plan should speak to each separately. b. a quantitative description of the flooding constraints and flood risks <ol style="list-style-type: none"> i. Flood level inundation maps for the DFL, 1 in 2000 AEP and PMF of the site and access routes linking the site to flood-free refuge ii. An assessment of the flood warning time for the catchment response at the site and at any points in the access route liable to flood inundation iii. Assessment of flood depths and time to/of inundation at specific points such as road crossings of waterways, where access is most likely to be compromised during an event. iv. Evacuation strategies are considered inappropriate where time to peak is less than 6hrs or

	<p>there is no effective warning and are subject to site and use-specific assessment where more than 6 hours.</p> <p><i>Note—The flood warning time may need to be calculated using flood models and existing or projected warning methods.</i></p> <p>c. a list of all available sources of flood information during an event</p> <ul style="list-style-type: none"> i. identify any supplementary information needs for monitoring systems to be provided as part of the development ii. Available government data sources should be listed in this section such as water level and rainfall alert gauges operated by BoM and Lockyer Valley Council Disaster Hub
<p>Section 3: Flood risk management strategy</p>	<p>This section should include information on:</p> <ol style="list-style-type: none"> 1. flood risk management approach — documents the proposed strategy in response to flood risk and flood characteristics. Strategies employed will depend on the feasibility and suitability of the location and its intended purpose for: <ul style="list-style-type: none"> i. shelter in place (if safe to do so); ii. evacuation; iii. procedures specific to use. 2. triggers for plan activation — document in order ways to minimise disruption during minor events to significant events. The order should move sequentially from monitoring the flood event through to preparation, implementation and activation of the plan. Each stage is to be clearly documented along with a quantifiable trigger to action each stage. Realistic or conservative time limits are to be used to establish a corresponding trigger point to commence the action. Time limits will be dependent on the land use, site features, topography, training and skills of staff and any special needs of the resident population. 3. roles and responsibilities — documents the responsibilities of each party during each part of the plan implementation along with easy to understand quantifiable measures of the success. This information is to be provided in tabular form with names and phone numbers. The table is to be updated when there is any change in staff as well as being reviewed annually. 4. assisted mobility requirements — For uses where people with restricted mobility or special needs are involved. Document the measures which will be put in place to cater for peoples' specific needs. 5. medical emergency response — how to respond to a medical emergency during the period of isolation when sheltering in place. A minimum period of 3 days of isolation should be assumed but the use and number of people isolated should also be considered. 6. emergency contacts — re to be listed and should include as a minimum the following public organisations: <ul style="list-style-type: none"> i. Emergency Services (Police/Fire/Ambulance): 000 ii. State Emergency Services (SES): 132 500 iii. Energex (For fallen power lines and electrical hazards): 131 962 iv. Urban Utilities Water (Sewer Overflows): 132 364 1300 005 872 v. Lockyer Valley Regional Council: 1300 005 872 vi. Local Disaster Coordination Group; 7. recovery — document specific strategies, procedures and responsibilities for dealing with the immediate aftermath of a flood with the aim on return the use to normal operation.
<p>Section 4: Flood risk preparedness and training</p>	<p>This section should include information on:</p> <ol style="list-style-type: none"> a. education of workers and residents — document the education and training requirements for all people on the site for the plan to be effectively implemented. The scope of education and training should include: <ul style="list-style-type: none"> i. general flood safety and awareness training covering general principles such as not traversing flooded roadways, not touching fallen powerlines and providing emergency contact details. ii. training on the specific responsibilities of their role under the Plan. iii. specific training for those responsible for actively monitoring triggers for the plans' implementation. This may involve access to specific electronic systems or databases. iv. evacuation drills (where evacuation forms part of the strategy). b. resource requirements — identify the resources required for the proposed plan strategy. For example relying on sheltering place for able-bodied people and for brief periods of isolation then resources may be limited to simple first-aid kits and supplies for making isolation more comfortable such as water, torches and radios. c. management and maintenance of equipment and buildings — document the requirements for servicing and maintaining buildings and equipment required for the plan. Documentation should include: <ul style="list-style-type: none"> i. who is responsible for maintenance; and ii. the expected frequency of maintenance.

Note—Buildings that are designed to be a safe refuge from flooding are to have a floor level immunity in a PMF flood event. Where a safe refuge is to be used in a flood event where the duration of inundation is 18 hours or greater it must satisfy the requirements for a tier 1 evacuation centre outlined in the Preferred Sheltering Practises for Emergency Sheltering in Australia.

- d. documentation and auditing — document the required record-keeping, auditing and review process for the plan to ensure that the plan remains relevant, accurate and is continuously improved based on experience. The document is to be updated when:
- i. staff changes to ensure names and phone numbers are current.
 - ii. any change is made to the physical or organisation features of the land use.

Records to be kept for:

- i. all training and maintenance undertaken to comply with the plan;
- ii. any actions undertaken during an event to comply with the plan and the effectiveness of such actions.

An annual audit and review is to be undertaken to:

- i. ensure the above requirements are being implemented.
- ii. examine the frequency of activation of the plan;
- iii. examine whether the triggers and actions in the plan are practical and effective.

SC6.5 Geotechnical assessment

SC6.5.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.5 Geotechnical assessment as supporting an outcome of the Steep land overlay code.

SC6.5.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the Planning Scheme and applies when development is proposed in an area identified as steep slope and very steep slope (i.e. having a slope of at least 15%) on OM11 Steep land overlay map.
2. This policy specifically relates to the assessment of section 8.11 Steep land overlay code and ensuring development is consistent with the purpose and performance outcomes of the code.

SC6.5.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. ensure that development in any area of steep slope or very steep slope has proper regard to factors affecting land stability;
 - b. identify the qualifications required to be held by the author of a geotechnical stability assessment and landslide management plan;
 - c. provide supporting technical information including any guidelines, standards, information sources and standardised forms, where relevant;
 - d. provide supporting information on who should be consulted regarding adjoining landowners;
 - e. provide a summary on how OM11 Steep land overlay map was generated and any limitations to the data;
 - f. identify the relevant components of landslide management plan and expected information to be supplied;
 - g. assessment consideration for development involving batters and retaining structures;
 - h. identify considerations of geotechnical certification.
2. An information request will be requested where the information required by this policy is not supplied when a development application is made for:
 - a. development in steep slopes; and
 - b. development involving batters and retaining structures.

SC6.5.4 Qualifications

1. A geotechnical stability assessment for a proposed development site should be conducted by a Registered Professional Engineer of Queensland (RPEQ) specialising in geotechnical engineering, with a minimum five years technical experience in assessing and providing advice about steep slopes, unstable land and stability assessment and management.

SC6.5.5 Technical standards

1. The following references are relevant when preparing a geotechnical stability assessment and management plan.
2. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document.

SC6.5.5.1 Guidelines

1. The following guidelines are relevant when preparing a slope and stable land assessment:
 - a. Australian Geomechanics Society (2007) '*A National Landslide Risk Management Framework for Australia*' Journal of the Australian Geomechanics Society 42(1);
 - b. Australian Geomechanics Society (2007) '*Practice Note Guidelines for Landslide Risk Management 2007*' Journal of the Australian Geomechanics Society 42(1);
 - c. Australian Geomechanics Society (2007) '*The Australian GeoGuides for Slope Management and Maintenance*', Journal of the Australian Geomechanics Society 42(1).

SC6.5.5.2 Standards

1. The following standards are relevant when preparing a slope and stable land assessment:
 - a. AS.1170.4-2007 Structural design actions Part 4: Earthquake actions in Australia;
 - b. AS.1726:2017 Geotechnical site investigations;
 - c. AS.3700:2001 Masonry structures;
 - d. AS.3798-2007 Guidelines on Earthworks for Commercial and Residential Developments;
 - e. AS.4678-2002 Earth-Retaining Structures;
 - f. AS/NZS.1170:2002 Structural Design Actions;
 - g. Australian Building Codes Board (2015) Landslide Hazards Handbook.
2. Soil testing is required to be undertaken by a NATA certificated laboratory.

SC6.5.5.3 Studies

1. The following study is relevant to the Lockyer Valley:
 - a. Willmott, W.F. (1984) *Slope Stability and its Constraints on Closer Settlement in the Foothills of the Toowoomba Range*, Gatton Shire, Geological Survey of Queensland Record Series 1984/44.

SC6.5.5.4 Information sources

1. The following information source is relevant:
 - a. Queensland Government Water Monitoring Information Portal.

SC6.5.5.5 Forms

1. The following information source is relevant in providing declarations and certifications for development:
 - a. Australian Geomechanics Society (2007) '*Practice Note Guidelines for Landslide Risk Management 2007*' Journal of the Australian Geomechanics Society 42(1);
 - i. Form A Geotechnical Declaration and Verification;
 - ii. Form C Geotechnical Declaration Subdivision
 - iii. Form E Geotechnical Declaration Remediation;
 - iv. Form F Geotechnical Declaration Final Structural/Civil Certificate.

SC6.5.6 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply

SC6.5.7 Steep land overlay map methodology

1. Using a basic hazard identification process to develop a hazard identification map involved using latest Digital Elevation model (DEM) available to Council derived from State LiDAR captured in 2022. The DEM provides coverage for the entire LGA and a solid basis for a consistent model. The source LiDAR has a 15pts/m² average capture density with vertical accuracy of 0.15m and in summary provides a higher level of accuracy than previous LiDAR and DEM's used in current flood models for the Local Flood Management Plan.
2. The DEM was used to identify slopes of:
 - a. 5-10%;
 - b. 10-15%;
 - c. 15-20%;
 - d. Greater than 20%.
3. Slopes were generated using a resampled 5m DEM derived from the source 1m DEM. Due to technical limitations (i.e., file sizes, software processing, map rendering etc.) the high level of detail produced for slope outputs generated using the 1m DEM were not practical to use in any platform.
4. The above categories are used for the following reasons:
 - a. slopes greater than 5% can lead to erosion in areas with high risk soils;
 - b. slopes greater than 10% are difficult for heavy vehicles to access;
 - c. slopes less than 10% are suitable for effluent disposal areas;
 - d. slopes greater than 20% are difficult for vehicles, including emergency vehicles, to access;
 - e. slopes greater 35% are subject to potential rapid landslide.
5. While only development on slopes of 15% or more is subject to assessment against the Steep land overlay code, the range of slopes was generated to provide additional administrative information that will be used to inform development

- assessment. For example, effluent disposal sites should not be located on slopes greater than 10% and earthworks in areas with high risk soils and a slope greater than 5% are likely to have significant sediment and erosion control issues.
6. The accuracy of this data is high in areas, to the extent that slopes of waterways, road batters, swale drains, cut and fill slopes for house construction and farm dam walls have been identified. The final mapping that forms the Steep land overlay has been refined to minimise the extent of these features.
 7. OM11 Steep land overlay map is a steep slope extent and not a landslide hazard map. This means developers must undertake a risk assessment as part of the development assessment process.

SC6.5.7.1 Map data assumptions and limitations

1. OM11 Steep land overlay map was generate using the best LiDAR data available flown in 2022 and a grid of 5m.
2. Further improvements in the accuracy of the slope map may be achieved by generating a 1m DEM derived from the source LiDAR.

SC6.5.8 Parts of a landslide management plan

1. When undertaking development for a Material change of use, Reconfiguring a Lot or Operational works where changing the ground level or undertaking infrastructure works, the following form the parts of a landslide management plan:
 - a. landslide risk assessment or susceptibility analysis;
 - b. geotechnical stability assessment;
 - c. assessment against the Steep land code and the Earthworks code (if relevant);
 - d. RPEQ recommendations on landslide management and mitigation measures based on the development design including any bulk earthworks and retaining walls;
 - e. geotechnical certification at planning stage and/or at completion of operational works stage.

SC6.5.9 Landslide susceptibility or risk assessment

1. For proposed development on land within areas of Steep slope, as identified on the OM11 Steep land overlay map (i.e. areas with a slope of 15% or more), there is a risk of landslide that must be assessed by a qualified expert and submitted to Council for assessment.
2. The level of landslide risk depends on several factors including, but not limited to the following:
 - a. ground slope angle and shape;
 - b. characteristic geology;
 - c. strength of geomaterials and its distribution within the subsurface;
 - d. landslide history;
 - e. presence of existing or recent past instability i.e. slips, slumps, hummocky ground etc;
 - f. emergent seepages and depth of groundwater table;
 - g. potential for surface runoff concentration, orientation of rock mass defects etc.
3. The developer needs to assess the risk of landslide which may adversely affect the subject site, adjoining premises and the proposed development.

SC6.5.9.1 Requirements for landslide susceptibility or risk assessment

1. The landslide risk assessment should be carried out using the following:
 - a. site-specific geotechnical information;
 - b. site slope gradient and shape;
 - c. surface features;
 - d. historical landslide information, where available;
 - e. emergent seepages and groundwater table;
 - f. drainage conditions; and
 - g. any other relevant information of the site.
2. For any proposed development or re-development on any site or lot mapped on the OM11 Steep slope overlay, a landslide susceptibility analysis should be carried out first using the Example landslide susceptibility analysis form shown in Figure SC6.5.9-1
3. The calculated relative susceptibility of landslide should then be correlated to susceptibility rating using Table SC6.5.9-1: Correlation between relative susceptibility and susceptibility rating.

Figure SC6.5.9-1: Example landslide susceptibility analysis form

LANDSLIDE SUSCEPTIBILITY ANALYSIS

Analysis No.

Location:

Site No.

Site Name:

1 Natural Surface Slope

Site	Level	Factor
Less than 5 degrees	L	0.1
Between 5 and 15 degrees	M	0.5
Between 15 and 30 degrees	M	0.8
Between 30 and 45 degrees	H	1.2
More than 45 degrees	M	0.8

2 Slope Shape

Site	Level	Factor
Crest or ridge	L	0.7
Planar / Convex	M	0.9
Rough / Irregular	H	1.2
Concave	H	1.5

3 Site geology

Site	Level	Factor
Volcanic Extrusive rock	H	1.1
Sedimentary rock	M	1
Low grade metamorphic rock	M	1
High grade metamorphic rock	L	0.9
Volcanic Intrusive rock	M	1

4 Soils

Site	Level	Factor
Rock at surface	VL	0.1
Residual soil < 1m deep	L	0.5
Residual soil 1-3m deep	M	0.9
Residual soil > 3m deep	H	1.5
Colluvial soil < 1m deep	H	1.5
Colluvial soil 1-3m deep	VH	2
Colluvial soil > 3m deep	VH	4

5 Fill height

Site	Level	Factor
None	L	1.0
Less than 1m	M	1.1
Between 1 and 3m	M	1.3
Between 3 and 6m	H	1.7
More than 6m	VH	2.5

6 Evidence of groundwater

Site	Level	Factor
None apparent	L	0.7
Minor moistness	M	0.9
Generally wet	H	1.5
Surface springs	VH	3

7 Cut height

Site	Level	Factor
None (Go to section 11)	L	1.0
Less than 1m	M	1.1
Between 1 and 3m	M	1.3
Between 3 and 6m	H	1.7
More than 6m	VH	2.5

8 Slope of cut face

Site	Level	Factor
Less than 30 degrees	L	0.5
Between 30 and 45 degrees	M	1
Between 45 and 60 degrees	H	1.5
More than 60 degrees	VH	3

9 Material in cutting

Site	Level	Factor
High strength rock	L	0.5
Medium strength rock	L	1
Low strength rock	M	1.2
Very low strength rock and soil	H	1.5
Soil	VH	2

10 Cut slope support

Site	Level	Factor
Concrete wall	L	0.5
Crib wall	M	0.9
Gabion wall	M	1
Rock wall	H	1.5
Unsupported	H	2

11 Concentration of surface water

Site	Level	Factor
Ridge	L	0.7
Crest	M	0.8
Upper slope	M	0.9
Mid slope	H	1.2
Lower slope	H	1.5

12 Wastewater Disposal

Site	Level	Factor
Fully Sewered	M	1
Onsite disposal – Surface	M	1.2
Onsite disposal – Soak Pit/Trenches	H	1.5

13 Stormwater Disposal

Site	Level	Factor
All stormwater piped into road drainage	L	0.7
Rain water tank with overflows	M	1
Stormwater discharge on site	H	1.5

14 Evidence of instability

Site	Level	Factor
No sign of instability	L	0.8
Soil Creep	H	1.2
Minor irregularity	VH	2
Major irregularity	VH	5
Active instability	VH	10

Summary

	Factor
1 Natural Surface Slope	
2 Slope Shape	
3 Site Geology	
4 Soils	
5 Fill Height	
6 Evidence of Groundwater	
7 Cut height	
8 Slope of Cut Face	
9 Material in Cutting	
10 Cut Slope Support	
11 Concentration of Surface Water	
12 Wastewater Disposal	
13 Stormwater Disposal	
14 Evidence of Instability	
Relative Susceptibility (1x2x3x4x5x6x7x8x9x10x11x12x13x14)	<input style="width: 80px; height: 20px;" type="text"/>

Table SC6.5.9-1: Correlation between relative susceptibility and susceptibility rating

RELATIVE SUSCEPTIBILITY	SUSCEPTIBILITY RATING
Less than 0.2	Very low
0.2-0.6	Low
0.6-2.0	Moderate
2.0-6.0	High

Greater than 6.0	Very High
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SC6.5.9.1.1 When landslide susceptibility rating analysis is 'low' or 'very low'

1. If the result of the landslide susceptibility rating analysis is 'low' or 'very low', then the following is required:
 - a. undertake a geotechnical stability assessment of the proposed development impacting any adjoining buildings or properties; and
 - b. certification from a RPEQ specialising in geotechnical engineering confirming:
 - i. the proposed development site has been assessed with a landslide susceptibility rating of 'low' or 'very low'; and
 - ii. the proposed development will not cause any adverse impact on any adjoining buildings, properties or infrastructure.

SC6.5.9.1.2 When landslide susceptibility rating analysis is 'moderate', 'high' or 'very high'

1. If the result of the landslide susceptibility rating analysis is 'moderate', 'high' or 'very high', a detailed landslide risk assessment following the Australian Geomechanics Society's (AGS) 'Practice Note Guidelines for Landslide Risk Management 2007' should be carried out to determine whether the risk to life and property is acceptable.
2. In this regard a 'low' or 'very low' risk to property and life is acceptable to Council. If the result of the landslide risk assessment following the AGS 2007 method is still 'moderate', 'high' or 'very high', then the following is required to be included in the report:
 - a. detailed risk mitigation measures and engineering recommendations to reduce the landslide risk to 'low' or 'very low'; and
 - b. certification from a RPEQ specialising in geotechnical engineering confirming:
 - i. the proposed development site or lots will achieve a landslide risk rating of 'low' or 'very low'; and
 - ii. the proposed development will not cause any adverse impact on any adjoining buildings, properties or infrastructure, providing the risk mitigation measures and engineering recommendations (if any) of the report are followed.

SC6.5.9.2 Onsite effluent disposal (if applicable)

1. If the proposed development involves an onsite effluent disposal system/s, the risk assessment should consider potential saturation and softening of the soils within the effluent disposal areas and their impacts on the long-term stability of the site.
2. Landslide risk issues differ by the type of development and should be addressed in a geotechnical stability assessment report.

SC6.5.9.2.1 Material change of use

1. For any Material change of use development application on any site or lot identified on OM11 Steep land overlay, the application needs to be supported by a landslide risk assessment and included in the geotechnical stability assessment report.
2. The landslide risk assessment should assess the risk of landslide on the subject site as well as any risk of landslide on any upslope and downslope external properties which may impact the proposed development. If any risk of landslide on any upslope and downslope external properties impacting the proposed development is identified, the risk assessment should provide suitable risk mitigation measures including appropriate buffers to protect the proposed development.
3. If the proposed development is on a portion of a large allotment, the landslide risk assessment may be limited to the proposed development footprint only. In this case, the risk assessment for the proposed building envelope and effluent disposal area of the site may be sufficient, rather than for the entire allotment. The risk assessment should consider availability of a suitable driveway access to the proposed building envelope.
4. If the proposed development is associated with any earthworks, including filling and/or excavation on the site, the landslide risk assessment should consider the proposed bulk earthworks and finished levels and determine the overall risk of landslide including the proposed bulk earthworks. The assessment of the earthworks should be carried out in the form of a global stability assessment.
5. The landslide risk assessment should provide any restrictions on any earthworks including filling and/or excavation in order to achieve and maintain acceptable risk of landslide in the long-term conditions.
6. The landslide risk assessment report should confirm the risk of landslide on the subject site or lot adversely impacting the proposed development and adjoining properties or structures and the risk of landslide on any upslope and downslope external properties impacting the proposed development is 'low' or 'very low'.

SC6.5.9.2.1 Reconfiguring a lot

1. For any Reconfiguring a lot development application, on any site or lot identified on the OM11 Steep land overlay, the

application needs to be supported by a landslide risk assessment and included in the geotechnical stability assessment report.

2. The landslide risk assessment should assess the risk of landslide for each of the proposed lots. If the proposed lots are large allotments, the landslide risk assessment for each proposed lot may be limited to the nominated building envelope and effluent disposal area only, rather than for the entire allotment. The risk assessment should consider availability of a suitable driveway access to the proposed building envelope of the lot.
3. The landslide risk assessment should identify any clear exclusion zone (if any) which is deemed not suitable for any future development due to unacceptable risk to life and/or property. In this case, the report should recommend a suitable buffer zone outside the exclusion zone.
4. If the proposed development is associated with any earthworks, including filling and/or excavation on the site or lots, the risk assessment should consider the proposed bulk earthworks and finished levels and determine the risk of landslide for each of the proposed lots at their proposed finished levels. The assessment of the earthworks should be carried out in the form of a global stability assessment.
5. The landslide risk assessment should confirm the risk of landslide adversely affecting each of the proposed lots (or their nominated building envelopes and effluent disposal areas) is 'low' or 'very low'. The report should include a completed and signed subdivision landslide encumbrance form for each of the proposed lots.

SC6.5.9.2.1 Operational works

1. For any Operational works development application (for change to ground level or infrastructure works) on any site or lot identified on the OM11 Steep land overlay, the application needs to be supported by a landslide risk assessment and included in the geotechnical stability assessment report.
2. The landslide risk assessment should assess the overall risk of landslide on the subject site or lot considering the proposed bulk earthworks, filling, excavation, retaining walls and the proposed finished level. If the proposed development is on a portion of a large allotment, the landslide risk assessment may be limited to the proposed development footprint only, rather than the entire site or lot.
3. The landslide risk assessment should provide any restrictions on any earthworks including filling and/or excavation in order to achieve and maintain acceptable risk of landslide in the long-term conditions.
4. The landslide risk assessment should confirm the risk of landslide on the subject site or lot after completion of the proposed works is 'low' or 'very low' and will not cause any adverse impact on any adjoining properties or structures.

SC6.5.9.3 Details a landslide risk assessment must address

1. The details of landslide risk assessment must address include:
 - a. **assess the risk of landslide:**
 - i. on the subject site for Material change of use. This may be limited to a proposed development envelope area where on a large site; or
 - ii. for each proposed lot in a Reconfiguring a lot. This may be limited to a proposed development envelope area on benched site/s; or
 - iii. from any proposed bulk earthworks, retaining walls and proposed finished levels to achieve and maintain acceptable risk of landslide in the long-term conditions; and
 - iv. on any upslope and downslope external properties which may impact the proposed development; and
 - v. on driveway or road access to the development, whether internal or external to the development site.
 - b. **identify any risk mitigation measure including:**
 - i. any exclusion area/s (i.e. locations on the development site) that are considered unsuitable for new development due to an unacceptable risk to life and/or property.
 - ii. any buffers to protect the proposed development from an exclusion area/s.
 - iii. proposed bulk earthworks and finished level/s.
 - c. **confirm the risk of landslide is 'low' or 'very low':**
 - i. on the subject site for material change of use. This may be limited to a proposed development envelope area where on a large site; or
 - ii. for each proposed lot in a Reconfiguring a lot. This may be limited to a proposed development envelope area on individual proposed lot/s; or
 - iii. after completion of any Operational works, bulk earthworks and retaining walls and will not cause any adverse impact on any adjoining premise/s or structure/s.

SC6.5.10 Geotechnical stability assessment

1. Where the proposed development requires significant bulk earthworks including cut or fill batters and/or retaining structures to achieve the desired finished levels, a geotechnical stability assessment is required to assess potential sliding, rotational and slip circle failure. The stability assessment of the proposed cut or fill batters and/or retaining structures should be included with the geotechnical stability assessment report.
 2. This section provides guidance on the Council's requirements for a geotechnical stability assessment of cut or fill batters
-

and retaining structures associated with any proposed development.

SC6.5.10.1 Presentation of the report

1. The geotechnical stability assessment is to be written as a self-contained document, which does not require the reader to refer to any other documents including Council's reference number, maps, drawings, previous applications or other reports (if any). If the report does require the reader to refer to any other document, a copy of the document should be included as an attachment.
2. The report should include, but is not necessarily limited to, the following:
 - a. a cover page with a title of the report, revision number, property address, real property description (lot and plan numbers), report reference number, author's name and date;
 - b. the body of the report including the context within which the report was commissioned, the purpose of the report, geotechnical site investigation results, landslide risk assessment results and slope stability assessment results for cut or fill batters and/or retaining walls;
 - c. any maps, plans, drawings, cross-sections referred to in the report;
 - d. any relevant borehole records, laboratory and field test results;
 - e. landslide susceptibility rating calculations;
 - f. slope stability calculations for batters and retaining walls;
 - g. geotechnical certifications.
3. The purpose of a geotechnical stability assessment is to describe the values and features of the site that are relevant to the matters to be addressed in a management plan.
4. Each site assessment should comprise:
 - a. standard requirements — such as site locations, address, date, etc.;
 - b. detailed requirements — specific information required.

SC6.5.10.2 Standard requirements for geotechnical stability assessment

1. Each geotechnical stability assessment and landslide management plan should include the following:
 - a. project location and address;
 - b. project title and description;
 - c. the date on which the assessment and any plans were prepared, including any amendments;
 - d. name and relevant professional qualifications of the person/s preparing the assessment;
 - e. for all plans - a north point, scale, location of property boundaries road alignments and street names.

SC6.5.10.3 Detailed requirements for geotechnical stability assessment

1. The geotechnical stability assessment and landslide management plan should also address:
 - a. the existing geological and topographic conditions of the development site;
 - b. the suitability of the site for the proposed development having regard to the prevailing geological and topographic conditions.
2. In particular, the site assessment should include a description of the following matters:
 - a. **the proposed development** — complete details of the proposed development and how it is to be located on the site including full description of site layout, proposed buildings, structures, excavation or fill and any other development components.
 - b. **existing site conditions:**
 - c. information available from published materials, including aerial photography, geological maps and reports (e.g. the Geological Survey of Queensland Record Series);
 - i. existing topography, geology (surface and subsurface materials) and geomorphology (slopes, ground contours, natural features, terrain analysis, landslip features, former mining activities) both locally and regionally in locality;
 - ii. a ground inspection;
 - iii. existing vegetation;
 - iv. existing buildings, structures or other non-natural conditions existing on the site;
 - v. existing surface water and groundwater conditions, including water table, springs and seepage areas in the local area of interest;
 - vi. existing surface drainage patterns and vegetation cover on and around the site;
 - vii. any other relevant features or site improvements, like existing buildings, other structures, earthworks, etc.
 - d. **evidence of potential instabilities**
 - i. location and classification of any existing landslip features (type, severity and mode of failure);
 - ii. extent and type of any existing occurrences of erosion;
 - iii. from field and/or laboratory testing or assessment, classification of surface and subsurface materials to determine:
 - A. erosion potential;
 - B. foundation conditions that could affect structural performance;

- C. suitability for wastewater disposal;
- D. any other relevant characteristics;
- iv. the results of all field and laboratory tests, and the location and level (including datum) of field investigations such as boreholes, trench pits and core penetrometer soundings;
- v. an assessment of the existing stability of the subject land and details of geotechnical constraints on buildings and/or other development works on the site;
- vi. an assessment of existing conditions and the effects or impacts of the development upon slope stability and landslip potential or any other geotechnical constraints to development;
- vii. conclusions about the overall suitability of the land for the proposed development, including suitability in terms of:
 - A. site layout;
 - B. roadworks, driveways, and other pavements;
 - C. earthworks (excavation, materials usage);
 - D. foundations;
 - E. surface drainage;
 - F. wastewater (treatment and disposal);
 - G. overall effect of development on stability.

SC6.5.11 Landslide management plans

1. The purpose of a landslide management plan is to describe how the values and features identified in a site assessment are to be managed to meet the outcomes of the relevant planning scheme code.
2. Each management plan should comprise:
 - a. standard requirements;
 - b. detailed requirements — the specific management steps proposed to be implemented, described below.

SC6.5.11.1 Standard requirements for landslide management plans

1. The landslide management plan should:
 - a. state the purpose, aims and objectives of the landslide management plan;
 - b. summarise the results of the geotechnical assessment and landslide management plan;
 - c. provide justification for any proposed variation from the measures outlined in the related planning scheme code for which planning scheme policy SC6.5 Geotechnical assessment and management plan is a supporting measure;
 - d. include details of any consultation that has occurred. Examples include any discussion with council, state or federal agencies, technical consultants, and any stakeholders, including affected landowners and the public;
 - e. identify the parties to be responsible for any specific actions identified in the Geotechnical assessment and landslide management plan management plan.

SC6.5.11.2 Detailed requirements for landslide management plans

1. The Geotechnical assessment and landslide management plan should also address the siting, engineering and other measures required to ensure a satisfactory form of development, including:
 - a. recommendations on appropriate measures required to avoid, minimise or mitigate risks of instability including:
 - i. preferred locations for buildings, other structures, driveways, etc.;
 - ii. foundation requirements such as bearing pressures, piling parameters, special techniques for expansive clays, etc.;
 - iii. pavement types and design;
 - iv. construction methods to avoid problem areas associated with loose materials and groundwater seepage;
 - v. preferred excavation/retention/stabilisation techniques and suitability of excavated materials for use in on-site earthworks;
 - vi. surface and subsurface drainage requirements;
 - vii. preferred methods of wastewater disposal;
 - viii. vegetation protection and revegetation requirements.

SC6.5.12 Stability assessment of batters

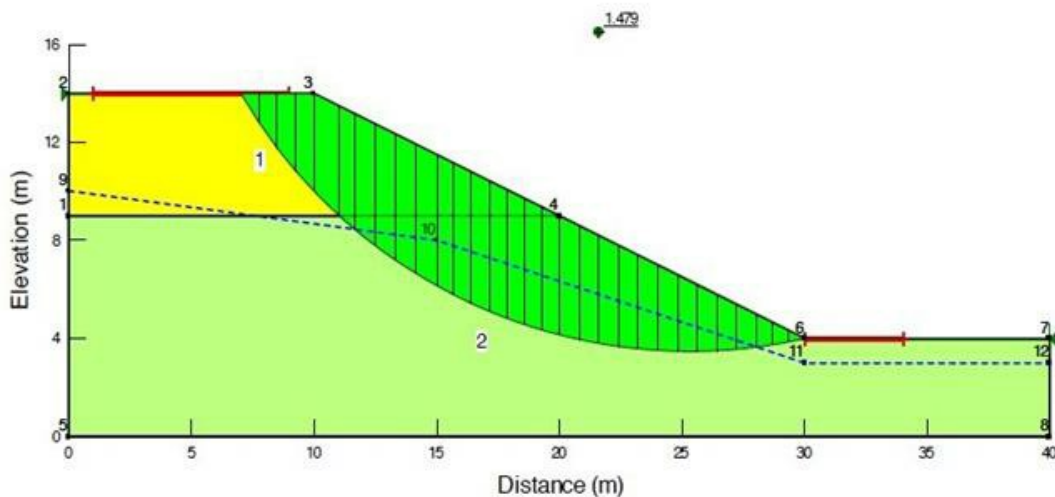
1. The geotechnical stability assessment of all proposed cut or fill batters should be carried out following a conventional slip circle failure analysis method. In this type of analysis, several potential slip circles are assumed, and the factor of safety for each of the assumed slip circles is calculated. The minimum factor of safety amongst those assumed slip circles is the factor of safety for that designed batter. The accuracy of the stability assessment depends on the number of slip circles analysed and the calculation method followed.
2. One particularly important issue in the stability assessment of batters is the estimation of representative shear strengths

for the constituting soil layers. In stability analysis of batters, the worst credible shear strengths of the soil layers expected during the design life of the batters should be used, rather than using the existing shear strengths of the soil layers. If there is prolonged and heavy rainfall, the highest estimated water table and drainage conditions should be used. Another potential worst-case scenario for the stability assessment of batters adjacent to any water body is sudden drawdown of the water table. In this instance, the factor of safety for the sudden drawdown case should be calculated, rather than for the temporary or short-term high-water level condition.

3. The geotechnical stability assessment of the cut or fill batters should achieve a long-term factor of safety of at least 1.5 against geotechnical instability. For rapid drawdown temporary conditions, the stability assessment of the cut or fill batters should achieve a short-term factor of safety of at least 1.3 against geotechnical instability.
4. The stability analysis of batters may be carried out manually, however the use of professional software, such as SLOPE/W by Geoslope (geoslope.com), would be cost effective with much less computational effort and time. Figure SC6.5-3: Typical slope stability analysis using SLOPE/W shows an example of slope stability analysis using SLOPE/W.

Figure SC6.5-3: Typical slope stability analysis using SLOPE/W

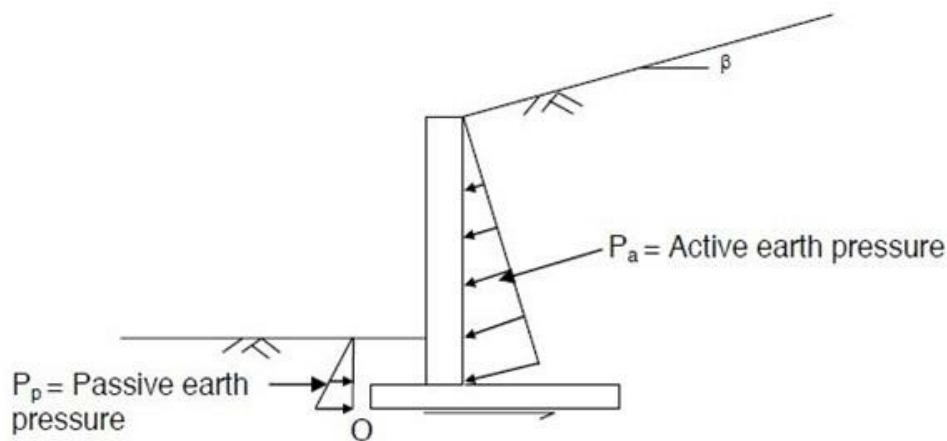
Material number 1:	Unit weight: 15	C: 5	Phi: 20	Model: MohrCoulomb
Material number 2:	Unit weight: 18	C: 10	Phi: 25	Model: MohrCoulomb



SC6.5.13 Stability assessment of retaining structures

1. A geotechnical stability assessment of all proposed retaining structures should be carried out against sliding, overturning and global slope instability through the geomaterials. The proposed retaining structures should also be checked against bearing capacity failure or excessive base settlements. Furthermore, the retaining structure itself must be designed against any potential structural failure such as flexural failure or shear failure.
2. Figure SC6.5.13-1: Typical retaining structure and lateral earth pressure distributions shows a typical retaining structure including lateral earth pressure distributions. The retained soil behind the retaining structure will exert active lateral earth pressure if the retaining structure allows lateral movement. Otherwise, lateral earth pressure at rest 'K0 condition' should be used during the design and stability assessments. The soil in front of the wall will provide passive earth pressure (resistance).

Figure SC6.5.13-1: Typical retaining structure and lateral earth pressure distributions



3. For proposed retaining structures, the developer should assess the factor of safety against the following:
 - a. sliding caused by the active earth pressure and resistance by passive earth pressure and frictional force at the base of the retaining structure;
 - b. overturning about the toe (point 'O' in Figure SC6.5.13-1) because of the driving moment caused by the active earth pressure and resisting moment caused by the passive earth pressure, the self-weight of the retaining structure and weight of the retained soils behind the structure;
 - c. global slope instability considering several large slip circles passing below the base of the retaining structure and the retained soils.
4. The stability assessment should ensure all retaining structures will achieve a factor of safety (FOS) greater than or equal to 1.5 against sliding, overturning and global slope instability. Alternatively, the sliding and overturning stability and global stability assessments for retaining structures can be carried out using Limit State Methods as described in AS 4678-2002 Earth-Retaining Structures.
5. The global stability analysis of retaining walls may be carried out manually, however the use of professional software, such as SLOPE/W by Geoslope: (www.geoslope.com), would be cost effective with much less computational effort and time.

SC6.5.14 Geotechnical certifications

1. In addition to undertaking a landslide risk assessment, the applicant should provide a geotechnical certification from a RPEQ specialising in geotechnical engineering for any proposed development within areas of steep slope (i.e. slope of 15% or more).
2. These certifications will provide assurance of geotechnical stability for the proposed development site and a summary of the complex landslide risk assessment process. These certifications should be prepared using the proforma examples listed in section SC6.5.5.5 Forms.
3. If the landslide risk assessment determines the site or proposed lot or building envelope has a landslide risk rating of 'low' or 'very low', certification is provided from a RPEQ specialising in geotechnical engineering confirming the proposed development is appropriate for:
 - a. the sloping nature of the site;
 - b. the risk of landslide on the subject site (or each of the proposed lots for Reconfiguring a lot) adversely affecting the proposed development and adjoining properties or structures;
 - c. the risk of landslide on any upslope and downslope external properties impacting the proposed development is 'low' or 'very low'.
4. If the landslide risk assessment determines the site or proposed lot or building envelope has a landslide risk rating of 'moderate', 'high' or 'very high', certification from a RPEQ specialising in geotechnical engineering is provided confirming the proposed development is appropriate for:
 - a. the sloping nature of the site,
 - b. the risk of landslide on the subject site (or each of the proposed lot or building envelope for Reconfiguring a lot) adversely affecting the proposed development and adjoining properties or structures;
 - c. the risk of landslide on any upslope and downslope external properties impacting the proposed development will be reduced to 'low' or 'very low', providing the risk mitigation measures and engineering recommendations of the report are followed.

SC6.6 Infrastructure Design

SC6.6.1 Introduction

SC6.6.1.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.6 Infrastructure Design as supporting an outcome of the code.
2. If there is an inconsistency between the planning scheme policy and the planning scheme, the planning scheme prevails to the extent of the inconsistency.
3. Referenced Standards are non-Council standards which meet the outcomes of the Policy.
4. Council Standards specified in the Policy may include:
 - a. Matters not otherwise referred to in Referenced Standards;
 - b. A variation to the Referenced Standard;
5. Limitations may apply to one or more Referenced Standards (where multiple standards may apply).
6. Where there is any conflict between Referenced Standards and Council Standards, then Councils Standards, apply.

SC6.6.1.2 Relationship to the planning scheme

This planning scheme policy is to be read in conjunction with the Lockyer Valley Planning Scheme.

SC6.6.1.3 Purpose

1. The purpose of this planning scheme policy is to ensure that development complies with the local government's standards for the planning, design, location and construction of infrastructure that reflects acceptable standards in engineering, asset management, environmental management and natural resource planning by:
 - a. specifying information requirements;
 - b. specifying standards and guidelines;
 - c. specifying administrative arrangements;
 - d. specifying the circumstances in which Council may accept a security for the completion of work.

SC6.6.1.4 Technical standards

1. Planning, design, construction and maintenance of works identified in this policy are to comply with the nominated relevant standards. Where standards and/or specifications are not stipulated for certain infrastructure elements, guidance may be obtained through engagement with Council. Standards referenced by this policy are called up in each section.

SC6.6.1.5 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.6.2 Application requirements

SC6.6.2.1 Prelodgement meetings

1. It is strongly recommended that discussions are held with Council before and during the design, concerning design concepts and clarification of specific requirements related to a particular project.
2. A pre-design site inspection is expected to be undertaken before any detailed design work commencing. For designers, it is recommended that a pre-design site inspection should be held with a representative from Council to discuss specific issues and requirements for the site and surrounds.

SC6.6.2.2 Application process

1. Development applications will be assessed in accordance with the development assessment process under the *Planning Act 2016* and the *Planning Regulation 2017* when read together with the Planning Scheme.
2. Relevant development application forms are available on Council's website.

SC6.6.2.3 Application fees

1. Fees associated with applications are listed in Council's Fees and Charges Schedule available on Council's website.

SC6.6.2.4 Application preparation

1. Any conflicts or departure from the standard drawings and the policy are to be detailed in the application.
2. Where a staged development has been approved by Council, Council may require engineering design and construction to include the entire site, or such additional parts of the site as will allow Council to maintain the works in a satisfactory condition if the balance of the development is not completed (e.g. temporary end of road turn around and drainage outlets).
3. The development application is to include enough information outside the development footprint to verify that any future extension of the proposed works can proceed in accordance with this policy and without any undue cost to future development.
4. All design drawings and calculations are to be supervised and certified by competent persons as referred in Section SC6.6.2.5 Competent persons.

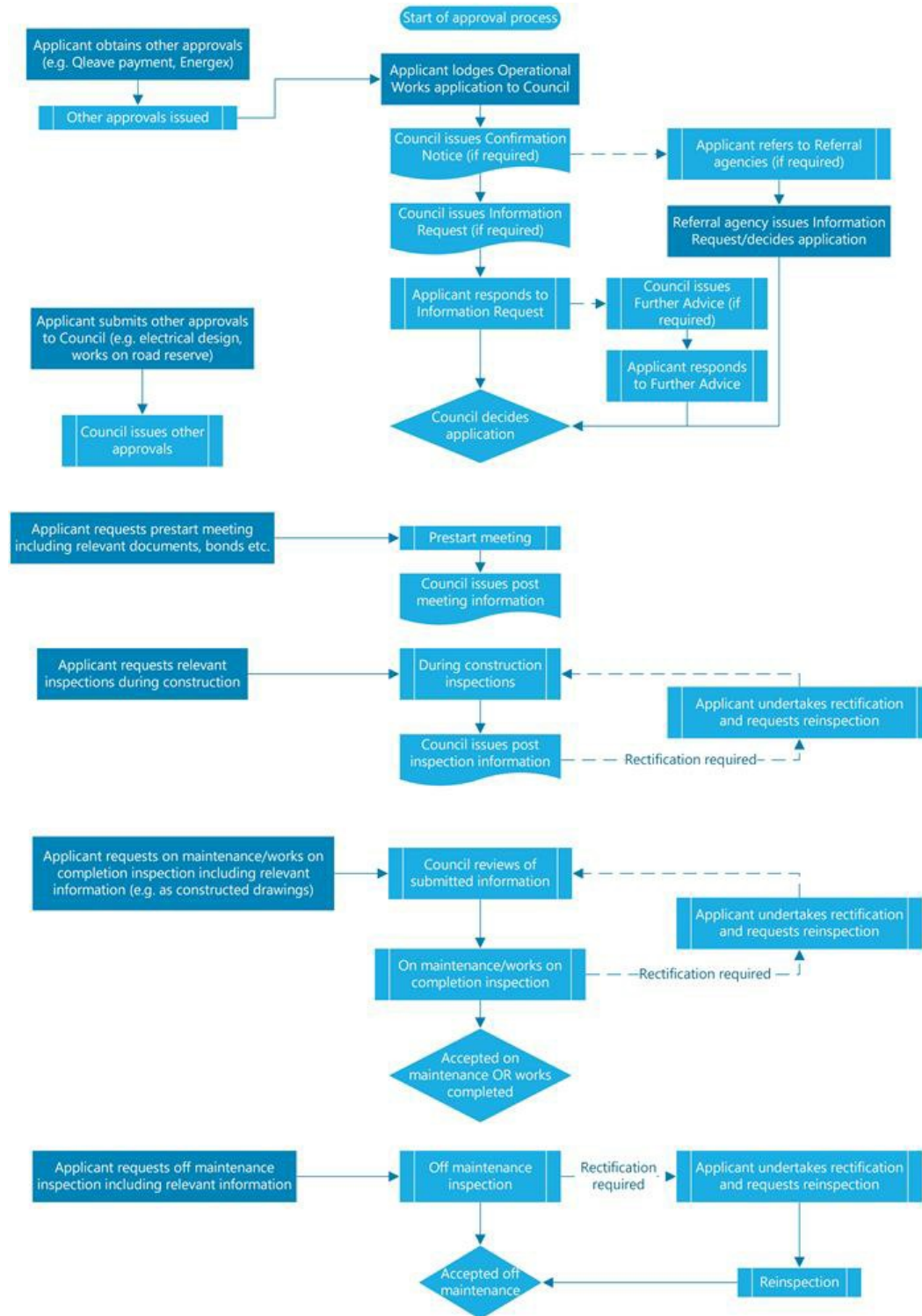
SC6.6.2.5 Competent persons

1. A person preparing a report, a plan or a drawing relating to development must be a suitably qualified person and include:
 - a. in the case of geotechnical, hydraulic, stormwater infrastructure, civil, structural or electrical engineering (including lighting) issues, be a Registered Professional Engineer of Queensland (RPEQ); or
 - b. in the case of non-minor landscaping issues, be a Registered Landscape Architect with the Australian Institute of Landscape Architects; or
 - c. in the case of erosion and sediment control plans, be a Certified Professional in Erosion and Sediment Control (CPESC) or a RPEQ who has undertaken the Erosion and Sediment Control training provided by the International Erosion Control Association with demonstrated specialist expertise in the relevant subject matter; or
 - d. in the case of ecological reports, be a suitable qualified ecologist with no less than 5 years' experience conducting field based ecological surveys in South East Queensland.
2. The report, plan or drawing must include certification signed by the relevant, suitably qualified person that the report, plan or drawing is fit for its intended purpose and can be relied upon by Council for that purpose.

SC6.6.2.6 Operational Works Process

1. The operational works process can be broken into six overall elements:
 - a. applications and approvals;
 - b. prestart application;
 - c. construction;
 - d. on-maintenance;
 - e. off-maintenance.
2. The overall process is outlined in Figure SC6.6-1: Operational works application approval process, below.

Figure SC6.6-1: Operational works application approval process



SC6.6.2.6.1 Reports and certification to be submitted for approval

1. The following must be submitted with an application for operational works:
 - a. Any report, certification or documentation required to be lodged at the time of operational works as required by the Planning Approval (Material Change of Use, Reconfiguring of a Lot);
 - b. Approvals and clearances including but not limited to:
 - i. Department of Transport and Main Roads (DTMR);
 - ii. Department of Environment and Science;
 - iii. Department of Resources;

- iv. lawful point of discharge;
- v. clearance for works through or on other properties;
- vi. water and sewer;
- vii. electricity;
- viii. telecommunications;
- ix. other as required for the Material Change of Use and Reconfiguration of a Lot;
- c. Any standard drawings included in the application;
- d. Schedule of drawings submitted;
- e. Plans that show:
 - i. Staging;
 - ii. bulk earthworks;
 - iii. road geometry;
 - iv. road cross and longitudinal section designs.
- f. Bill of Quantities:
 - i. A Bill of Quantities is to be provided at the time of submission of the engineering documentation. The Bill of Quantities need not include the contract prices. At the completion of the construction, a completed Asset Report which reflects the actual construction costs, constructed volumes, areas and length of items constructed is to be provided to Council.
- g. Soils Management Plan (including but not limited to vulnerable, dispersive or saline soils);
- h. Stormwater Management report and plans including but not limited to:
 - i. stormwater quality;
 - ii. stormwater quantity;
 - iii. flooding issues;
 - iv. associated calculations;
 - v. stormwater drainage catchment plan;
 - vi. stormwater detail plan;
 - vii. roof water or inter-allotment drainage;
 - viii. drainage cross and longitudinal sections;
 - ix. detention basin details;
 - x. detention basin landscaping plans;
 - xi. water quality site management or runoff control works;
 - xii. gross pollutant traps sizing and maintenance works;
- i. MUSIC Modelling files (Stormwater Quality);
- j. Geotechnical Report;
- k. Certificate of Design - RPEQ Certified;
- l. RPEQ Certified Structural Design Certificate (including Form 15 and/or 16);
- m. Traffic and Transport Studies including multimodal, private and public transport strategies;
- n. Erosion and Sediment Control Plan;
- o. Ecological Assessment Report in accordance with PSP 1 Biodiversity;
- p. Tree survey plan in accordance with PSP 1 Biodiversity;
- q. Vegetation Management Report in accordance with PSP 1 Biodiversity;
- r. Rehabilitation Plan in accordance with PSP 1 Biodiversity;
- s. Landscaping report, plans and certification in accordance with PSP 7 Landscaping;
- t. Acoustic fencing report plans and certification;
- u. Referral agency responses and/or advice for matters requiring referral under the *Planning Act 2016* and *Planning Regulation 2017*.

SC6.6.3 Bonding of Development

SC6.6.3.1 Introduction

1. The purpose of this part is to:
 - a. ensure the timely and proper performance of works;
 - b. ensure public liability is adequately insured; and
 - c. Council is indemnified.

SC6.6.3.2 Bonding of works

1. This part provides guidance to applicants, developers and consultants in respect of bonding requirements, from the construction phase to the signing of plans of subdivision or the issuing of a notice of completion of works (for other developments).
2. A bond is the payment of a security deposit to Council by a person or party responsible for the performance of works as a surety to satisfactory performance of a development condition or requirement.
3. Bonds may be used in the following circumstances:
 - a. to secure compliance with a condition of a development approval in accordance with the *Planning Act*;
 - b. to secure completion of works required by a development approval for operational works and/or reconfiguring a lot in accordance with the *Planning Act*;
 - c. to ensure public works infrastructure dedicated to Council:
 - i. has been correctly constructed and installed;
 - ii. has been properly maintained;
 - iii. is free of defects and is fit for its intended purpose;
 - d. to mitigate the risk of damage to Council infrastructure or the degradation of environmental quality.

SC6.6.3.3 Types of bonds

1. Bond types are nominated in the Table SC6.6-1: Type of bonds, below.

Table SC6.6-1: Type of bonds

TYPE	DURATION	AMOUNT
Performance Bond for civil works	Until off maintenance of Civil Works	10% of cost of works or \$20,000, whichever is the greater.
Performance Bond for Environmental protection.	Until performance benchmarks in the PSP1 Biodiversity have been achieved	10% of cost of works or \$20,000, whichever is the greater.
Erosion and Sediment Control Bond	Until off maintenance of Civil Works	3% of cost of earthworks and stabilisation works or \$10,000, whichever is the greater.
Maintenance Bond — Civil Works	Until off-maintenance of Civil Works	10% of cost of Civil Works or \$5,000, whichever is the greater.
Maintenance Bond — Landscape Works	Until off-maintenance of Landscape Works	10% of cost of Landscape Works or \$5,000, whichever is the greater.
Uncompleted Works Bond	Until works are completed and accepted on-maintenance, or otherwise accepted as completed by Council	1.5 times the value of the works or \$25,000, whichever is the greater.

2. The developer must submit individual bonds for each type of bond required by Council to ensure the individual bonds can be returned expeditiously once Council permits the release of the respective bond/s.

SC6.6.3.3.1 Performance bond

1. Council may require a performance bond to mitigate risk of damage to public infrastructure or the environment. The bond may be required as a condition of an approval or at the discretion of Council officers under delegated authority.

2. The bond amount is subject to the type and scale of works carried out.
3. Typically, the bond is to be paid before commencement of works or the activity.

SC6.6.3.3.2 Erosion and sediment control bond

1. Council may require an erosion and sediment control bond as a security for the stabilisation of exposed areas where there are earthworks and the performance of restoration works, and for achieving grass coverage at completion of works.
2. The bond may be required as a condition of an approval or at the discretion of Council officers under delegated authority.
3. The erosion and sediment control bond will be 3% of the value of the earthworks and subsequent stabilisation works.
4. The minimum uncompleted works bond is \$10,000.

SC6.6.3.3.3 Maintenance bond

1. All development works which are to be contributed to the Council are to be maintained by the developer for a minimum period of twelve (12) months unless otherwise advised by Council. All maintenance works are to be undertaken in accordance with the approved maintenance management plan (if applicable) or to a standard commensurate with normal Council maintenance activity. The period commences from the formal acceptance of the development works 'on-maintenance'.
2. A maintenance bond is to be submitted to Council to ensure the works are maintained during this maintenance period.
3. During the maintenance period, the developer is responsible for the maintenance of the assets to ensure all future dedicated assets are fit for purpose. This includes rectifying or replacing defective assets.
4. The maintenance bond is paid as a condition of acceptance of operational works 'on-maintenance'. If the developer requests early approval of a plan of subdivision, the maintenance bond is to be paid in conjunction with the uncompleted works bond.
5. The maintenance bond will be as follows:
 - a. 10% of the total value of the works to be constructed for the development; or
 - b. a minimum of \$5,000 where 10% of the total value of the works is less than \$5,000.

SC6.6.3.3.4 Uncompleted works bond

1. Bonding of uncompleted works by a developer enables Council to permit early approval of a plan of subdivision, where Council is satisfied the development is substantially completed and any uncompleted works do not present a risk to public safety. Council may agree to the bonding of uncompleted works such as planting of street trees, landscaping, park furniture, turfing, and the like. The following criteria must be met at the time of lodging the request for approval of the plan of subdivision to Council:
 - a. All bulk earthworks are completed and stabilised. Bulk earthworks include excavation and filling of the road formations and allotments;
 - b. Roadworks are completed including signage and line marking;
 - c. Stormwater works are completed;
 - d. Payment is received of any fee for requesting the bonding of uncompleted works;
2. The developer's engineer must provide the following information:
 - a. Certification of the value of uncompleted works;
 - b. Detailed schedule of the scope and cost of the uncompleted works for auditing purposes;
 - c. Certification that all external and internal works can be completed and accepted on maintenance within three (3) months of approval of the plan of subdivision.
3. The uncompleted works bond will be 150% of the certified value of the uncompleted works.
4. The minimum uncompleted works bond is \$25,000.
5. Council will undertake an internal risk assessment of a request to bond uncompleted works and reserves the right to refuse to enter into a bonding agreement for uncompleted works.

SC6.6.3.4 Forms of bonds

SC6.6.3.4.1 Performance or environmental and maintenance bonds

1. All bonds will be in the form of cash or bank guarantee.
2. Where bonds are supplied in the form of Bank Guarantees, the Bank Guarantees must contain the following minimum details and conform to the following requirements:
 - a. Name of Development – including the Council reference number;
 - b. The real property description to identify the land on which the works are being bonded (e.g. Lots 11 to 22 on SP123456);
 - c. The stage of the development (if applicable);
 - d. Full description of the type and purpose of the bond;

- e. Is irrevocable;
 - f. Is unlimited by time;
 - g. Is unconditional; and
 - h. In favour of Lockyer Valley Regional Council.
3. All bonds are to be accompanied with a completed Bond Agreement.

SC6.6.3.5 Request pre-approval of bond amount

1. The developer is to lodge a written request to Council (providing 5 days' notice) for approval of the respective bonding amounts before preparing a formal bond.

SC6.6.3.6 Bond call up

1. The bond agreement describes the rights and obligations of the parties and the actions Council can take if these obligations are not fulfilled. Where Council believes the developer to be in breach of the agreement, Council may exercise its rights under the agreement to call up the bond to satisfy the bond conditions. Before exercising this right, Council will issue written advice detailing the alleged breach of the agreement specifying the actions required by the developer for compliance.
2. In the event the developer does not comply with orders specified in the timeframe stipulated, Council may exercise its legal rights under the agreement and call up the value of the works or conditions from the monies held in trust.
3. Should the fair estimated cost of the outstanding works or conditions (including Council's charges for supervision, interest, administration costs, legal costs, overheads and contingency sum) be greater than the bond, Council will apply the bond as far as it extends and look to recover any shortfall as a liquidated debt, as well as take actions regarding a breach of a development approval condition.

SC6.6.3.6.1 Recourse to security moneys

1. Council will have recourse to the Security Deposit in the following circumstances:
 - a. failure to complete the works associated with conditions of a development approval within the nominated time or such other extensions as granted by Council; or
 - b. failure to satisfactorily rectify defects as indicated at the On Maintenance or Off-Maintenance inspection within the time nominated in the notice of defects. Where no time is nominated, 30 days from the date of notice must be permitted to rectify defects.
2. If the value of works undertaken by Council (subject to Bonding of Development) exceeds the value of the security deposit, such costs are to be paid to Council.

SC6.6.3.7 Return or reduction of bond amount

1. The developer must submit a formal request (available on Council's website) to Council for the return or reduction of a bond. The bond can only be refunded to the depositor of the funds held in trust by Council. The request must be a written submission outlining the reasons for the bond return or reduction and must be in accordance with conditions specified for the return or reduction of the bond. The minimum details to be included in the request are as follows:
 - a. real property description of the development;
 - b. Council's file reference number for development and bond;
 - c. the bond amount originally submitted with Council;
 - d. the name of the bank (for bank guarantee bonds only);
 - e. Council receipt number (for cash or bonds only); and
 - f. the date the bond submitted with Council.
2. The inclusion of the above information will assist in the prompt return of bonds.

SC6.6.3.7.1 Maintenance security bond release

1. Maintenance bonds will be refunded after Council's formal acceptance of the work 'off maintenance'. Maintenance bonds cannot be reduced or refunded progressively.

SC6.6.3.7.2 Uncompleted works bond release

1. Uncompleted works bonds will be refunded at the time the works are accepted 'On Maintenance' or a notice of completion of work is issued (where works are not to be contributed to Council). Uncompleted works bonds cannot be reduced or refunded progressively unless otherwise approved by Council.

SC6.6.3.7.3 Conversion of security

1. Council may convert into money at any time, such part of the Security Deposit, which does not consist of money.
2. Council is not liable in any way for any loss occasioned by the conversion of any security into money.

SC6.6.3.8 Indemnity

1. The owner, contractor or consultant engineer is to indemnify the Local Government against any claim, action or process for damage or injury which might arise during the progress of the works for the full construction period.
2. No work is to commence unless the developer has in place the following insurances:
 - a. Public Liability Insurance to a limit of indemnity of not less than \$20,000,000 with a notation with the Local Government as an Insured Party; and
 - b. Workers' Compensation Insurance.
3. The developer is to take steps to ensure that all contractors employed by them are also covered in relation to the above insurances and that they in turn ensure that all sub-contractors employed on the job are covered in relation to the abovementioned insurances.

SC6.6.4 Stormwater management

SC6.6.4.1 Introduction

1. This part provides for the holistic design and construction of stormwater drainage, integrating the management of stormwater quantity and quality through and from the developed site.
2. Council and the developer have a duty of care to implement a stormwater drainage strategy that does not result in any demonstrable harm to property upstream or downstream from the proposed development. State Planning Policy July 2017 includes State interest requirements that stormwater discharge from developments meet specified outcomes for stormwater quality and quantity.
3. This part includes information to help the developer's consultant team meet Lockyer Valley Regional Council's, and the State's, minimum requirements for stormwater management.
4. The planning, design and implementation of stormwater systems will be in accordance with the purpose as outlined by the Planning Scheme.
5. In addition to this policy, urban and rural stormwater drainage systems are planned, designed and constructed in accordance with the current edition of the following:
 - a. Planning and design standards:
 - i. Australian Rainfall and Runoff (ARR) Guidelines;
 - ii. Austroads Guide to Bridge Technology Part 8: Hydraulic Design of Waterway Structures;
 - iii. Department State Development, Infrastructure, Local Government and Planning — State Planning Policy.
 - iv. DTMR — Road Drainage Manual;
 - v. Healthy Land and Water, MUSIC Modelling Guidelines;
 - vi. International Erosion Control Association — Best Practice Erosion and Sediment Control (BPESC);
 - vii. IPWEA — Queensland Urban Drainage Manual (QUDM);
 - viii. Seqwater Development Guidelines - Water Quality Management in Drinking Water Catchments;
 - ix. Water-by-Design — Bioretention Technical Design Guidelines;
 - x. Water-by-Design — Deemed to Comply Solutions — Stormwater Quality Management (South East Queensland);
 - xi. Water-by-Design — Wetlands Technical Design Guidelines;
 - b. Construction standards:
 - i. DTMR Specification — MRTS03 Drainage Structures, Retaining Structures and Embankment Slope Protections;
 - ii. DTMR Specification — MRTS04 General Earthworks;
 - iii. DTMR Specification — MRTS16 Landscape and Revegetation Works;
 - iv. DTMR Specification — MRTS24 Manufacture of Precast Concrete Culverts;
 - v. DTMR Specification — MRTS25 Steel Reinforced Precast Concrete Pipes;
 - vi. DTMR Specification — MRTS52 Erosion and Sediment Control;
 - vii. DTMR Specification — MRTS70 Concrete;
 - viii. DTMR Specification — MRTS71 Reinforcing Steel;
 - ix. DTMR Specification — MRTS72 Manufacture of Precast Concrete Elements;
 - x. DTMR Specification — MRTS73 Manufacture of Prestressed Concrete Members and Stressing Units;
 - xi. DTMR Specification — MRTS74 Supply and Erection of Prestressed Concrete Deck and Kerb Units;
 - xii. DTMR Standard drawings, Roadworks, drainage, culverts and geotechnical series.
 - xiii. IPWEAQ Standard drawings, Drainage suite; and
 - xiv. Water-by-Design — Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands;

SC6.6.4.2 Planning

SC6.6.4.2.1 Applications for rural and urban

1. The intent of QUDM is to encourage uniformity in urban drainage design practices by providing information on current best practice urban drainage management. The intent of the manual is not to design rural drainage systems but to outline the methods for rural catchment planning and references sections of QUDM as acceptable methods of design.
2. DTMR Road Drainage Manual provides guidance on planning, design, operation and maintenance of road drainage infrastructure for small, simple rural and urban catchments. The Road Drainage Manual represents the policy of the DTMR that must be applied on all road infrastructure projects for which the department is responsible.

SC6.6.4.2.2 Stormwater planning process

1. Stormwater planning must form an integrated part of planning for all new development and must be undertaken using the principles of Water Sensitive Urban Design (refer to SC6.6 Appendix 3: Water-sensitive urban design).

SC6.6.4.2.3 Regional flood model

1. Council has developed and maintains a regional flood model. Access to the model for analysing flood impacts on development can be arranged through a Data Sharing Agreement. A request to execute a Data Sharing Agreement can be submitted to email to: mailbox@lvrc.qld.gov.au.

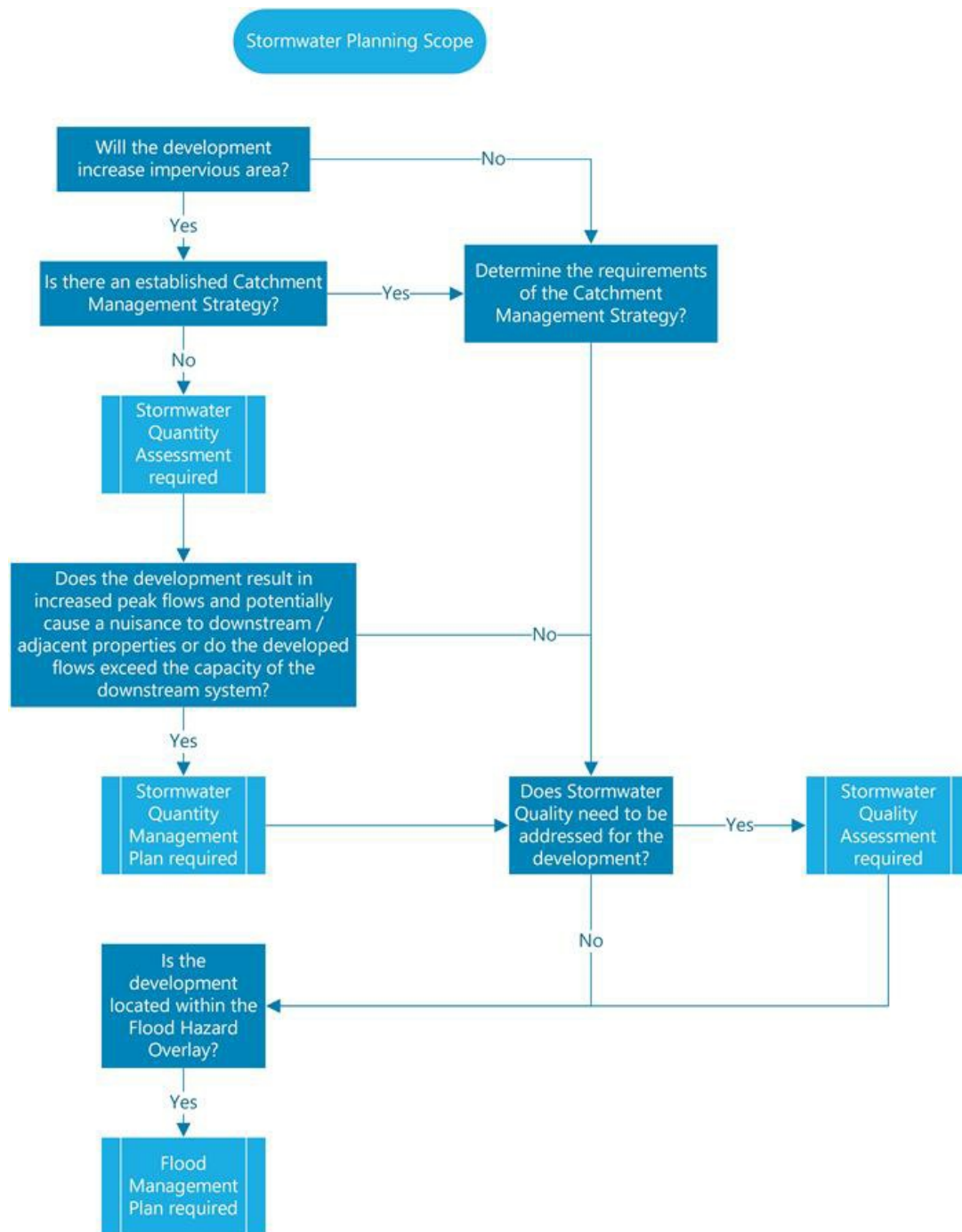
SC6.6.4.2.4 Catchment management strategies

1. Council is in the process of developing catchment-scale regional drainage master plans that will identify the design criteria for specific catchment and waterway requirements (e.g. waterway environmental values). Compliance with the requirements of a regional drainage master plan is compulsory where such a plan is in place. Applicants are encouraged to engage with Council to understand specific catchment and waterway requirements.

SC6.6.4.2.5 Risk assessment

1. Figure SC6.6-2: Stormwater Planning Risk Assessment, shows the risk assessment process to determine the need for and scope of any necessary Stormwater Management Plan (refer to SC6.9 Stormwater Management Plans). The various components required for a Stormwater Management Plan include:
 - a. Stormwater Quantity Assessment — a preliminary assessment of the impacts from post development peak flows up to 1% AEP on upstream, downstream properties and infrastructure;
 - b. Stormwater Quantity Management Plan — a management plan to mitigate the impacts of increased post development peak flows;
 - c. Stormwater Quality Management Plan — a management plan to comply with the requirements of the Seqwater Development Guidelines — Water Quality Management in Drinking Water Catchments and the State Planning Policy;
 - d. Flood Management Plan — in accordance with the requirements of the Planning Scheme.

Figure SC6.6-2: Stormwater planning risk assessment



SC6.6.4.2.6 Flooding management plan

1. The required outputs from a Flooding Management Plan vary depending upon the categorisation of the flooding (DFE, hazard category, overland flow path, investigation area) but typically include:
 - a. Identification of the flood category;
 - b. Mapping of the flood overlay for the proposed development;
 - c. Identification of flood levels for the development;
 - d. Details of any proposed flood mitigation.
2. For situations involving alteration of floodplain storage 2D modelling will be required to demonstrate the impacts of such mitigation options.

SC6.6.4.2.7 Extent of drainage works

This section must be read in conjunction with section SC6.6.4.2.8 Requirements for the stormwater network, which references lawful point of discharge.

1. Council requires the developer to meet the full cost of providing an appropriate drainage system that has enough capacity to convey the design run-off from all upstream catchments through the development. The drainage system must be designed to minimise impact of any kind to upstream or downstream properties. The applicant must demonstrate that such discharge would in no way adversely affect any land, drainage system or watercourse.
2. All development applications identified in the risk assessment described by Figure SC6.6-2: Stormwater Planning Risk Assessment, are to include a stormwater management plan demonstrating the feasibility and function of the proposed drainage systems within the site, its compliance with any relevant Council master drainage scheme and its connection to the lawful point of discharge.
3. Open channel drainage systems need to consider soil characteristics that are not favourable grass or vegetation growth. Lockyer Valley has areas with salinity, dispersive or erosive soils. Soil characteristics are discussed in section SC6.6.6 Earthworks.
4. All stormwater drainage works must be designed to ensure no stormwater damage, ponding or nuisance to surrounding and/or downstream properties or infrastructure.
5. Flow width within a road must meet criteria for the design event and for the ultimate developed catchment.
6. In general, the minimum stormwater drainage works to be constructed by the developer includes the following.
 - a. Urban zones including industrial and commercial zones and rural residential zones with lot sizes 5,000m², and less:
 - i. The minor drainage system will consist of:
 - A. kerb and channel on both sides of all roads;
 - B. gully pits located so the flow in the channel does not exceed specified limits;
 - C. roof and allotment drainage systems;
 - D. drainage from lots that front roadways may be discharged to the street unless topographical constraints or section SC6.6.4.3 Stormwater design, determines otherwise;
 - E. roof water connection located at the lowest corner/s of each lot draining towards the road where a footpath is present along the frontage and discharge to two kerb adapters in accordance with IPWEAQ Standard drawings;
 - F. standard kerb adapters in the kerb frontage located at the lowest corner/s of each lot draining towards the road which are not fronted by a concrete footpath;
 - G. catch drains with a minimum free board as in QUDM to capture cumulative overland flows from created lots and discharged to:
 - I. the new underground stormwater system within road by underground pipe/s where open channel (swale, catch drain) is falling towards the street;
 - II. the allotment drainage system where open channel is falling away from the street;
 - III. full piped drainage from all gully pits and other inlets that discharges at the boundary of the development at a lawful point of discharge approved by Council. Where the piped system traverses private property an easement with a minimum width in accordance with section SC6.6.4.3 Stormwater design, must be dedicated in favour of Council;
 - ii. The major drainage system will consist of overland flow paths that will manage run-off exceeding the capacity of the pipe system by carrying the design flow through the development clear of allotments (i.e. by the road or drainage reserve);
 - iii. stormwater quality measures in accordance with section SC6.6.4.4 Stormwater Quality, of this policy.
 - b. The drainage requirements must be in accordance with the requirements for Rural residential zones lot sizes more than 5,000m² with the following considerations:
 - i. Hydraulic capacity of existing table drains;
 - ii. Hydraulic capacity of existing property accesses along the frontage of the development;
 - iii. Changes to existing overland flow paths (e.g. access driveways, filling existing dams etc.);
 - iv. the impact changes to existing overland flow paths have on existing drainage structures, flow paths, and neighbouring properties;
 - v. Roofwater and inter-allotment drainage;
 - vi. catch drains with a minimum free board as in QUDM to capture cumulative overland flows from upstream lots and discharge to table drain or inter-allotment drainage system.
 - c. Rural residential zones lot sizes more than 5,000m²:
 - i. The minor and major drainage systems consist of open natural watercourses within allotments and include full piped drainage within road reserves. They must have:
 - A. gravel or bitumen sealed shoulders and swale drains, but in some circumstances will require kerb and channel on both sides of all roads with associated gully pits and piped drainage;
 - B. stabilised overland flow paths or watercourses, where required, for scour and erosion protection;
 - C. pipe or pre-cast concrete box culvert structures (including drainage aprons) at road crossings of all natural watercourses; the structures must extend to the limits of the road reserve. Cross-drainage design must consider the possible debris load from the catchment;
 - D. catch drains with a minimum free board as in QUDM to capture cumulative overland flows from created lots and discharged to lawful point of discharge.

d. Rural zones:

- i. The minor and major drainage systems are to consist of open natural watercourses. They must have:
 - A. gravel or bitumen sealed shoulders without kerb and channel on all roads;
 - B. pipe or pre-cast concrete box culverts, bridges or concrete causeways at road crossings of all natural watercourses; these structures must extend to the limits of the road formation. Easements must be provided either side of the reserve to allow necessary scour protection works and future maintenance works as required. These easements must be a minimum of 5m in length, encapsulate the watercourse, and allow machine access to either side of the watercourse from the road reserve. Depth-of-flow indicators and delineator posts must be used to better define the areas of more frequent inundation. Cross-drainage design must consider the possible debris load from the catchment. Council's preferred option for this the provision of reinforced-concrete box culverts;
 - C. earth table drains and catch drains in road reserves are to be stone-pitched or concrete-lined, where required, for scour protection;
 - D. rural access pipe crossings for entry to all allotments to be in accordance with DTMR Standard drawing SD1807 - Property Access - Rural Property Access.

SC6.6.4.2.8 Requirements for the stormwater network

SC6.6.4.2.8.1 Lawful point of discharge

1. All parties involved in the process of development are charged with a duty of care to ensure that there will be no case of actionable nuisance or damage to properties upstream or downstream because of the development. Potential impacts due to a proposed development should be regarded as unsatisfactory (and may result in an actionable nuisance) if:
 - a. any increase in flood level afflux of greater than 10mm on nearby properties;
 - b. there is a material increase in the duration of inundation of flood water on nearby properties that would cause the current or future use of the land.
2. Council would determine if it is an actionable nuisance based on the pre and post flow characteristics and type of use of the impacted property, or provide Council a written consent from affected owner/s accepting any adverse impacts at the lodgement of the development application.
3. It is the responsibility of the consultant team to establish a suitable lawful point of discharge (refer to *QUDM Section 3 Legal aspects*) for the drainage from the development, for Council's approval. In its determination, the consultant team must have considered all available options on their merits, not simply on cost, before presenting its selected option to Council. The consultant team must provide to Council:
 - a. written approval from adjoining property owners whose property lies between the development and the lawful point of discharge. Such approval must be legally binding and acceptance by subsequent owners must be a condition of sale of the property. Applicant is required to submit form 1.3 the lodgement of development application.
4. Developer or applicant is responsible for all costs associated with construction of new works, upgrading or retrofitting existing infrastructure downstream from the lawful point of discharge to provide for the proposed development. Supporting information is to include the methodologies available for providing relief drainage.
5. Typical options available to the consultant team for locating the lawful point of discharge are:
 - a. to concrete kerb and channel, gullies, a natural watercourse or existing enclosed stormwater drainage system abutting the development. The consultant team must obtain approval from Council for any connection to existing Council infrastructure;
 - b. to the road reserve provided the concentration of stormwater does not adversely affect the drainage capacity of the road and/or adjoining properties;
 - c. through adjoining private property provided prior permission is obtained from the property owner/s in writing and this written permission is contractually binding on the property and its future owners;
 - d. to concrete kerb and channel and then to a new stormwater inlet to be provided by the developer at a location removed from the site;
 - e. to kerb and channel or an existing enclosed drainage system higher than the proposed development by pumping from a drainage pit within a site. This method will only be considered suitable for a basement carpark of a multi-storey building where a back-up generator is provided. The pumping infrastructure will remain the asset of the site owner and will not form part of Council-owned infrastructure. The consultant team must clearly demonstrate that the alteration to catchment boundaries must not cause a worsening of any kind to existing drainage systems, property or public safety;
 - f. to an underground stormwater system by pipe, if such system is available within 150m of the proposed development.

SC6.6.4.2.8.2 Easements and reserves

1. All stormwater drainage easement discussed in this section must be dedicated at no cost to or compensation by Council.
2. Drainage reserves or easements must be required over downstream drainage paths from the development site to the lawful point of discharge.
3. Drainage reserves must be required over detention basins or bio-retention basins.
4. Drainage easements with a minimum width of 6m must be required over all pipe installation from 300mm diameter to

- 600mm diameter, except for pipes installed at shallow depths. For pipes installed at shallow depth (up to an invert level of 1.2m), the width of an easement may be reduced to 3m.
5. Stormwater drainage easement having a minimum width 3m or a width as determined by Council under any approval for operational work, whichever is the greater must be required over the following:
 - a. all stormwater overland flow paths traversing the land centrally located within the easement; and
 - b. all areas impacted by the design 1% AEP;
 - c. any drainage infrastructure capturing and/or conveying stormwater runoff from an upstream catchment;
 - d. rear allotment drainage pipes with a diameter of 225mm or above;
 - e. a surface allotment drainage system (e.g. swale) with a minimum freeboard as in *QUDM Section 7: Urban drainage*.
 6. All pipes over 600mm diameter and all open waterways or drains greater than 1m in depth must be installed on Council-controlled land.
 7. Where a residential or rural residential subdivision discharges into a rural zone, an easement of minimum dimensions 20m long and 10m wide is required over the downstream drainage path.
 8. Council would maintain works on a drainage easement located within a private property only if there were an issue that would impact the functionality. General maintenance such as mowing to be attended by the private property owner.

SC6.6.4.3 Stormwater design

SC6.6.4.3.1 Method for design

1. Stormwater infrastructure is provided in accordance with the QUDM and the Australian Rainfall and Runoff (ARR), except as modified by sections of this planning scheme policy.

SC6.6.4.3.2 Major and minor system rational

1. The consultant team must ensure that the proposed drainage design meets the standards required of minor and major drainage systems for the scale and type of development proposed. The required standards are summarised in Table SC6.6-2: Drainage Design Standards.
2. The full definitions of the minor and major systems are provided in QUDM Section 7: Urban drainage.

Table SC6.6-2: Drainage design standards

DEVELOPMENT CATEGORY	DESIGN PARAMETER	DESIGN STANDARD
2—5 dwelling units per hectare (typically in rural or rural residential or environmental protection areas where predominant uses include houses on large allotments and farms)	Minor drainage system	Minimum 39% AEP
	Major drainage system	Minimum 1% AEP (less piped flow, if applicable)
>5 and ≤20 dwelling units per hectare (typically in low-density residential areas comprising of one or two-storey single houses)	Minor drainage system	Minimum 39% AEP
	Major drainage system	Minimum 1% AEP (less piped flow, if applicable)
>20 dwelling units per hectare (typically in low-medium- to high-density residential areas comprising multi-unit dwellings)	Minor drainage system	Minimum 10% AEP
	Major drainage system	Minimum 1% AEP (less piped flow, if applicable)
Industrial areas	Minor drainage system	Minimum 39% AEP
	Major drainage system	Minimum 1% AEP (less piped flow, if applicable)
New use centre activities (incorporating a wide range of commercial, retail and residential uses)	Minor drainage system	Minimum 10% AEP
	Major drainage system	Minimum 1% AEP (less piped flow, if applicable)
Major roads (distributor roads and above, major industrial access through-roads)	Kerb and channel flow	Minimum 10% AEP Note—The design AEP for the minor drainage system in a major road must be that indicated for the major road, not that for the

		development category of the adjacent area.
	Cross-drainage (culvert) flow	Minimum 2% AEP
	Roadway flow width and depth limits	refer to <i>QUDM Table 7.3.5: Essential community infrastructure</i> and <i>7.3.6: Overland flow paths</i>
Minor roads (collector roads, local access streets, minor industrial access)	Kerb and channel flow	refer to the relevant development category Minimum 39% AEP
	Cross-drainage (culvert) flow	Minimum 10% AEP
	Roadway flow width and depth limits	refer to <i>QUDM Table 7.3.5: Essential community infrastructure</i> and <i>7.3.6: Overland flow paths</i>

3. If upstream properties are at a low elevation, it may be necessary to install culverts of capacity greater than that for the minor-system AEP event to ensure unacceptable flooding of upstream properties does not occur. In addition, the downstream face of causeway embankments will need protection where overtopping is likely to occur.
4. Considering major, and to a lesser extent minor, flow events, and how to manage their conveyance though the site is a key component in the preparation of the development's concept and detailed design. The consultant team is urged to use Council's pre-lodgement meeting process to discuss and resolve the issues associated with designing for the major and minor flows.
5. A combined underground and overland drainage system for the minor and major systems is to be designed in conjunction with other civil infrastructure components required for the development. Designing major underground pipe systems with no overland flow component is not acceptable to Council except in extraordinary circumstances where overland flow is demonstrated to be impractical. QUDM details the minimum requirements and circumstances where a major underground pipe system is used with no dedicated open space for overland flows.
6. Development within a flood risk hazard area are to comply with the requirements of the 8.7 Flood hazard overlay code and the SC6.4 Flood hazard.

SC6.6.4.3.3 Hydraulic calculations

SC6.6.4.3.3.1 Design methodology

1. Hydraulic calculations for stormwater drainage are to be undertaken in accordance with QUDM Section 7: Urban drainage, subject to the following comments:
 - a. Council mandates the Manning's Formula is to be used in the calculation of pipe full flow discharge.

SC6.6.4.3.4 Overland flow

SC6.6.4.3.4.1 Location of overland flow paths

1. Notwithstanding the requirements of QUDM Section 9: Open channels, overland flow paths from external catchments must not be directed through private property unless they are contained within easements.
2. Overland flow paths must not be in pathways. Prior approval must be obtained from Council where an exception is sought in locating an overland flow path.
3. Where an overland stormwater flow path is required, the width must take account of:
 - a. waterway width;
 - b. access width;
 - c. freeboard;
 - d. any other services requirements.
4. Pedestrian safety and maintenance considerations must be factors considered in the cross-sectional configuration of the overland flow path.
5. Pedestrian and vehicular access to wastewater pump stations and other public utility installations must not be impeded by overland flow at any time, particularly in times of emergency, when flooding occurs.
6. In existing areas where available overland flow paths are limited, alternative methods may be considered, such as detention basins.

SC6.6.4.3.4.2 Overland flow in roads

1. In addition to the requirements of QUDM, designers must provide 50mm freeboard to the footpath crown for design flows based on roadway surface levels at the time of initial construction. Subject to normal cross-fall constraints, the height of footpath crowns above the top of kerb are raised to allow for safe pedestrian use and vehicle access to properties on the low side of the roadway. In a major storm, the maximum depth of flow must be 250mm and must meet hazard criteria (velocity x depth product) in accordance with QUDM Section 7: Urban drainage.
2. Designers must also be aware of the effects of changes of grade. Flattening a longitudinal grade, for example, will result in a greater depth of flow and the design will need to manage the resulting effects.

SC6.6.4.3.4.3 Overland flow in drainage reserves

1. Overland flow in drainage reserves must comply with the following requirements. The width of any overland flow path must be determined by calculation and must not be allowed to extend into private property. A minimum width of 5m is to be allowed from the top of the open drain to the property boundary.
2. Within drainage reserves, consideration must be given to:
 - a. safety of persons who inadvertently or unwisely enter the stream;
 - b. soil types, ground cover and scour protection;
 - c. downstream flood reduction, the lower velocity reducing downstream peak flow;
 - d. maximum side slopes of 1V:6H;
 - e. the effect of the location of overland flow paths on existing native vegetation.

SC6.6.4.3.4.4 Overland flow in open-space reserves

1. Land required in open space for overland flow path will be considered against 'drainage' requirements rather than 'open space' requirements in the context of the development.
2. In its application, the consultant must demonstrate planning for drainage in open-space areas, from project identification to designs. For example, for public safety purposes, the design must demonstrate all public buildings and community facilities with amenities (i.e. toilets and/or food preparation facilities) are located 500mm above the 1% AEP flood level where in overland flow paths.
3. The drainage standards must be considered within the context of planning strategies, and, regarding the nature of the intended function and constraints of the land, for example:
 - a. general open space areas with a low to high need for access by pedestrians and cyclists;
 - b. passive areas with a low to high visitation;
 - c. active areas in areas of low to high tourist significance;
 - d. natural watercourses with low to high environmental significance.
4. Council may consider dual use of open-space areas (e.g. Council parks and gardens) for downstream drainage where the land is dedicated in favour of Council (i.e. with easements or reserves). It is expected that the consultant team will consider the following as a minimum when considering dual use:
 - a. major flood capacity;
 - b. convenience flood capacity — minor event in terms of interval event and the time to drain ponded sites;
 - c. maintenance costs (e.g. batter slopes 1V:6H);
 - d. safety (e.g. maximum velocity 2m/s);
 - e. stability factors (e.g. resistance to scour, slip);
 - f. ecological considerations (e.g. preserving valuable areas, and appropriate planting in waterway areas, minimum impact on existing riparian or aquatic ecosystems).
5. Within open-space reserves, consideration must be given to:
 - a. safety of persons who inadvertently or unwisely enter the stream;
 - b. soil type, ground cover and scour protection;
 - c. downstream flood reduction, the lower velocity reducing downstream peak flow;
 - d. maximum side slopes of 1V:6H;
 - e. the effect of overland flow paths on existing native vegetation;
 - f. restoration using native vegetation;
 - g. designing to create a feature in the landscape;
 - h. designing to slow stormwater movement and encourage infiltration;
 - i. designing to use shallow grassed or riprap swales and/or contour banks that do not present maintenance or mowing difficulties (maximum 1V:6H slopes);
 - j. existing canopy vegetation on the site;
 - k. maintenance considerations;
 - l. the natural hydrology of the site;
 - m. the width of any swale or open-drain profile to ensure it does not constitute more than 25% of the width of the open-space reserve at any one point;
 - n. the desirability of having a road or street along one side.

SC6.6.4.3.4.5 Overland flow from traps in roads

1. Sags in roads and cul-de-sacs at the end of a falling road grade must be provided with an overland flow path designed to cater for excess flow not contained in the underground drainage system for a 1% AEP event and to protect the properties on the low side of the road from inundation.
2. Where overland flow paths are required due attention is to be given to the impact on road users safety of pedestrians.

SC6.6.4.3.5 Open channels

1. The detailed design of open channels must consider design principles within *QUDM Section 9: Open channels*.
2. For major open channel drainage systems consideration needs to be given to coincident flooding occurring with major watercourses.
3. If open cut channels and natural watercourses are permitted within the site, easements including access areas adjacent to the channel are required.
4. Where construction of new open channels is proposed, Council requires the use of natural channel design (*QUDM Section 9: Open channels*) and water sensitive urban design principles (refer SC6.6 Appendix 3: Water-sensitive urban design).
5. Where hydraulic constraints prevent a fully vegetated channel, grass-lined channels are acceptable, and the aesthetic value of these channels is enhanced by the liberal inclusion of native canopy trees with the species and planting density selected to enable:
 - a. easy maintenance (mowing);
 - b. enough light penetration to sustain the grass cover and minimise weed growth.
6. Landscaping of the open channel is especially important for visual amenity and for future maintenance. The developer must submit landscape plans before the hydraulic calculations starting, so Council is satisfied that the channel will be a feature and not merely 'a drain'.
7. All unlined open drains must be turfed to a level at 300mm above the 1% AEP storm event level as soon as practicable after construction and regular watering must occur to ensure required establishment. Additional measures to stabilise drains must be required if flow velocities exceed 1.5m/s.

SC6.6.4.3.5.1 Natural channel design (NCD)

1. The basic principles of natural channel design (NCD) are to minimise erosion, flooding and maintenance of engineered or modified drainage channels, while improving environmental values.
2. NCD is important in all waterways (whether natural in formation or constructed to appear and operate as natural channels), especially where the waterway provides a link with bushland reserves or forms an important part of an aquatic or terrestrial movement corridor (refer to *QUDM Section 9: Open channels*, for details on design principles and application).
3. Concrete lining of any new proposed channel is unacceptable as this solution does not consider whole-of-life costs nor protect or enhance environmental values. Attributes to be considered in the design include:
 - a. using linear wetlands, pond-riffle systems and off-line wetlands;
 - b. for batters, landscaping and maintenance access, the side slope of the channel banks must not be steeper than 1V:6H (vegetated);
 - c. intermittent use of 1V:6H or flatter (grassed or vegetated) batters for emergency egress by people;
 - d. boulders intermittently provided in localised areas to improve the aesthetics of the channel;
 - e. intermittent use of retaining walls where batter grades could not be achieved, less than 1m in height.
4. Rock riprap packed with soil and planted is preferred as a channel lining to minimise scour, although the design must limit scour velocity to reduce the need for riprap where possible.
5. An extended maintenance period (minimum 24 months) is required until the channel has sufficiently stabilised and vegetative cover is well established. A channel will take at least two growing seasons to stabilise using vegetation and several rainfall events will be required to show signs of any design or construction deficiencies.
6. Culvert crossings of a natural channel are to be arches or box culverts (with link slab across low-flow channel) to provide a natural creek bed in the low-flow area to scour and maintenance requirements.

SC6.6.4.3.5.2 Velocity limitations for open channels

1. An open channel with critical or supercritical conditions is not acceptable.
2. The velocity in an open channel must be limited to less than 90% critical velocity in the major storm event.
3. The maximum average velocity allowed in new vegetated channels is set out in *QUDM Section 9: Open channels*, and must not exceed 1.6m/s in the major storm event for the design Manning's roughness (typically $n=0.09$). For bank-full flows (usually <63% AEP storm) the maximum average velocity must be no greater than 1m/s for a Manning's value of 0.15 (fully vegetated).
4. Channel velocity checks must assume that undersized culverts will be upgraded to current design standards at some

time in the future.

5. Box culverts must be used for culvert crossings of creek or waterways or other natural channels (proposed or existing) to reduce outlet velocity, minimise the need for energy dissipaters, reduce the potential for blockages by debris and minimise maintenance costs.
6. Where velocity is excessive and cannot be reduced by modifying the channel geometry, armouring of the channel will be required (e.g. use of rock riprap).

SC6.6.4.3.5.3 Maintenance access

1. Where any new channel is proposed, it is provided with suitable access for vehicle maintenance by providing a 4m berm along each side of the open channel. This berm will also provide a buffer for environmental, water quality and recreational purposes.
2. Access to potential high maintenance locations such as stormwater outlets within the channel must be provided.

SC6.6.4.3.5.4 Consideration of siltation in channel design

1. If a channel is proposed in a low-lying area where grades are flat (minimum velocity 0.6m/s), the design must consider the sensitivity of the proposed waterway or channel to siltation which will cause eventual flooding of surrounding land.
2. The hydraulic analysis must include the effects of siltation in the order of 150mm having been deposited to the channel bed.

SC6.6.4.3.5.5 Design Manning's roughness values

1. Guidelines for selecting Manning's roughness values where revegetating an existing floodplain are stated in *QUDM Section 9: Open channels*.
2. Where designing new vegetated channels minimum design roughness values are to be in accordance with *QUDM Section 9: Open channels*.

SC6.6.4.3.5.6 Service crossings of channels and creeks

1. Service crossings above channel bed will need to consider the following:
 - a. isolated service pipe crossings located above the bed are not allowed where such a structure will affect visual amenity or create adverse hydraulic impacts;
 - b. if Council is satisfied that visual amenity is not compromised, afflux from the structure must not exceed 150mm within the immediate area of the service crossing and does not impact any private property;
 - c. it is preferable that the level of the crossing be as low as possible or above the 1% AEP flood level;
 - d. the crossing must be designed to avoid debris collection and to take account of scour at the bank entry or in the bed below the pipe;
 - e. maintenance holes must not be located on the assumption that the creek morphology is stable. In sand-based creeks any exposed service crossing must be avoided as the bed and banks of the creek are highly susceptible to movement. Such services must be below the expected future scour level of the creek;
 - f. sensitivity analysis required to estimate impacts of 100% channel blockage as a result of the service crossing (refer to *QUDM Section 7: Urban drainage*).
2. For service crossings below channel bed:
 - a. pipe crossings which are located below the bed of an unlined channel have at least 1m clear cover or additional scour protection must be provided along the open channel near a pipe crossing;
 - b. if mitigation works have already been undertaken on the watercourse or if the channel is in a stable condition (and not a sand parent material-based creek), the requirement in Item a, above, may be relaxed at the discretion of Council, provided appropriate protection works are undertaken;
 - c. engineering drawings must include a plan and cross-section of the proposed works and a longitudinal section of the bed and supporting evidence of potential creek scour depths.

SC6.6.4.3.6 Culverts, floodway and bridges

1. Unless otherwise specified, *QUDM Section 10: Waterway crossings*, requirement criteria applies:
 - a. Ford crossings are not to be used;
 - b. For further guidance on the design of culvert crossings refer to *DTMR Road Drainage Manual*.

SC6.6.4.3.7 Detention and retention systems

1. Unless otherwise specified, *QUDM Section 5: Detention/retention systems*, requirement criteria applies:
 - a. Where an online system is proposed, it must provide regional benefits to flow reduction and be designed for ultimate

- catchment development;
- b. Where stormwater from any public asset such as a road reserve is directed into a stormwater detention system, these detention systems must be located within public land such as a park or drainage reserve, but not within road reserves. Only above-ground detention storages will be permitted in Council-owned lands. Tanks in public roads will not be accepted;
 - c. Above-ground detention basins must be integrated with water quality treatments by locating the detention storage requirement above the water quality extended detention depth;
 - d. Using stormwater detention tanks in commercial or industrial developments will be permitted where located on lots or within privately owned roads or driveways. Similarly, tanks could be used within roads or driveways owned by community title for residential developments.

SC6.6.4.3.7.1 Design objectives

1. Sufficient detention storage must be provided to ensure peak flow rates and/or flood levels at any point within the downstream drainage system do not increase because of the development from the 1-year ARI (63% AEP) storm to the 100-year ARI (1% AEP) storm events (for all relevant storm durations).
2. Where stormwater detention is considered necessary, sizing of detention storage for sites less than 2ha may use the simplified sizing method.
3. Where alternative detention storage requirements for smaller sites are proposed and/or where a site area exceeds 2ha, sizing of detention storage must be justified using a suitable run-off or storage routing model (e.g. DRAINS (ILSAX), XP-RAFTS, XP-STORM, ROBB, WBNM).

SC6.6.4.3.7.2 Simplified detention storage sizing method

1. For development sites less than 2ha, avoid complex hydrological modelling. In every case, the sizing would require confirmation at the detailed design stage by a RPEQ.
2. Infill development where the site has an existing impervious area greater than 70% will not require stormwater detention because there is little change in peak flow, and redevelopment will often improve and augment older roof-water and stormwater drainage systems. Larger developments must confirm this is the case.
3. The proposed impervious percentage must be estimated from the areas affected by the development and must exclude park areas or drainage reserves that lie within the site catchment as these areas must not drain to a detention system. This may significantly bias the average imperviousness and does not reflect the intensification of land use and resulting increase in peak flows.
4. Sites larger than 2ha will need to model the hydrology and estimate stormwater detention requirements and permissible site discharges as required.
5. The applicable site storage requirements (SSR) and permissible site discharges (PSD) for development are shown in Table SC6.6-3: Site storage requirements (SS) — Deemed-to-comply solution, and Table SC6.6-4: Permissible site discharge (PSD) — Deemed-to-comply solution, and the relevant categories used for estimating the site storage requirements and permissible site discharges are:
 - a. Category D1 — sites where the existing impervious surfaces are less than 10% of the proposed developed area, this is applicable to greenfield sites;
 - b. Category D2 — sites where the existing impervious area is greater than 10% but less than 40% of the proposed developed area, this is applicable to greenfield sites and some infill development;
 - c. Category D3 — sites where the existing impervious area is greater than 40% but less than 60% of the proposed developed area, this is applicable to infill development.

Table SC6.6-3: Site storage requirements (SSR) — Deemed-to-comply solution

PROPOSED IMPERVIOUS PERCENTAGE	DEVELOPMENT SITE STORAGE REQUIREMENT		
	CATEGORY D1 (M ³ /HA)	CATEGORY D2 (M ³ /HA)	CATEGORY D3 (M ³ /HA)
70 or less	320	150	n/a
82	335	165	110
86	340	170	115
88	345	170	115
90	345	175	120
95 or greater	350	180	125

Note—The proposed impervious percentage must exclude park areas, drainage reserves etc. that lie within the site catchment.

6. Table SC6.6-4: Permissible site discharge (PSD) — Deemed-to-comply solution, applies except in the following circumstances:
- These site storage requirement volumes are to be increased by 15% where a non-high early discharge (HED) detention system is used OR where an above-ground basin (even with a high early discharge outlet) is used OR where the detention basin additionally provides a water quality treatment or ecological function;
 - Site with an impervious area greater than 70% do not typically require stormwater detention where it is demonstrated that no adverse impact will occur on neighbouring properties.

Table SC6.6-4: Permissible site discharge (PSD) — Deemed-to-comply solution

EXISTING SITE	PERMISSIBLE SITE DISCHARGES (L/S/HA)	
	2 YEAR ARI (39% AEP)	100 YEAR ARI (1% AEP)
Category D1	180	535
Category D2	300	710
Category D3	370	790
> 60% sealed impervious surfaces	<i>Note—No stormwater detention is required if the development is shown to have no adverse impact on any existing properties.</i>	<i>Note—No stormwater detention is required if the development is shown to have no adverse impact on any existing properties.</i>

SC6.6.4.3.7.3 Detention sizing — General considerations

- External catchments:
 - Overland flows that enter the site from external catchments must be collected and conveyed through but kept isolated from any stormwater detention systems for all storm events;
 - Similarly, run-off from parks and other large pervious areas must also bypass the detention system;
 - Where bypass is not possible, the detention system must account for this additional inflow.
- Hydraulic control at outlet:
 - On-site detention must be gravity drained. Pumped systems are not permitted for detention systems;
 - An essential element in preserving the integrity of an on-site detention system is ensuring that the system functions independently of the drainage network;
 - The stormwater detention facility is not intended to handle surcharge flow from the street drainage network. The starting hydraulic grade line level of the detention system must be set at the top of the kerb and channel at the discharge point to the street system;
 - The outlet control device must be set above this level regardless of whether the detention system is connected to the underground drainage system or to the kerb and channel, to ensure that the outlet control is unaffected by downstream hydraulic grade line or water surface levels.
- Distributed detention storage:
 - Distributed detention storages that drain into each other must not perform in the same way as a single storage as they reduce the effectiveness of the down-slope storages in attenuating flows, creating adverse tail-water conditions. These systems are discouraged and where proposed must be modelled as an integrated system using a hydrological model;
 - The site storage requirements must be located within a single detention storage; otherwise detailed hydrological modelling will be required to estimate storage requirements of a distributed storage proposal.
- Site run-off bypassing the storage facility:
 - A portion of the new impervious areas may discharge directly to a lawful point of discharge (if it cannot be drained to the detention storage) provided the permissible site discharge (PSD) is reduced to compensate for the bypass flow. The allowable extent of impervious surfaces bypassing the detention facility must not represent more than 25% of the impervious area draining to the detention facility;
 - For hydrological modelling, the bypass areas must not be directed into the storage. However, for the simplified sizing method the modified Permissible site discharge m_2 of catchment will be calculated using the following equation:

$$\text{Mod. PSD} = \text{PSD} \times \left(\frac{A_t}{A_t + A_b} \right)$$

Where A_b = impervious area bypassing the storage facility
 A_t = total area draining to the storage facility
 PSD = permissible site discharge.

SC6.6.4.3.7.4 Requirements for above-ground systems

- Aesthetics:

- a. Once authorised to have a basin in parkland or other Council-controlled land, an important design criterion is that the basin does not look like a hydraulic structure but has distinctive character. This will involve using variable slopes, retaining upstream gullies, camouflaging inlets and outlet structures and similar (a rectangular or geometrically shaped basin is undesirable);
 - b. Any detention basin proposed in a park or drainage reserve that does not incorporate a 'wet' water quality function, is part of a bioretention basin or has low flow channels, must be designed as a high early discharge (HED) system where flows only surcharge into the basin when the outlet capacity is exceeded;
 - c. The high early discharge system:
 - i. ensures that frequent flows do not spill into the basin thereby minimising maintenance issues associated with waterlogged soils;
 - ii. is more efficient in their use of storage, requiring less storage volume than a standard detention basin arrangement.
2. Unless otherwise specified, QUDM Section 5: Detention/retention systems, requirement criteria applies.
- a. Embankments holding back floodwaters must be suitably designed to be structurally adequate, certified by a RPEQ (geotechnical) and must be no higher than 1.5m above natural ground level;
 - b. All detention basins are provided with a minimum 3m wide vehicle access crossover and a driveway from the nearest public road (sealed to suit the seal type of the road) into the basin and a vehicle turn around area to facilitate maintenance. The design vehicle for the driveway and the turnaround area is to be a medium rigid vehicle (MRV);
 - c. For a wet retention basin, the vehicle access ramp must extend at least 500mm below the normal operating water level of the basin.
 - d. In the event a spillway or weir discharge has been proposed onto an adjoining property as sheet flow (if all the other options are exhausted), the designer must demonstrate using 2D hydraulic modelling that discharge does not create actionable nuisance and would not adversely impact current or future use of the adjoining property and satisfies the safety criterion.
 - e. The use of high early discharge pits can reduce storage requirements by allowing the flow at the start of a storm to pass around the basin, thereby ensuring more detention storage is available closer to the peak of the storm.
 - f. High early discharge systems typically are only suitable for dry detention basins that do not perform a water quality function as low flows bypass the basin.

SC6.6.4.3.7.5 Requirements for underground detention systems

1. The design of underground detention storage must address several public health, safety and pollution issues.
2. The storage must be self-cleaning, well ventilated, not cause accumulation of noxious gas, and facilitate easy maintenance and inspection. The following requirements must be met to achieve the performance objectives:
 - a. the base has a suitable fall to the outlet (minimum grade 0.5%) and is appropriately shaped to prevent permanent ponding;
 - b. long-term ponding of water over the floor of the basin will not be accepted;
 - c. provide a minimum 600mm x 900mm maintenance access opening over the tank outlet;
 - d. provide additional 600mm x 900mm pits where required to ensure the distance between pits does not exceed 10m;
 - e. provide an inspection or access pit (600mm x 600mm) directly over any inlet pipe;
 - f. incorporate a child-proof locking system for the surface grates;
 - g. install step irons where pit depth is greater than 1.35m;
 - h. where the storage is not sufficiently deep (<1.2m), access grates must be placed at the extremities of the tank and at intervals not exceeding 3m, which must allow any point in the tank to be flushed or reached with a broom or similar implement, without the need to enter the tank;
 - i. the minimum internal clearance height for accessible tanks is 1.2m in roads or driveways and 0.9m elsewhere;
 - j. the tank is to be structurally designed and certified to withstand all expected service loads and provide adequate service life;
 - k. provide an overflow or bypass outlet ensuring any overflow is not directed into private property;
 - l. locate the tank outside of the root zone of trees that must be retained;
 - m. in areas of high water tables or floodplains, the tank is to be designed to ensure it resists buoyancy effects.
3. Drainage design standard where detention is proposed:
 - a. Stormwater detention tanks must capture all flows off a development up to the 1% AEP storm, which is a much larger event than the drainage design standard for development. As a result, where underground detention tank is proposed, it will necessitate that the gullies and pipes within the development are sized to capture these flows;
 - b. The minor drainage system design where underground detention is proposed is to be the 10% AEP, with additional inlet capacity to 1% AEP provided closer to the detention system to capture flows.
4. Orifice plates:
 - a. Orifice plates must be manufactured from corrosion-resistant stainless steel plates with a minimum thickness of 3mm (5mm where orifice diameter exceeds 150mm), with a central circular hole machined to 0.5mm accuracy;
 - b. The orifice diameter must not be less than 35mm and the machined hole must retain a sharp edge;
 - c. The plate must be permanently fixed to the pit wall and epoxy sealed to prevent the entrance of water around the edges;
 - d. The plates must be engraved with the orifice diameter and an identifying mark, and the orifice diameters certified by

the manufactures.

5. Outlet sump:
 - a. A sump is required in the base of the discharge control pit to assist in minimising turbulence near the pit floor from affecting the hydraulic performance of the orifice outlet;
 - b. The sump would also prevent silt and debris from blocking the orifice outlet and facilitate simple installation of the orifice plate;
 - c. The invert of the sump must be at least 1.5 times the orifice diameter or 200mm (whichever is greater) below the centre of the orifice outlet and enough weepholes must be installed in the sump floor and be kept unblocked.
6. Grates and trash screens:
 - a. Where an orifice plate is used with an orifice diameter less than 100mm, inflows must be screened to avoid blockage;
 - b. Screening (hot dipped galvanised) must incorporate handles for easy removal;
 - c. The screens must be fixed at least 150mm from the orifice and positioned as close to vertical as possible.
7. Use of oversize pipes for storage:
 - a. Oversize pipes will not provide enough detention in a drainage system and are likely to adversely impact on drainage design requirements and cause frequent sedimentation;
 - b. If oversize pipes for storage are proposed, the loss of storage with pipe grade must be considered along with impacts on peak flows, pipe capacity and self-cleansing velocities using appropriate hydrological models.

SC6.6.4.3.7.6 Maintenance requirements for Council and private detention systems

1. All detention and retention systems must be designed with simple, safe, cost-effective maintenance in mind.
2. A maintenance plan that documents all the maintenance requirements and responsibilities must be developed for all development applications for a material change of use applications (excluding dwelling houses). The plan must describe how the design facilitates maintenance requirements and set out how the system is to be maintained by addressing issues such as inspection, clean-out frequency, procedures, access and occupational health and safety requirements. Where a Council-owned asset, the maintenance plan must be submitted as part of the on-maintenance documentation and include the cost estimate for the construction of the detention system and estimate of annual maintenance costs.

SC6.6.4.3.8 Inlets

SC6.6.4.3.8.1 Stormwater inlets

1. Stormwater structures must be designed and constructed in accordance with the IPWEAQ Standard drawings, Drainage suite.
2. Gully pits are to be 'lip in line' (i.e. CM gully pits or approved similar).
3. Where alternative stormwater inlet systems are proposed, these systems must be supported by appropriate hydraulic testing information.
4. Grates, where used, must be bicycle-safe.
5. The slope of infrastructure associated with inlet and outlet structures, e.g. wing walls, must be 1V:4H or flatter.

SC6.6.4.3.8.2 Gully inlet capacity

1. Designers must ensure that gully inlets at sags achieve the required 50mm freeboard to the footpath crown, particularly if seeking to provide a 1% AEP immunity to the adjoining low-side properties. If surcharge occurs from an overland flow path from a trap in the road, attention must be paid to the ponded depth requirement for gully capture.

SC6.6.4.3.8.3 Gully inlet location

1. In addition to the requirements stated in QUDM Section 7: Urban drainage, gully inlets must be located:
 - a. on straights, wherever possible;
 - b. to reduce the likelihood of conflict with future driveway locations.
2. Anti-ponding gullies in curves are to be avoided wherever possible. If used, they are to be side-entry type, chamber and grate only.
3. Where two falling grades meet at an intersection, if possible, the low point must be located clear of the kerb return. The cross-fall may be varied locally within the range of 2% to 5% to achieve this.
4. The slope of infrastructure associated with inlet and outlet structures, e.g. wing walls, must be flatter than 1V:4H

SC6.6.4.3.8.4 Piped networks

1. Unless otherwise specified, QUDM Section 7: Urban drainage, requirement criteria applies.
 - a. Pipes laid longitudinally along the road are to be installed as follows:
 - b. Pipes less than 600mm diameter may be laid directly under the kerb and channel from the centre of one gully pit

chamber to the centre of the next gully pit chamber provided sufficient clearances are maintained for services crossing the pipe;

- c. For pipes 600mm diameter and greater, the centreline of the pipe must be offset 2m from the lip of kerb and channel towards the road centreline and an offset chamber must be constructed.
- d. Pipe drainage systems must be manufactured from reinforced concrete products.
- e. Backfilled trenches in dispersive soils are to be properly compacted approved material (refer to section SC6.6.6.4 Soil Management, to ensure water filtration does not cause underground erosion.
- f. With the exception of inter-allotment drainage systems, the minimum size for circular pipes is to be 375mm diameter and box culvert 450mm by 300mm:
- g. Pipes up to and including 600mm diameter are to be rubber ring jointed;
- h. Pipes larger than 600mm diameter are to be internal flush jointed with pipe manufacturers proprietary external bands;
- i. The class of pipe is to be as specified or as shown on the engineering drawings in accordance with the strength requirements of pipes in roadways, or in deep trenches or under fills;
- j. Where the class of pipe is not specified it is to be a minimum of Class 2.
- k. The desirable minimum grade is 0.5% with the absolute minimum of 0.3% but only for full flowing pipes.

SC6.6.4.3.9 Outlets

1. Unless otherwise specified, QUDM Section 8: Stormwater outlets, requirement criteria applies:
 - a. Limited data is currently available for design outlet water levels to creeks throughout the region. Designers must make appropriate allowances where flood data is not available or of uncertain accuracy and be aware of the sensitivity of designs to outlet water level assumptions, particularly in flat terrain;
 - b. Information from a Flood model where available to be used and could be obtained from Council under a Data Sharing Agreement and at a fee;
 - c. Safety at all free-drainage outlets must be considered in the design;
 - d. For further guidance on the design of stormwater outlets, refer to the DTMR Road Drainage Manual.

SC6.6.4.3.9.1 Roof, inter and rear of allotment drainage

1. Unless otherwise specified, QUDM Section 7: Urban drainage, requirement criteria applies.
2. The finished surface level of the allotment is less than 400mm, at the middle of the allotment, above the lowest top of kerb along the frontage kerb and channel.
3. The level of inter-allotment drainage required is described at Table SC6.6-5: Inter-allotment drainage levels.

Table SC6.6-5: Inter-allotment drainage levels

LAND DESIGNATION	DRAINAGE LEVEL
Emerging communities zone, Residential expansion area, Urban Residential zone, Urban Residential area, Rural residential zone, Rural residential area, Park residential Zone	II
Industrial zone, Industrial area, Commercial zone, Business area, Village Zone, Village area	IV, V

Note—Not required for all other zones.

4. Fibre Reinforced Concrete (FRC) pipes are not permitted.
5. Manning's Equation, with a minimum 'n' value of 0.011, is to be used to determine pipe sizes. Pipes may be graded 'obvert to obvert' provided that the following minimum falls are provided through pits and access chambers:
 - a. 0—30 degrees — 0.02m; or
 - b. 30—60 degrees — 0.04m; or
 - c. 60—90 degrees — 0.08m.
6. Recommended design criteria for Level II drainage, with the following amendments to the applicable flow:
 - a. 10L/s per allotment up to 600m²;
 - b. 5L/s per allotment 1,000m² or greater;
 - c. interpolation for allotments 600m² to 1,000m².
7. The main 'line' of the pipe is to be located a minimum 1m from rear boundaries and 1m from side boundaries.
8. Access chambers are to be provided at the following locations:
 - a. change of grade;
 - b. change of pipe size;
 - c. change of direction;
 - d. end of line;
 - e. maximum 100m spacing.
9. Direct connection of inter-allotment drainage to the kerb and channel will not be permitted without Council approval.
10. Discharge of inter-allotment drainage to a public reserve may be allowed where no alternative drainage structure is

- available. Outlets must be designed with scour protection, concrete headwalls, wingwalls and apron.
11. The minimum standard of documentation for calculations must be the development layout plan at a suitable scale to clearly show:
 - a. allotment and roadway layout;
 - b. set-out of the rear-of-allotment drainage line;
 - c. location of the underground stormwater drainage line;
 - d. locations of inspection access chambers on the rear-of-allotment drainage lines and on the underground-stormwater drainage lines;
 - e. connection stub locations;
 - f. allotment areas;
 - g. direction of contributing fall of each allotment;
 - h. design flow discharge from each allotment;
 - i. pipe size and type of rear of allotment drainage lines;
 - j. pipe size and type of underground stormwater drainage lines;
 - k. existing natural surface levels at every corner of the allotments;
 - l. finished surface levels at relevant locations to demonstrate proposed drainage paths;
 - m. other information necessary to identify the development's stormwater drainage system.
 12. Sample drawings showing this information are included on LVRC Standard drawings:
 - a. SD-261 Regional Road Standards — Urban & Residential Streets — Underground Stormwater Drainage Typical Layout Plan;
 - b. SD-262 Regional Road Standards — Urban & Residential Streets — Underground Stormwater Drainage Typical Longitudinal Section;
 - c. SD-263 Regional Road Standards — Urban & Residential Streets — Underground Stormwater Drainage Typical Layout Plan As Constructed are sample drawings showing this information.
 13. Calculations must include:
 - i. design storm ARI or AEP;
 - ii. pipe size;
 - iii. pipe type and class;
 - iv. grade of pipe;
 - v. flow volume in each section of pipe between the inspection access chambers;
 - vi. average allotment levels;
 - vii. cover from future cut or fill platform to rear-of-allotment drainage lines;
 14. Calculation data may be included on longitudinal section drawings. An example drawing is shown on the LVRC Standard drawing, SD-261 Regional Road Standards - Urban and Residential Streets - Underground Stormwater Drainage Typical Longitudinal Section.

SC6.6.4.3.9.1.1 Ownership and maintenance

1. Council Responsibility: Council is only responsible for interallotment drainage systems that are installed as a requirement of the development and are accompanied by a drainage easement.
2. Privately Owned Systems: If interallotment drainage systems are constructed by the developer for the improvement of the allotments, it becomes privately owned. In such cases, the maintenance of these systems are the responsibility of the properties using them.
3. Civil Matters: Any interference with the interallotment drainage system that adversely impacts surrounding properties becomes a civil matter between the respective property owners.

SC6.6.4.3.9.1.2 Design requirements

1. Drainage Easement: Interallotment drainage systems are to be contained within an easement granted in favour of Council.

SC6.6.4.3.9.1.3 System requirements

1. Location of Drainage Lines: Interallotment drainage is not to be located along more than two boundaries of any Lot.
2. Pipe Size: The minimum pipe size for interallotment drainage shall be 225mm in diameter.
3. Drainage Pits: Interallotment drainage pits shall be located at the junction of changes in direction.
4. Private Interallotment Drainage: Private interallotment drainage is restricted to a maximum of four allotments. After reaching this limit, the drainage system must discharge to a lawful point of discharge.
5. Alignment with Drainage Easement: Interallotment drainage is to be install so the alignment is within the centre of the drainage easement. In cases where a stormwater allotment pipe shares an easement with a sewerage line, the stormwater pipe shall be offset from the boundary line by a minimum of 1m.

SC6.6.4.4 Stormwater quality

SC6.6.4.4.1 Deemed-to-comply solutions

1. Exclusive of drinking water requirements, the Deemed to Comply Solutions — Stormwater Quality Management (South East Queensland) produced by Healthy Waters can be used for the four (4) applicable scenarios identified in the document as follows:
 - a. Residential greater than 2 lots and up to 20 lots;
 - b. Residential greater than 2 dwellings (townhouse style up to 2 storeys) for developments less than 12,500m²;
 - c. Residential high density multiple dwelling apartments flats, high-rise) for developments less than 12,500m²;
 - d. Commercial or industrial development less than 12,500m².

SC6.6.4.4.2 Methods of stormwater quality control

1. Permanent stormwater quality controls are implemented to control run-off water quality beyond the initial construction and maintenance stages and need to be described within a site-based stormwater management plan (SBSMP).
2. A SBSMP is to be prepared by a suitably qualified Engineer (RPEQ):
 - a. conform with principles of ecologically sustainable development;
 - b. demonstrate that the development is occurring on the appropriate land capability class;
 - c. maximise the social value of stormwater and stormwater infrastructure;
 - d. protect riparian zones from disturbance;
 - e. adopt water conservation and recycling principles;
 - f. not cause or worsen flooding, or create nuisance ponding;
 - g. minimise the cost to Council of maintaining permanent stormwater infrastructure.
3. Minimum reductions in mean annual pollutant loads from unmitigated developments, (to be achieved by new developments) are 80% total suspended solids (TSS), 60% total phosphorus (TP), 45% total nitrogen and 90% gross pollutants > 5mm. The water quality treatment strategy and design solution provided in the SBSMP is derived by either:
 - a. Computer Modelling Software (MUSIC) where reporting follows the procedures detailed in Healthy Land and Water, MUSIC Modelling Guidelines, Chapter 7: Lodgement, Reporting and Assessment; or
 - b. adoption of a relevant best practice solution with supporting evidence and calculations to demonstrate the solution has been adopted correctly.

SC6.6.4.5 Erosion and sediment control

1. Controls are required to avoid the siltation or erosion of adjoining lands, streams, wetlands, watercourses, habitat areas and downstream piped drainage systems during the construction phase and the maintenance phase of a development. An erosion hazard risk assessment and consequent erosion and sedimentation control plans (ESC) are to be prepared in accordance with the recommendations contained in the latest edition of the publication:
 - a. Best Practice Sediment and Erosion Control — for Building and construction sites, International Erosion Control Association (IECA);
 - b. State Planning Policy 2017 Part E Water Quality;
 - c. State Planning Policy State Interest Guidance material: Water quality, July 2017.
2. Adopted measures are to be captured on approved erosion and sediment control plans and approved engineering drawings and implemented during construction.
3. When any erosion or tracking of sediment from the site onto the adjoining street network or to neighbouring properties does occur immediate action is necessary to rectify the situation, repair any damage including to removal of silt and debris.
4. During the construction phase, temporary measures as outlined in publications from the IECA, are acceptable and may include:
 - a. contour banks;
 - b. sandbags;
 - c. sedimentation basins and traps;
 - d. channel lining such as riprap;
 - e. energy dissipaters;
 - f. geotextile or matting on slopes;
 - g. proprietary methods;
 - h. vegetation above and below the cut-and-fill areas is to be retained to stop run-off water coming onto the site and into the excavation, and to prevent soil from leaving the site;
 - i. all excess material is to be removed immediately after excavation to prevent bogging and soil from washing away;
 - j. soil stockpiles are to be stored within areas of the site nominated on the approved erosion and sediment control plans;
 - k. cut-off drains are to be provided, where necessary, above and below the cut-and-fill area to minimise the volume of water entering the excavation.
5. Limited clearing and excavation at any one time are to be considered in construction design by:
 - a. the staging of works;
 - b. trenches are to be backfilled within 24 hours of inspection and approval;

- c. soil erosion control measures are to be placed above and below the excavated site to prevent soil movement during periods of rainfall;
 - d. the erosion control measures are to be maintained throughout the progress of the work.
6. Control measures are to be implemented to adequately control non-cohesive, saline and dispersive soils.
 7. All unpaved areas where earthworks have been undertaken are to be grass-seeded to achieve a good grass cover and are to be established within 14 days.

Note—Council has adopted IECA 2008 Best Practice Erosion and Sediment Control as the default ESC reference document for ground disturbing activities. This document is considered the 'minimum standard' for ESC and is to be used for development. Use of any alternative ESC reference document that specifies a lower performance standard than IECA 2008 Best Practice Erosion and Sediment Control is not permitted.

SC6.6.4.5.1 Erosion and sediment control plans

1. Engineering structures (temporary or permanent) such as inlets, outlets, spillways and sediment basin embankments that form part of an Erosion and Sediment Control Plan or Program are designed, certified and inspected by a Registered Professional Engineer of Queensland (RPEQ).
2. The primary purpose of erosion and sediment control plans (ESC Plans) is to inform those persons constructing the development on what controls need to be implemented throughout all stages of the development from site establishment to project completion. Typically, a separate ESC Plan is required for each phase of the development including the bulk earthworks, civil construction (typically roadworks and stormwater drainage), services installation, final stabilisation and the decommissioning of construction phase sediment basins. These plans could be considered an element of complying with the general environmental duty, that is, doing all that is reasonable and practicable to prevent or minimise environmental harm.
3. ESC plans must:
 - a. be prepared by a suitably qualified and experienced professional;
 - b. be consistent with this standard and a current best-practice document (such as the IECA 2008 Best Practice Erosion and Sediment Control — for building and construction sites). For issues where a document (i.e. manual or guideline) is not consistent with this standard, this standard prevails to the extent of the inconsistency;
 - c. be based on an assessment of the physical constraints and opportunities of the development site, including those for soil, landform type and gradient, and hydrology;
 - d. be supported by on-site soil testing;
 - e. provide a set of contour drawings showing existing and design contours, the real property description/s, north point, roads, site layout, boundaries and features. Contours on, and surrounding, the site must be shown so that catchment boundaries can be considered;
 - f. be at a suitable scale for the size of the project (as a guide around 1:1,000 at A3 for a 2ha development and 1:500 at A3 for a 3,000m² development);
 - g. provide background information including site boundaries, existing vegetation, location of site access and other impervious areas and existing and proposed drainage pathways with discharge points also shown;
 - h. show the location of lots, stormwater drainage systems;
 - i. details on the nature and specific location of works and controls (revegetation, cut and fills, run-off diversions, stockpile management, access protection), timing of measures to be implemented and maintenance requirements (extent and frequency as defined in IECA Best Practice & Sediment Control — for building and construction sites, Chapter 6: Site management);
 - j. show all areas of land disturbance, the way that works will modify the landscape and surface and sub-surface drainage patterns (adding new, or modifying existing constraints);
 - k. for each phase of the works (including clearing, earthworks, civil construction, services installation and landscaping) detail the type, location, sequence and timing of measures and actions to effectively minimise erosion, manage flows and capture sediment;
 - l. describe the scheduling of progressive and final rehabilitation as civil works progress, including the stabilisation of up-slope catchments before sediment basin removal;
 - m. identify the riparian buffers and areas of vegetation which are to be protected and fenced off to prevent vehicle access;
 - n. indicate the location and provide engineering details with supporting design calculations for all necessary sediment basins and ESC-related drainage structures;
 - o. indicate the location and diagrammatic representations of all other necessary erosion and sediment control measures;
 - p. identify the clean and disturbed catchments, and flow paths, showing:
 - i. diversion of clean run-off
 - ii. collection drains and banks, batter chutes and waterway crossings
 - iii. location of discharge outlet points
 - iv. water quality monitoring locations.
 - q. show calculated flow velocities, flow rates and capacities, drain sizing and scour or lining protection, and velocity or energy checks required for all stormwater diversion and collection drains, banks, chutes, and outlets to waterways;
 - r. show waterways (perennial and non-perennial) and detail of stabilisation measures for all temporary waterway crossings;

- s. locate topsoil and/or soil stockpiles;
- t. prescribe non-structural controls where applicable, such as minimising the extent and duration of soil exposure, staging the works, identifying areas for protection, delaying clearing until construction works are imminent etc.;
- u. include a maintenance schedule for ensuring ESC and stormwater infrastructure is maintained in effective working order (refer to IECA Best Practice & Sediment Control — for building and construction sites, Chapter 6: Site Management and Chapter 7: Site Inspection);
- v. include an adaptive management program to identify and rectify non-compliances and deficiencies in environmental performance (refer to IECA Best Practice & Sediment Control — for building and construction sites, Chapter 6: Site Management and Chapter 7: Site Inspection);
- w. provide details of chemical flocculation proposed, including equipment, chemical, dosing rates and procedures, quantities to be stored and storage location, and method of decanting any sediment basin;
- x. show how post-construction water sensitive urban design bioretention devices will be protected against sediment ingress during land-disturbing activities, including where applicable the transition from construction-phase sediment basins to post-construction phase bioretention basins.

SC6.6.4.5.2 Erosion and sedimentation control program

1. A construction phase erosion and sediment control (ESC) program is a set of management strategies, supporting documents and ESC plans that describe what controls are required throughout all stages of the construction of the development, including the integration and protection of post-construction stormwater management infrastructure (e.g. water sensitive urban design bioretention devices).
2. In addition to providing ESC plans, the ESC program must:
 - a. be consistent with IECA 2008, Best Practice Erosion and Sediment Control – for building and construction sites. For issues where a current best-practice document is not consistent with this standard, this standard prevails to the extent of the inconsistency;
 - b. be supported by on-site soil testing and analysis;
 - c. include contingency management measures for the site, to ensure ESC measures are always effective, particularly just before, during and after wet weather;
 - d. be consistent with current best-practice standards, considering all environmental constraints including erosion hazard, season, climate, soil characteristics, and proximity to waterways;
 - e. be prepared to enough standard and level of detail such that compliance with this standard will be achieved if the construction phase ESC program is correctly implemented on site;
 - f. include an effective monitoring and assessment program to identify, measure, record and report on the effectiveness of the erosion and sediment controls and the lawfulness of water releases (refer to IECA Best Practice & Sediment Control – for building and construction sites, Chapter 6: Site Management and Chapter 7: Site Inspection).
3. The supervising engineer must undertake inspections of the erosion and sediment control devices after all significant rain events. Where necessary, the devices will be modified, repaired or improved to prevent any erosion or sediment discharge from the development in future rain events.

SC6.6.4.5.3 Soil testing

1. Assessment of site soil conditions is an integral component of best-practice civil construction and erosion and sediment control. Proper assessment of site soil characteristics is necessary to objectively inform the selection and design of site ESC measures, the suitability of in-situ soils for fill embankment construction and stability, construction-phase water quality treatment (such as for dispersive soils), future asset protection (such as stormwater outlet protection), topsoil fertility and amelioration requirements to ensure successful vegetative stabilisation and revegetation.
2. Soil testing is to be consistent, of Best Practice & Sediment Control Section 3.5 Soil Data and Appendix C Soils and revegetation.

SC6.6.4.5.4 Protecting waters from development impacts

SC6.6.4.5.4.1 Landowner responsibility

1. The landowner is responsible for environmental management of the site and is:
 - a. consistent with the requirements of this policy, or
 - b. where not consistent with section 6.6.4.5.3 Soil testing that actions is undertaken to achieve compliance with this policy.
2. The landowner must document compliance with this policy beyond entering into a contract with experienced engineers and/or contractors. The documentation is to be available and provided to Council upon request.
3. For subdivision works (i.e. reconfiguration of a lot), the landowner is responsible for ensuring that the site has an effectively stabilised surface to prevent erosion and that sediment from entering waters. This requirement applies throughout the development works and until such time as the Council accepts the development 'off maintenance' (e.g. for contributed Council assets such as parkland, roads and stormwater drainage) and whilst future private allotments remain

under the land owner's legal control (i.e. until sold).

4. The landowner and contractors have a responsibility to do all that is reasonable and practicable to ensure effective environmental management is implemented on site at all times and in accordance with the *Environmental Protection Act 1994*, and any development approval conditions.

SC6.6.4.5.4.2 Avoiding and minimising releases, flow and discharges of prescribed water contaminants

1. Sediment, earth, soil or other water contaminants must not be released from the site, or be likely to be released from the site, unless all reasonable and practicable measures are taken to prevent or minimise the release and concentration of contamination. Performance standards, principles and measures must include as a minimum, but are not limited to, the following sections 6.6.4.5.4.4 Erosion control standard to 6.6.4.5.4.8 Release limits.

SC6.6.4.5.4.3 Erosion control standard

1. The design and implementation of best-practice erosion control principles and practices will be based on monthly rainfall erosivity ratings in of Best Practice & Sediment Control, Table 4.4.1 Erosion risk rating (default) based on monthly rainfall erosivity and Table 4.4.4 Erosion risk rating based on monthly rainfall erosivity for Brisbane.
2. Minimising soil exposure:
 - a. Ensure non-essential exposure of soil is avoided by:
 - i. restricting the extent of clearing to that necessary for access to, and safe construction of the approved works;
 - ii. protecting vegetation in all other areas of the site;
 - iii. minimising the duration of soil exposure by:
 - A. only clearing vegetation immediately before an area being actively worked;
 - B. staging the works to minimise the area of soil exposed at any one time;
 - C. effectively stabilising cleared areas if works are delayed or works are not intended to occur immediately.
 - D. effectively stabilising areas at finished level without delay and before rainfall;
 - E. effectively stabilising steep areas, such as stockpiles, batters and embankments, which are not being actively worked and before rainfall.

SC6.6.4.5.4.4 Drainage control standard for temporary drainage works

1. The design drainage control for temporary drainage works is to be consistent with the Table 9.4.7-3: Construction phase — Stormwater Management Design Objectives for Temporary Drainage Works.
2. Managing stormwater:
 - a. Ensure clean stormwater is diverted or managed around or through the site without increasing the concentration of total suspended solids or other contaminants in the flow and without causing erosion (on site or off site). If it is not feasible to divert all areas discharging clean stormwater around or through the site, manage the clean stormwater as for contaminated stormwater, and ensure that sediment basins are sized to capture and accommodate the additional volume of run-off.

Note—Diverting clean stormwater run-off into a sediment basin is an inferior option to diverting clean stormwater around or through the site because it will cause an increase in the volume and frequency of contaminated releases from the sediment basin. For this reason, diverting clean stormwater into a sediment basin is not acceptable unless the proponent demonstrates that diverting clean stormwater around or through the site is not feasible.

- b. Ensure sheet flows of stormwater are managed such that sheet and rill erosion is prevented or minimised;
- c. Ensure that all concentrated stormwater flows including drainage lines, diversion drains, channels, spillway and batter chutes are managed onto, though, and at release points from the site in all rain events up to and including the equivalent year within Table 9.4.7-3: Construction phase — Stormwater Management Design Objectives for Temporary Drainage Works without causing:
 - i. water contamination; or
 - ii. sheet, rill or gully erosion; or
 - iii. sedimentation; or
 - iv. damage to structures or property.

SC6.6.4.5.4.5 Sediment control standard

1. The design and implementation of best-practice sediment control principles and practices will be based on monthly rainfall erosivity ratings as defined within Best Practice & Sediment Control, Table 4.5.2 Alternative sediment control standards based on monthly erosivity and average monthly rainfall.
2. Sediment basins are to:
 - a. be consistent with Best Practice Erosion and Sediment Control, Appendix B Sediment basin design and operation;
 - b. ensure each sediment basin has the capacity to treat flows to current best-practice standards and as a minimum to

contain all the stormwater run-off from the R(Y%, 5-day) rainfall depth equal to 40mm, unless a higher standard is prescribed in the development approval conditions;

Note—Research has shown that sediment basins designed on a 'batch' or total storm capture approach are only capable of treating a small percentage of the annual run-off volume without basin size becoming excessive. Innovation in sediment basin design to incorporate continuous flow treatment is likely to occur in the future and as this technology becomes available in best-practice guidelines, this technology is to be adopted where a better water quality outcome will result. The interim the minimum basin size is to be consistent with this section.

- c. provide sediment storage volume consistent with Best Practice Erosion and Sediment Control, Appendix B, Table B8 Sediment storage volume or as a minimum store at least 2 months sediment from the receiving catchment, as determined using the Revised Universal Soil Loss Equation (RUSLE);
- d. ensure sediment basins are maintained with sufficient storage capacity to capture and treat the run-off for the design rainfall depth. Where sediment basins are proposed to be oversized for storage of captured water for re-use, install survey markers in each such basin to clearly indicate the level that water within the basin must be lowered to, in order to meet the storage capacity specified in requirement (c) above;
- e. ensure sediment basins are dewatered to the appropriate level as soon as practicable after each rainfall event and no longer than 5 days after a rainfall event (see also below);
- f. ensure stormwater captured in sediment basins is treated before discharge to minimise the concentration of contaminants released from the site, having due regard to forecast rainfall, and ensuring that releases are consistent with 6.6.4.5.4.8 Release limits.

Note—Dewatered flows from sediment basins are to be compliant with the release limits specified in section to 6.6.4.5.4.8 Release limits, unless it can be demonstrated that a non-compliant release occurred to facilitate a better environmental outcome. For example, higher total suspended solids concentrations may be acceptable in circumstances where further rain is imminent and it can be substantiated that releasing partially treated basin water, which has a TSS concentration exceeding the release limit, would minimise the total contamination released from the site, by providing for the capture and treatment of expected run-off. However, releasing waters from sediment basins without treatment is not acceptable.

- g. ensure sediment basins and associated structures such as inlets, outlets and spillways are effectively stabilised and structurally sound for ARI rainfall events defined in Best Practice Erosion and Sediment Control, Appendix B Sediment Basin Design and Operation, Table B12 Recommended design standard for emergency spillways on temporary Sediment Basins;
 - h. ensure accumulated sediment from basins and other controls is removed and disposed of appropriately without causing water contamination.
3. Erosion and sediment controls (other than sediment basins):
- a. Ensure measures have been implemented such that the run-off from all disturbed areas flows to a sediment basin or basins. Where it is not feasible to divert run-off from small, disturbed areas of the site to a sediment basin, implement compensatory erosion, drainage and sediment controls before rainfall to ensure that erosion of those of areas does not occur, including erosion caused by either splash (raindrop impact), sheet, rill or gully erosion processes.

Note—Compensatory controls are erosion controls, drainage controls and sediment controls which compensate for the lack of sediment basin and are applied such that the type, timing, placement and management of controls minimise the potential for water contamination and environmental harm. This is primarily achieved by reducing the risk of erosion and subsequent sediment release, for example by turfing or mulching and managing concentrated flows in the area.

- b. Where it is not feasible to effectively stabilise cleared areas of exposed soil, such as areas being actively worked, implement a full suite of erosion and sediment controls, to maximise sediment capture in those areas and minimise erosion such that all forms of erosion, other than splash erosion (raindrop impact) and sheet erosion, do not occur;
- c. In areas of exposed soil where it is not feasible to either effectively stabilise the surface or implement a full suite of erosion and sediment controls, for example in the areas being actively worked and where the implementation of some erosion and sediment controls would impede construction activities, ensure contingency measures are available on site and are implemented, before rain, to maximise sediment capture in those areas and minimise erosion such that all forms of erosion, other than splash erosion (raindrop impact) and sheet erosion, do not occur;

Note—This does not apply to major erosion and sediment controls such as sediment basins. Major controls should be installed before other works commence.

- d. Effectively stabilise all stockpiles, batters and embankments without delay. Where it is not feasible to effectively stabilise a stockpile, batter or embankment, such as areas being actively worked, ensure that sediment controls are installed and surface stormwater flows are managed such that erosion of stockpiles, batters or embankments is not caused by concentrated stormwater flows;
- e. Ensure sediment does not leave the site on the tyres of vehicles.

SC6.6.4.5.4.6 Work within waterways

1. Waterways, including ephemeral and permanent waterways, must not be altered, nor riparian vegetation disturbed without written approval of the relevant administering authority;
2. Work within waterways:
 - a. must only be undertaken during the lower rainfall hazard months;
 - b. must be promptly rehabilitated conforming to the natural channel form, substrates and riparian vegetation as far as possible;
 - c. is to be consistent with Best Practice Erosion and Sediment Control, Book 3 Appendix I — Instream works.
3. Temporary vehicular crossings of waterways must be designed and constructed to convey minimum pipe flows as defined in Table 9.4.7-3: Construction phase — Stormwater Management Design Objectives for Temporary Drainage Works and remain structurally stable for all rainfall events specified.
4. Erosion and sediment controls must not be constructed within the riparian zone unless it is impracticable to site them elsewhere.

SC6.6.4.5.4.7 Effective stabilisation and plan sealing

1. Before to the sealing of the plan of survey for the development, all site surfaces must be effectively stabilised using methods which will continue to achieve effective stabilisation in the medium to long term. For the purposes of this requirement, an effectively stabilised surface is defined as one that does not, or is not likely to, result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation, or lead to water contamination.
2. A site is determined to be 'effectively stabilised' if at the time of the plan sealing inspection:
 - a. Methods of stabilisation are:
 - i. appropriate for slopes and slope lengths;
 - ii. consistent with best-practice environmental management practices; and
 - iii. providing a minimum of 70% soil coverage (when viewed perpendicular to the soil surface) across any square metre of the site disturbance area.
 - b. Stormwater run-off from the site is not currently, and is not likely to result in visible evidence of sedimentation or erosion, or lead to water contamination, in the short, medium and long term.
 - c. If at the time of request for plan sealing, the method of stabilisation has not achieved a stability that has a high probability of enduring in the medium to long term, for example, inadequate grass cover or permanent approved landscape works are incomplete, the following will be taken into consideration in determining whether the site is capable of achieving medium- to long-term stability:
 - i. evidence of appropriate soil testing and amelioration having been adequately undertaken;
 - ii. evidence of an adequate seed mix of annual and perennial grass species being applied at an adequate rate;
 - iii. evidence that appropriate grass strike and growth has been achieved for the type of stabilisation method selected.
3. For example, while hydro-mulch can provide an immediate and effective stabilising cover to soils, the protective cover can be relatively short lived if vegetation fails to establish before the thin layer of mulch decomposes. Similarly where the hydro-mulch specification and application rate (i.e. t/ha) provides insufficient coverage and binding of the soil to prevent erosion whilst vegetation establishes, then the site will not be considered 'effectively stabilised'.
4. If hydro-mulch is selected as the method of temporary stabilisation, it is important that perennial as well as annual grasses are well established at the time of plan sealing to reduce the risk of instability of the site in the medium to long term.

Note—The bonding of uncompleted works relating to erosion and sediment control (i.e. bonding of environmental outcomes) is not permitted where it is contrary to the purpose of this standard (i.e. the protection of Waters from the impacts of land and infrastructure development). This situation can be avoided through progressive stabilisation, supplementary watering and effective site management.

SC6.6.4.5.4.8 Release limits

1. All releases of stormwater captured in a sediment basin, unless otherwise noted in this Standard, must not exceed the following limits:
 - a. 50mg/L of total suspended solids (TSS) as a maximum concentration;
 - b. turbidity (NTU) value less than 10% above background;
 - c. pH value must be in the range 6.5 to 8.5 except where, and to the extent that, the natural receiving waters lie outside this range.

Note—It is recommended that a site-specific relationship between turbidity and suspended solids is determined for each sediment basin. Once a correlation between suspended solids and turbidity has been established for a sediment basin, testing stormwater for compliance with release limits, before release, can be done on site with a turbidity tube or calibrated turbidity meter. This has the advantage of providing immediate assessment to justify a release rather than waiting for laboratory results to confirm concentration levels and compliance.

Note that post-release TSS validation is appropriate to demonstrate that the NTU/TSS correlation is being maintained.

Note—Background refers to receiving water quality immediately upstream of the site location release point at the time of the release. Where there is no immediate upstream receiving water at the location and time of the release, then the turbidity release limit (NTU) will be equal to the release limit for 50mg/L total suspended solids (TSS) based upon the onsite correlation between TSS and NTU.

2. The concentration of TSS released by dewatering may only exceed 50mg/L where it can be demonstrated and supported through documentation that:
 - a. further significant rainfall is forecast to occur before the TSS concentration is likely to be reduced to 50mg/L;
 - b. releasing a higher concentration of total suspended solids will result in a better environmental outcome by providing storage for the capture and treatment of run-off from the imminent rainfall and run-off;
 - c. all reasonable and practicable steps have been taken to treat the water within best-practice time frames;
 - d. flocculent has been appropriately applied and the concentration of TSS in the captured water has already significantly decreased.
3. For all other stormwater releases, flows and discharges from the site, the release limits prescribed in (a) above must not be exceeded unless the development is in full compliance with this standard.

SC6.6.4.6 Design presentation

SC6.6.4.6.1 Catchment

1. The minimum standard of documentation for calculations must be the catchment plan, for both minor and major storms, at a suitable scale that clearly shows:
 - a. sub-catchments;
 - b. areas of sub-catchments;
 - c. slopes of sub-catchments;
 - d. pit location complete with labelling to clearly identify pits or access chambers to allow the drainage system to be understood.
2. Calculations must include minor system design and major system design. Minor system design must include the following elements:
 - a. minor system ARI or AEP;
 - b. sub-catchment area contributing;
 - c. sub-catchment time of concentration;
 - d. fraction impervious;
 - e. discharge coefficient;
 - f. rainfall intensity for the design ARI or AEP;
 - g. sub-catchment discharge;
 - h. road flow width and road flow depth immediately upstream of the proposed stormwater inlet;
 - i. velocity or depth product immediately upstream of the proposed stormwater inlet;
 - j. flow captured by gully inlet;
 - k. volume of flow and width of flow bypassed at stormwater inlet.
3. Major system design must include the following elements:
 - a. major system ARI or AEP;
 - b. sub-catchment area contributing;
 - c. sub-catchment time of concentration;
 - d. fraction impervious;
 - e. discharge coefficient;
 - f. rainfall intensity for the design ARI or AEP;
 - g. sub-catchment discharge;
 - h. roadway capacity check for containment of a major storm at stormwater inlets and other critical locations;
 - i. velocity or depth product at the location of the roadway capacity check.
4. These calculations must be logically ordered and legible and are to be presented in a tabulated format.

SC6.6.4.6.2 System calculations

1. Calculations for the underground stormwater drainage system design of each reach are the minimum standard of documentation required. These must be presented in tabulated format and must include:
 - a. design flow in reach (L/s);
 - b. pipe diameter;
 - c. reach (pipe) length;
 - d. grate or surface level at gully pit or access chamber;
 - e. invert level of gully pit or access chamber;
 - f. Manning's 'n' for type of pipe;
 - g. full-flow velocity;

- h. velocity head;
- i. friction loss in pipe;
- j. hydraulic grade level at outlet;
- k. hydraulic grade line slope;
- l. pit or access chamber type, as nominated in QUDM Appendix 1 Pipe flow design charts, and Appendix 2 Structure pressure change coefficient charts;
- m. pit loss coefficients and pit velocity head losses;
- n. hydraulic grade line at the upstream side of the pit or access chamber;
- o. hydraulic grade line at the downstream side of the pit or access chamber;
- p. water surface elevation in the pit or access chamber;
- q. freeboard in the pit or access chamber.

SC6.6.4.6.3 Longitudinal sections

1. Longitudinal sections must be presented in a similar fashion to those as shown in the LVRC Standard drawings:
 - a. SD-256 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Sections;
 - b. SD-257 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section & Typical Service Locations;
 - c. SD-258 Regional Road Standard Urban & Rural Residential Streets — Rural Roads Typical Cross Sections & Details;
 - d. SD-259 Regional Road Standard Industrial Streets — Typical Cross Sections.
2. Specific items to be shown on plans include:
 - a. minimum acceptable horizontal and vertical scales; these must be 1:1,000 and 1:100 (at A1 size) respectively, unless otherwise approved by Council;
 - b. service size, elevation and location of existing and proposed services from within the development and from other authorities;
 - c. length of pipe or culvert in each reach;
 - d. grate levels or finished surface levels at each pit or access chamber;
 - e. invert levels of pipes;
 - f. hydraulic grade line levels;
 - g. depth to invert of pipes;
 - h. slope (grade) of pipe;
 - i. pipe size, pipe type, pipe class, pipe joint type;
 - j. velocity in pipe;
 - k. flow in pipe;
 - l. plot of natural surface or finished surface as applicable;
 - m. plot of hydraulic grade line or indication of Water Surface Elevation (WSE);
 - n. plot of pipe invert and obvert;
 - o. proposed access chambers, shown as a blocked-in line with the access chamber number in a circle;
 - p. existing access chambers, shown as a double line with the access chamber number in a double circle;
 - q. sections drawn so that the underground stormwater system drains to the right.

SC6.6.4.6.4 Stormwater Quality

1. For the purposes of reporting on the design objectives for stormwater quality, a conceptual site based stormwater management plan is to provide details including:
 - a. descriptions of each treatment train for each sub-catchment ensuring that all types of pollutant (primary, secondary and tertiary) is treated in the appropriate order - primary pollutant treatment measures are located at the beginning of the treatment train and tertiary treatment measures are positioned at the end;
 - b. details of each individual treatment device including total footprint, treatment area, invert levels, coarse sediment management, maintenance access and design flows. Specify whether the stormwater treatment system will be privately maintained or handed over to Council;
 - c. a scale plan and section drawings showing:
 - i. how stormwater is conveyed to the stormwater treatment devices;
 - ii. the location of all stormwater treatment devices including filter areas and batters with respect to the development layout;
 - iii. surrounding ground levels;
 - iv. conceptual design levels for each treatment device and receiving drainage invert levels;
 - v. scour protection and coarse sediment management devices;
 - vi. maintenance access;
 - vii. likely maintenance intervals;
 - d. section drawings showing:
 - i. conceptual design levels for each treatment device and receiving drainage invert levels;
 - ii. scour protection and coarse sediment management devices;
 - iii. batters, embankments or retaining walls;

- e. proof that all modelling and reporting has been undertaken in accordance with the Model for Urban Stormwater Improvement Conceptualisation (MUSIC) and the Water-by-Design MUSIC Modelling Guidelines.

SC6.6.4.7 Harvesting

1. The harvesting of stormwater permits for the capture and reuse of stormwater for non-potable uses. It provides a valuable water resource, and assists with the management of stormwater quality. Capturing and reusing stormwater reduces the volume of contaminated stormwater entering local waterways, reduces the frequency and the magnitude of frequent runoff events.
2. The adoption of any stormwater harvesting off-take system must not impact adjacent flood levels.
3. Harvesting of water must meet the requirements of Lockyer Creek Environmental Values and Water Quality Objectives under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*.

SC6.6.4.8 Construction

SC6.6.4.8.1 Construction standards

1. Construction of stormwater infrastructure must comply with the requirements of the current edition of the following Specifications, except as noted in the sections below:
 - a. DTMR Specifications MRTS03 Drainage, Retaining Structures and Protective Treatments;
 - b. DTMR Specifications MRTS04 General Earthworks;
 - c. DTMR Specifications MRTS16 Landscape and Revegetation Works;
 - d. DTMR Specifications MRTS24 Manufacture of Precast Concrete Culverts;
 - e. DTMR Specifications MRTS25 Steel Reinforced Precast Concrete Pipes;
 - f. DTMR Specifications MRTS52 Erosion and Sediment Control;
 - g. DTMR Specifications MRTS70 Concrete;
 - h. DTMR Specifications MRTS71 Reinforcing Steel;
 - i. DTMR Specifications MRTS72 Manufacture of Precast Concrete Elements;
 - j. DTMR Specifications MRTS73 Manufacture of Prestressed Concrete Members and Stressing Units;
 - k. DTMR Specifications MRTS74 Supply and Erection of Prestressed Concrete Deck and Kerb Units;
 - l. IPWEAQ Standard drawings, Drainage suite.

SC6.6.4.8.2 Stormwater drainage works

SC6.6.4.8.2.1 Pipework

1. Pipes are to conform in all respects to MRTS25 Steel Reinforced Precast Concrete Pipes.
2. Pipes are to conform in all respects to MRTS24 Manufacture of Precast Concrete Culverts.
3. Pipework is to be installed in accordance with DTMR Specifications MRTS03 Drainage, Retaining Structures and Protective Treatments except for variations detailed in the following sections of this policy.
4. Pipes damaged because of handling and cracked in one or more places that clearly show visible cracks (exceeding 0.10mm) inside or outside are to be rejected.
5. Pipes showing visible shrinkage cracks inside or outside, with openings more than 1.25mm for a length of 300mm or more on either inside or outside, are to be rejected.
6. Pipes showing only internal cracks or only external cracks may be accepted when:
 - a. the cracks do not visibly penetrate full thickness; or
 - b. the cracks do not exceed 0.10mm opening for 300mm or more of length.

SC6.6.4.8.2.2 Pipe laying

1. Pipes are to be laid true to line, grade and level to the following tolerances and are to be free draining and firmly bedded:
 - a. invert levels + 50mm - 50mm;
 - b. structure locations within 1m of the approved engineering design.
2. Pipes are to be bedded in accordance with IPWEAQ Standard drawing, DSD-201 Drainage Culverts - Excavation, Bedding & Backfilling - Rigid & Flexible Drainage Pipes.
3. Minimum clear cover is to be 600mm.
4. The minimum vertical and horizontal clearance between a stormwater pipe and any other pipe or service conduit is to be 300mm.
5. All pipework is to be inspected post construction using CCTV.
6. CCTV operations and equipment must give accurate chainage, pipe grade and permit site locations and comments to be recorded.

SC6.6.4.8.2.3 Jointing pipes

1. Spigot and socket pipes are to be joined by rubber ring joints.
2. Rubber joint rings are to be in accordance with AS.1646 Elastomeric seals for waterworks purposes.
3. When flush jointed pipes are used, the first pipe (downstream) is to be bedded to establish line and grade with the groove upstream.
4. The external band is to be installed after the joint is made, in accordance with manufacturers recommendations.
5. Approved jointing tape (applied in accordance with the manufacturer's instructions) may be substituted for mortar bands.

SC6.6.4.8.2.4 Laying and jointing of box culverts

1. Box culverts are to be laid in accordance with DTMR Standard drawing SD1250 - R C Box Culverts and Slab Link Box Culverts - Culverts Height > 600.
2. Box culverts are to be bedded in accordance with IPWEAQ Standard drawing, DSD-202 Drainage Culverts - Excavation, Bedding & Backfilling - Precast Box Culverts.
3. The base of the box culvert is to be laid true to line and grade to tolerances and free draining before the upper portion of the box culvert is laid.
4. Joints between lengths of box culverts, tops and sides are to be covered outside by a mortar band not less than 150mm in width and a minimum of 20mm thickness.
5. Mortar bands are to be reinforced with chicken wire for a minimum width of 130mm.

SC6.6.4.8.2.5 Backfilling

1. Backfilling of pipes and culverts is to be in accordance with IPWEAQ Standard drawing, DSD-201 Drainage Culverts - Excavation, Bedding & Backfilling - Rigid & Flexible Drainage Pipes.
2. All backfilling is to be spread in 150mm layers and compacted as follows:
 - a. Under Proposed Pavements:
 - i. The backfill material used for backfilling to a point 300mm above the crown of the pipe or culvert is to be the approved bedding material;
 - ii. The trench above the approved bedding material to subgrade level is to be backfilled with approved subgrade replacement material with a minimum of CBR15, placed in layers not exceeding 250mm loose and compacted until the dry density is not less than 95% Modified Maximum Dry Density (refer to LVRC Standard drawing SD-265 Bedding and Backfill to Pipes Suggested Treatment).
 - b. Under Existing Pavements:
 - i. The edges of the trench are to be cut with a clean, straight line before excavation;
 - ii. The trench is to be backfilled to a level 350mm below finished pavement level with the approved bedding material;
 - iii. The trench above the bedding material is to be backfilled with 300mm of lean mix concrete;
 - iv. The top 50mm of the trench is to be filled with asphaltic concrete;
 - v. The surface is to be restored to a condition at least equal to that of the original pavement.
 - c. Under Footpaths and Allotments:
 - i. Backfilling is to be carried out using selected material from excavations;
 - ii. The material is to be placed in layers not exceeding 250mm loose in depth and is to be compacted to a minimum consolidation of 95% Standard Compaction.
3. Backfill is not to be placed until the pipe drain or box culvert has been inspected and approved by Council.

SC6.6.4.8.3 Drainage structures

SC6.6.4.8.3.1 Access chambers and inlet pits

1. Inlet pits and access chambers are to be constructed to the form and dimensions shown on the approved plans or IPWEAQ Standard drawings:
 - a. DSD-401 Drainage Pits - Field Inlet - Type 1 and Type 2,
 - b. DSD-402 Drainage Pits - Kerb Inlet — Kerb in Line - General Arrangement; and
 - c. DSD-403 Drainage Pits - Kerb Inlet — Lip in Line - General Arrangement.
2. Access chambers are to be constructed to the form and dimensions shown on the approved plans or DTMR Standard drawings:
 - a. SD1307 - Access Chamber - Cast Insitu Details for 1050 to 2100 Diameter Roadway Type Access Chamber;
 - b. SD1308 - Access Chamber - Precast Roof Slab for 1050 to 2100 Diameter Roadway Type Access Chamber.
3. The thickness of walls of inlet pits and manholes shown on the approved plan or on the IPWEAQ Standard drawings (listed above) is to be the minimum adopted when inner and outer forms are used.
4. Formwork is to be constructed and braced to ensure that there is no visible deflection of the formwork and that the concrete can finish accurately to the dimensions shown on the approved plans or IPWEAQ Standard drawings (listed

- above).
5. Provision is to be made in the walls of pits and access chambers for weep holes to drain the pipe bedding and surrounds.
 6. Provision is to be made where required in the walls of manholes and pits for the entry of sub-soil drainage lines.
 7. Concrete in manholes and inlet pits is to be placed continuously without any construction joints other than the base and the top of the walls.
 8. At any construction joints, the concrete is to be well roughened to ensure a good bond.
 9. Step irons are to be installed in all access chambers and gully pits in accordance with DTMR Standard drawing SD1307 - Access Chamber — Cast Insitu Details for 1050 to 2100 Diameter Roadway Type Access Chamber, and must be down one continuous structural face.
 10. The concrete used in the construction of the floors and walls of the unreinforced access chambers and inlet pits is to be in accordance with IPWEAQ Standard drawing, DSD-101 Access Chamber - Stormwater Access Chamber Detail - 1050 to 2100 diameter.
 11. The concrete used in the construction of reinforced access chambers and inlet pits is to be as detailed on the approved engineering drawings.
 12. Cement rendering is to be undertaken on all construction joints and rough surfaces.
 13. The bottoms of inlet pits and access chambers to at least the height of the half diameter of the highest pipe connecting thereto and such other concrete surfaces as shown on the plans are to be benched with cement mortar.
 14. Special benching to be undertaken uses N25 concrete in large access chambers and at angle junctions in pipe lines.
 15. Where the ground is solid, Council may permit the use of only the inner forms in the construction of unreinforced access chambers and pits (the concrete being placed against the earth) provided that the thickness of the wall of such inlet pit or manhole is increased by 75mm to provide an absolute minimum 50mm extra cover for reinforcing steel. However, this is unacceptable in dispersive or saline soil areas.
 16. Formwork must remain in position for at least twenty-four (24) hours before stripping.
 17. A coat of mortar with or without additives is to be spread over the contact surfaces after which the concrete is to be put in position and well rammed and worked to make a thoroughly bonded and water tight joint.
 18. Concrete is to be well rodded and sliced or vibrated to ensure maximum density and good surface finish.
 19. No foreign material is to enter the forms during placing of concrete, and concrete is not to be placed unless the excavation has been thoroughly cleaned out and dewatered.
 20. Concrete surfaces are to be protected from drying out for at least seven (7) days after placing.

SC6.6.4.8.3.2 Access chamber covers and frames

1. Cast iron access chamber covers and frames are to be of the best quality cast iron, free from cracks, flaws and porous spots.
2. All cast iron surfaces are to be coated with hot bitumen before being placed in the works.
3. Covers, risers and frames are to comply with the details shown on the IPWEAQ Standard drawings, Drainage suite:
 - a. DSD-102 Access Chamber - Access Cover Frame (Roadway and Non-Roadway) - 1050 to 2100 diameter;
 - b. DSD-103 Access Chamber - Access Cover Riser Details (Roadway);
 - c. DSD-104 Access Chamber - Access Cover (Roadway) 1050 to 2100 diameter; and
 - d. DSD-105 Access Chamber - Access Cover (Non-Roadway) 1050 to 2100 diameter.
4. The word STORMWATER is to be clearly visible on all access chamber covers.
5. The covers are to be cast iron where access chambers are situated within the road boundaries or other trafficable areas and concrete infilled elsewhere (refer to IPWEAQ Standard drawing, DSD-106 Access Chamber - Access Cover Concrete Infill (Pedestrian Traffic) 1050 to 2100 diameter).
6. The access chamber covers are to be approved by Council before placing.

SC6.6.4.8.3.3 Inlet pit grates and backstone

1. The grate and frame for the standard inlet pit is to be in accordance with IPWEAQ Standard drawing, DSD-404 Drainage Pits - Kerb Inlet - Kerb in Line - Anti-Ponding.
2. The precast backstone is to be in accordance with IPWEAQ Standard drawing, DSD-403 Drainage Pits - Kerb Inlet - Lip in Line - General Arrangement.

SC6.6.4.8.3.4 Inlet and outlet structures

1. Headwalls and embankment walls and aprons are to be constructed in accordance with DTMR Specifications MRTS03 Drainage, Retaining Structures and Protective Treatments and the DTMR Standard drawings:
 - a. SD1260 - R C Box Culverts and Slab Link Box Culverts — Culverts Height = 375 to 600;
 - b. SD1243 - Precast Culvert Headwalls - Headwall Connections;
 - c. SD1250 - R C Box Culverts and Slab Link Box Culverts - Culverts Height > 600;
 - d. SD1304 - Pipe Culverts - Wingwalls, Headwall and Apron for Pipe Diameter 750 to 2400;
 - e. SD1305 - Pipe Culverts - Headwall and Apron for Pipe Diameter 375 to 675.
2. The inlet and outlet headwalls, embankment walls and aprons are to be constructed to produce a smooth transition of

stormwater flowing in the open drain into the pipe and culvert inlet or out of the pipe or culvert into the open drain to reduce energy loss and reduce upstream backwater.

3. Energy dissipaters and scour protection, where required, are to be constructed in the locations as shown on the approved Engineering Plans.
4. Precast headwalls are used where constructed in accordance with the DTMR Standard drawing SD1243 - Precast Culvert Headwalls - Headwall Connections.
5. The final form of all inlet and outlet structures is to be subject to on-site determinations with Council and in accordance with any Water Quality Management Plan.
6. All headwalls are to be constructed with adequate protection to prevent scouring occurring behind or around the headwall.

SC6.6.4.8.4 Roof, inter and rear of allotment drainage

SC6.6.4.8.4.1 Pipe size

1. The minimum pipe size is to be 225mm diameter, and the maximum pipe size is to be 375mm diameter.

SC6.6.4.8.4.2 Pipe types

1. The following pipe types are to be used:
 - a. uPVC, sewer Class SN6 Solvent Welded AS/NZS.1260 PVC-U pipes and fittings for drain, waste and vent applications; or
 - b. FRC, Class 2 Rubber ring jointed AS.4139 Fibre-reinforced concrete pipes and fittings; or
 - c. RC Class 2 Rubber ring jointed AS.1342 Precast concrete drainage pipes.
2. Standard manufacturers fittings are to be used in all cases.

SC6.6.4.8.4.3 Flexible joints

1. Flexible joints in the form of a short pipe 600mm maximum at the junction of all stormwater drainage structures are to be provided.
2. For uPVC systems:
 - a. flexible joints are not necessary however rubber ring jointed connections are to be provided at all drainage structures to accommodate expansion or contraction;
 - b. all pipes are to have sanded ends suitable for bonding to concrete

SC6.6.4.8.4.4 Access chambers

1. Access chamber dimensions are to be as follows:
 - a. 600mm diameter pit for a maximum depth to 750mm; or
 - b. 900mm diameter pit for a depth ranging between 750mm and 1,500mm; or
 - c. 1,050mm diameter manhole where depths exceed 1,500mm.
2. Access chambers are to be provided at the following locations:
 - a. change of grade;
 - b. change of pipe size;
 - c. change of direction;
 - d. end of line.
3. Covers to cast-in-situ access chambers:
 - a. are to be a standard concrete infilled access chamber cover and frame;
 - b. are to be embossed roofwater;
 - c. are to have infill concrete at grade N25;
 - d. are to match the finished surface ground slope and sit 50mm proud.
4. Access chambers are to be benched in a comparable manner to that required for sewer installations.
5. Grate installations is acceptable where surface flows are to be directed into the system and the system has been designed for these additional flows.

SC6.6.4.8.4.5 Branch connections

1. At least one connection point is to be provided on the main line for each property.
2. The connection is to be in the form of a Slope Junction installed in the line with the property branch line diameter being a minimum of 50mm (I.D.).
3. An inspection opening is to be located at the end of the property branch line like a sewer house connection branch.
4. The connection point is to terminate 0.5m past any adjacent sewer.
5. Stormwater marking tape is to be tied to the cap of the inspection opening and extend vertically to be tied to a wooden peg

at finished surface level.

SC6.6.4.8.4.6 Outlets

1. All interallotment roofwater drainage systems are to discharge into a suitably located lawful point of discharge; or
 - a. where the approved Engineering Plan permit discharge into the kerb and channel, such discharge is to be through an appropriate number of pipes, not less than two, of galvanised steel rectangular hollow sections (75mm maximum height) exiting from an access chamber located 0.5m inside the property across the footpath into the kerb and channel;
 - b. the rectangular hollow sections are to have adaptors and kerb adaptors installed in accordance with IPWEAQ Standard drawing, RSD-201 Kerb & Channel - Residential Drainage Connections.

SC6.6.4.8.5 Open channels, detention basins and other earthworks

1. Earthworks associated with open channels, detention basins and swales are to be undertaken in accordance with:
 - a. Plans approved by Council;
 - b. DTMR Specifications MRTS04 General Earthworks;
 - c. DTMR Specifications MRTS16 Landscape and Revegetation Works;
 - d. Council's Planning scheme.

SC6.6.4.8.5.1 Culverts and bridges

1. Culverts are to be constructed in accordance with approved plans, DTMR Specifications MRTS03 Drainage, Retaining Structures and Protective Treatments and the DTMR Standard drawings:
 - a. SD1260 - R C Box Culverts and Slab Link Box Culverts — Culverts Height = 375 to 600;
 - b. SD1243 - Precast Culvert Headwalls - Headwall Connections;
 - c. SD1250 - R C Box Culverts and Slab Link Box Culverts - Culverts Height > 600;
 - d. SD1304 - Pipe Culverts - Wingwalls, Headwall and Apron for Pipe Diameter 750 to 2400;
 - e. SD1305 - Pipe Culverts - Headwall and Apron for Pipe Diameter 375 to 675.
2. Bridges are to be constructed in accordance with the below and as per SC6.6.5.6 Bridges:
 - a. Plans approved by Council;
 - b. relevant DTMR Standard drawings;
 - c. DTMR Specifications MRTS70 Concrete;
 - d. DTMR Specifications MRTS71 Reinforcing Steel;
 - e. DTMR Specifications MRTS72 Manufacture of Precast Concrete Elements;
 - f. DTMR Specifications MRTS73 Manufacture of Prestressed Concrete Members and Stressing Units;
 - g. DTMR Specifications MRTS74 Supply and Erection of Prestressed Concrete Deck and Kerb Units.

SC6.6.4.8.6 Water quality device construction

1. Construction of bioretention basins, swales and wetlands must be in accordance with:
 - a. Plans approved by Council;
 - b. Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands;
 - c. IPWEAQ Standard drawings, Drainage suite, Bioretention and Street Swales series.

SC6.6.4.8.6.1 Inspection of works

1. The person who has the benefit of the development approval must comply with the inspection and testing plan for engineering work in:
 - a. Location of the structures, Finish Level and Invert Level of the structure by survey co-ordinated to the local datum for each structure;
 - b. Bedding materials. Visual inspection and compaction certification in accordance with the AS/NZS.3725 Design for installation of buried concrete pipes;
 - c. Drainage line or pipes. Visual and CCTV inspection with certification of joint seals and asset integrity including sealed connections at junctions, chambers and pits.
2. The results of each test must:
 - a. meet the specified standard;
 - b. be repeated after removal work has been carried out if a test does not meet the specified standard;
3. The RPEQ Consultant Engineer may conduct audit inspections on all donated asset installations at the discretion of Council.
4. On-maintenance inspections must include:
 - a. the roads, pipes, structures and flow paths to ensure that they are clear of silt and debris;

- b. the roads, pipes, structures and kerbs as flow paths to ensure that they are not subject to ponding
- c. the turbing of turfed areas shown on the approved drawings;
- d. the pipes to ensure they are laid straight to grade and line;
- e. the pipes to ensure they are not damaged;
- f. the pipes to ensure that the pipe penetration to a manhole is finished off;
- g. the quality of the concrete work;
- h. the quality of the render work;
- i. manhole lids to ensure that they comply with the standard specifications;
- j. the correct drop through manholes;
- k. gullies and grates;
- l. overland flow paths;
- m. the opening of GPTs to ensure cleanliness;
- n. the CCTV of the complete stormwater network including rear of allotment drainage;
- o. the water quality control measures;
- p. the as-constructed drawings if available.

SC6.6.4.8.7 As constructed documents

- 1. 'As constructed' plans must be submitted for:
 - a. All stormwater drainage infrastructure including open channels etc.;
 - b. Rear-of-allotment drainage.

SC6.6.4.8.7.1 Underground stormwater drainage

- 1. 'As constructed' plans must record the following minimum standard of information, as well as other details to the project:
 - a. pipe sizes, types, classes and lengths of sections of drainage lines;
 - b. location of drainage lines;
 - c. invert levels and grades of pipes;
 - d. finished surface levels for structures;
 - e. location of structures;
 - f. structure types and dimensions;
 - g. location of subsoil drains and clean-out points;
 - h. details of relocated services, if applicable.

SC6.6.4.8.7.2 Roof, inter and rear of allotment drainage

- 1. 'As constructed' plans must record the following minimum standard of information, as well as other details to the project:
 - a. Pipe sizes, types, classes and lengths of sections of drainage lines;
 - b. location of pipes relative to property boundaries;
 - c. invert levels and grades of pipes;
 - d. finished surface levels for structures;
 - e. location of structures relative to property boundaries;
 - f. structure types and dimensions;
 - g. location of connection stubs relative to property boundaries;
 - h. depth to connection stub from finished surface level;
 - i. finished surface levels at every corner of allotments;
 - j. details of relocated services, if applicable.

SC6.6.5 Streets and roads

SC6.6.5.1 Introduction

1. The policy provides Applicants with general guidelines for horizontal and vertical road design for developments (residential, rural residential, rural and industrial) and associated roads. It includes guidance on the policy and standards required for the provision of road design and construction in order to satisfy Council's requirements and ensure optimum design for inclusion of social, and environmental factors.
2. Design should be in accordance with the purpose as outlined by the Planning Scheme.
3. In addition to the criteria listed in the planning scheme codes and this planning scheme policy, streets and roads are planned, designed and constructed in accordance with the current edition of the following:
 - a. Austroads;
 - b. Crime Prevention through environmental Design Guidelines for Queensland;
 - c. DTMR manuals and guidelines;
 - d. IPWEA Street Design Manual — Walkable Neighbourhoods;
 - e. Manual of Uniform Traffic Control Devices (Qld) (MUTCD);
 - f. Queensland Government, Model code for neighbourhood design — A code for reconfiguring a lot.
4. Austroads guides are to be used in conjunction with standard specifications and any 'guides to road planning and design practice' advice that is issued by DTMR from time to time. The 'minimum' standard for design must be used. Where the 'minimum' standard cannot be achieved on infill sites, consult with Council officers to obtain approval on the overall design standard to be achieved.
5. The use of extended design domain (EDD) principles is to be undertaken only by suitably experienced EDD designers. The use of EDD is to be restricted to 'brownfield' and 'infill' sites and applied in accordance with Austroads and DTMR guidelines.
6. A Safety in Design report is to be prepared identifying hazards and risk assessment method in the design process to eliminate or minimise health and safety risks throughout the life of the infrastructure.

SC6.6.5.2 Road hierarchy and design

1. The functional hierarchy of roads enables efficient street and road systems that caters for the movement of people and goods, while maintaining the amenity and legibility of the urban and rural area. Road hierarchy maps are provided in Planning Scheme schedule 2.1 — Map Index - OM15 Road hierarchy overlay.
2. The road hierarchy and associated cross-sections represent Council's minimum standard for its street and road system, refer LVRC Standard drawings:
 - a. SD-256 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section;
 - b. SD-257 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section & Typical Service Locations;
 - c. SD-258 Regional Road Standard Urban & Rural Residential Streets — Rural Roads Typical Cross Sections & Details;
 - d. SD-259 Regional Road Standard Industrial Streets — Typical Cross Sections
 - e. SD-260 Regional Road Standard Urban & Rural Residential Streets — Miscellaneous Details.

SC6.6.5.2.1 Road design summary

1. SC6.6 Appendix 1 Urban and Industrial Road Design, and SC6.6 Appendix 2 Rural Road Design, summarise key design elements for each of the road classifications for use in the detailed geometric design. These summary tables should be read in conjunction with LVRC Standard drawings:
 - a. SD-256 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section;
 - b. SD-257 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section & Typical Service Locations;
 - c. SD-258 Regional Road Standard Urban & Rural Residential Streets — Rural Roads Typical Cross Sections & Details;
 - d. SD-259 Regional Road Standard Industrial Streets — Typical Cross Sections
 - e. SD-260 Regional Road Standard Urban & Rural Residential Streets — Miscellaneous Details.
2. In many cases these elements represent the minimum requirement. The engineering of these elements needs to be considered when preparing the concept design and this information brought to Council for review and approval in the pre-lodgement meeting process.
3. Other design elements not specified in the table, should be in accordance with the design standards outlined in SC6.6.5.1 Introduction.

SC6.6.5.2.2 Kerb, channels and swale drains

1. Concrete kerbs and channels are to be provided on both sides of all streets, except where swale drains are approved for use. This includes industrial areas and the inner urban areas.
2. The standard kerbs and channels for lower order streets up to and including collectors (except for laneways) are to be lay-back, in accordance with IPWEAQ Standard drawings, Road suite.
3. Barrier-type kerbs and channels with a 450mm channel (type B1) in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel, are to be used in the following cases:
 - a. higher order roads of major collector level and above, and all industrial roads;
 - b. streets adjacent to parks;
 - c. shopping centres and in locations where high pedestrian volumes are likely or for greater pedestrian safety (e.g. on the frontages of schools, major sporting facilities and parks).
4. Semi-mountable-type kerb is to be used:
 - a. at medians and traffic islands: semi-mountable or low-profile kerb type SM3 for concrete in-filled treatments and type SM5 for landscaped treatments, in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel;
 - b. at roundabouts: kerb type M5 on the outer island and type SM4 on the centre island, in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel.
5. The grade of kerbing and channelling is to conform to the road centreline. However, at locations where the kerb and channel grade divert from the centreline grade (such as at intersections or on superelevated curves) the minimum channel grade is to be in accordance with Austroads Guide to Road Design.
6. Kerbs and channels are to be constructed with horizontal curves at all changes in horizontal alignment. To improve appearance, where small deflections occur (e.g. on tapers), horizontal curves must be as long as possible.
7. Kerb ramps are to be constructed at all kerb returns as shown on the relevant IPWEAQ Standard drawings, Road suite.
8. Stormwater kerb connections must be installed at subdivision stage for all road classifications, except at industrial precincts where drainage is directly connected to the underground system.
9. All concrete must be a minimum of N32. Slump concrete (slip-formed) is the preferred construction material, not kerb mix.
10. N32 slump concrete must be used for kerb and channel construction in industrial areas in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel. Industrial kerbing must have an additional minimum 50mm concrete base thickness over standard profiles. Slump or slip-form concrete, not kerb mix, must be used in industrial areas. In industrial areas where there is a large volume of high-order vehicles, all kerbing must be designed for these heavy loads.
11. Pavement must extend a minimum of 300mm behind the back of the kerb. The minimum pavement thickness under the kerb must be:
 - a. for urban, residential and rural residential areas: 100mm; or
 - b. for industrial areas: 150mm;
 - c. Kerb and channel must be formed on the upper subbase pavement.
12. Swale drains are only permissible in drainage reserves and parklands. They are to be constructed clear of infrastructure, with a maximum side slope of 1V:6H (grass or turf surface treatment) or 1V:4H (special cases with landscaped surface treatments), and with a minimum longitudinal grade of 0.7% and maximum grade of 5%.

SC6.6.5.2.3 Street or road frontage

1. Where the street or road frontage to a development is unsealed or unformed at the time of development approval, it is to be constructed to a standard specified in the conditions of approval or, where not specified in the conditions of approval, no less than one half of the full road width plus one 3.5m wide traffic lane from the nominal centre line to the bitumen edge. Pavement is to be an additional 0.5m wider.
2. The full drainage system required within the road corridor is to be designed. However, it only needs to be constructed in accordance with the development approval.
3. In developments that do not require kerb and channel, e.g. swale drain construction, the drainage requirements for each property access are to be designed and details provided on drawings. A future property owner may construct the access to align appropriately with building location. Where table drains form part of the stormwater drainage solution Planning Scheme Policy SC6.9 Stormwater Management, consideration is to be given to culvert sizes to ensure that major storm events do not cause flooding onto properties. If the location of the access is restricted by visibility, site conditions or the like, the access is to be constructed at the time of development.
4. A drainage plan is to be prepared detailing the full drainage requirements for each lot frontage, e.g. culvert size, length, inlet or outlet levels, preferred location if applicable etc.
5. An existing, sealed, street or road frontage to a development is to be reconstructed to one half of the full width of the street or road unless the existing pavement is adequate for the ultimate design conditions; in that case, the pavement only must be widened, with kerb and channel provided at the nominated alignment. The minimum total width is to be no less than one half of the full width of the street or road (i.e. one 3.5m wide traffic lane from the nominal centre line to the bitumen edge). Pavement is to be an additional 0.5m wider.
6. An assessment by Council must be made as to whether the existing road reserve is the correct width. Additional land may be required to provide a road corridor that complies with the road category in the hierarchy and this will be at no cost to

Council.

7. For a street or road at the end of staged development or where the road will eventually be continued, the preferred treatment is construction of a circular turning movement with an allowance for refuse collection vehicle turn around. The turning area is to be full depth pavement with AC surfacing to match to adjoining road.
8. Road widening, or reconstruction must match the existing profile and cross-section, subject to meeting minimum cross-fall design standards of 3% (2% is the absolute minimum).

SC6.6.5.2.4 Active transport infrastructure

1. Paths for walking and cycling should be provided within the road network in accordance with the requirements in SC6.6 Appendix 1 Urban and Industrial Road Design with the following comments:
 - a. Concrete paving must conform to the IPWEAQ Standard drawing, PCD-101 Pathways - Concrete Pathway - Construction Details. It must be located in accordance with Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling from either side of the pathway boundaries;
 - b. The concrete pavement within a pathway must be constructed to the adjacent kerb and channel and must include a kerb ramp;
 - c. Bollards must be installed to restrict vehicular access at the ends of pathways but are to be located and delineated so as not to create a hazard for pedestrians and cyclists.
2. Walking paths should be a minimum of 1.6m wide with a gradient no greater than 8%.
3. Cycling path should be minimum width to suit the required user type, in accordance with Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling.
4. Where a pathway is not located within a road reserve, the following should be noted:
 - a. The minimum width of land for a pathway is to be 5m. Where an overland stormwater flow path is required, the width must include waterway width, concrete path and any services requirement. The minimum width is 10m;
 - b. Where a service is to be installed, pathway land must be widened to ensure that the service is clear of the path;
 - c. All pathways must be design in accordance with CPTED guidelines and principles.
 - d. Pathways located in parks, open-space and drainage reserves are to be constructed above the flow of a storm event with a 20-year ARI;
 - e. Pathways must include Standard Street Lighting Lamps and Luminares, in accordance with SC.6.6.7 Infrastructure Works;
 - f. Where pathways are part of wildlife corridors, the pathways and services are to avoid habitat trees to the greatest extent possible.

SC6.6.5.2.5 Signs and road markings

1. All signs must be designed, manufactured and installed in accordance with the current edition of the DTMR MUTCD.
2. Street name signs must be erected at each intersection. Suitable direction and way-finding signage is to be considered (refer to IPWEAQ Standard drawings, RSD-701 Road Furniture - Street Name Sign & Location (Finger Board) and RSD-702 Road Furniture - Traffic Sign Installation Details).

SC6.6.5.2.6 Road-edge guide posts and safety barriers

1. Road-edge posts must be provided at all locations where concrete kerbing and channelling is not constructed (e.g. half-road construction, tapers, ends of roads etc.), in accordance with the DTMR MUTCD.
2. All safety barrier site selection criteria must be addressed. For higher order roads, safety barriers must be designed in accordance with the DTMR Road Planning and Design Manual and Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers. In urban residential and industrial precincts safety barriers must be located at steep embankments and roadside obstacles and hazards in accordance with the Austroads Guide to Road Design Part 6: Roadside Design, Safety and Barriers.

SC6.6.5.2.7 Clear zone

1. Clear zones must be provided, as a functional element, in accordance with the Austroads design manuals for all roads. The clear zone element is to be assessed and the roadside environment designed accordingly.
2. Risk assessment for structures placed in clear zones must be undertaken using Roadside Impact Severity Calculator (RISC) or Roadside Safety Analysis Program (RSAP) in accordance with Austroads Guide to Road Design Part 6 and DTMR Road Planning and Design Manual Edition 2, Volume 3 — Supplement to Austroads Guide to Road Design, Part 6: Roadside Design, Safety and Barriers. Both quantitative evaluation and qualitative evaluation are to be undertaken.
3. The RISC program and latest accident costs are available from the DTMR web site.

SC6.6.5.2.8 Cul-de-sac geometry

1. Standard Turning areas at the head of residential cul-de-sac are to be based on typical manoeuvring areas for the service vehicles identified in Austroads Standards.
2. The turning area is to be capable of accommodating most vehicles with a single movement turn.
3. The minimum radius to kerb invert for a cul-de-sac is as follows:
 - a. Urban and Rural Environment:
 - i. Approach curve radius tangential to the turning circle - 20m; or
 - ii. Bulb Radius - 10m; or
 - b. Industrial Environment:
 - i. Approach curve radius tangential to the turning circle - 32m; or
 - ii. Bulb Radius - 16m; or
 - c. QFES: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots.

SC6.6.5.2.9 Intersections

1. Intersections on roads and streets are to be designed in accordance with the current Austroads: Guide to Road Design, Guide to Road Safety, Guide to Traffic Management, DTMR standards and in accordance with road hierarchy descriptions within in this policy.
2. All new intersections of local access streets, and collector and major collector roads, in rural, industrial and residential areas are preferably to be designed as three-way intersections.
3. Where four-way intersections are unavoidable, they must be designed as roundabouts in accordance with the Austroads Guide to Road Design and must give regard to the needs and safety of pedestrians and cyclists.
4. Four-way intersections are to be designed at the junctions of sub-arterial and regional arterial roads only where signalisation (preferred) or roundabouts are proposed.
5. Provision of channelisation at intersections will depend on traffic volumes and intersection layout in accordance with turn warrants assessment as specified in Austroads Guide to Traffic Management.
6. On major collector streets, median openings must be provided at all intersections except at intersections with local access street.
7. On sub-arterial and regional arterial roads, the minimum spacing of median openings must be in accordance with Austroads requirements.
8. Where intersection threshold treatments are required they must be constructed of concrete or approved alternative and must be highly visible (in accordance with the DTMR MUTCD).

SC6.6.5.2.10 Pavement tapers

1. Pavement tapers to existing construction are to be designed in accordance with the current Austroads: Guide to Road Design, Guide to Road Safety and Guide to Traffic Management based on the design speed of the road.
2. Tapers are to be constructed to the same standard as the proposed full road pavements.

SC6.6.5.2.11 Truncations

1. Truncations of the real property boundaries are to be provided at speed restriction devices, bends and intersections.
2. Roadway and footpath widths are to be maintained at the minimum specified widths at any point.
3. Minimum truncation distance must be 6m radius with three chords of equal length. This truncation may need to be increased to accommodate intersection design layout, pedestrian crossings and sight distances according to road hierarchy.

SC6.6.5.2.12 Property access

SC6.6.5.2.12.1 Access driveway

1. An access driveway is that section of property access between the edge of the pavement or kerb and channel on a dedicated public road, and the property boundary.
2. Design elements to be considered for access driveways.
3. Urban and Rural Residential domestic access is to comply with AS/NZS.2890 Parking facilities. Consideration is to be given to adopting a higher reaction time for vehicles travelling on higher order roads.
4. Rural Access and Rural Access in a constraint environment is to comply with Austroads Guide to Road Design — Part 4A: Unsignalised and Signalised Intersections:
 - a. Sight distances at accesses are to comply with the sight distance requirements for intersections Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, i.e. that approach sight distance (ASD), safe intersection sight distance (SISD), and minimum gap sight distance (MGSD) are achieved.
5. The current version of the following IPWEAQ Standard drawings are to be used. However, for 'brownfield' developments some modification may be necessary and will be decided on a case by case basis:

- a. RSD-100 Vehicle Crossings - Residential Driveways - Sheet 1 of 2;
 - b. RSD-101 Vehicle Crossings - Residential Driveways - Sheet 2 of 2;
 - c. RSD-102 Vehicle Crossings - Heavy Duty Vehicle Crossing;
 - d. PCD-101 Pathways - Concrete Pathway - Construction Details.
6. The current version of DTMR Standard drawing, SD1807 - Property Access - Rural Property Access is to be used for rural properties.

SC6.6.5.2.12.2 Rear lot access strip

1. Rear lot access provides access to lot or lots by means of a narrow length of land within the lot as part of the main body of the lot. Where the land provides access to more than one lot, access easements are to be provided.
2. Rear lot access strips and driveways must be designed and constructed in accordance with Table SC6.6-6: Rear lot access strip dimensions, and Table SC6.6-7: Rear lot access strip construction, before plan sealing.
3. Rear lots are designed such that the minimum area of the lot is achieved exclusive of any access strip.
4. No more than three lots gain access from the same access handle.
5. No more than two rear lots and/or rear lot access strips directly adjoin each other.
6. Rear lot access strips are located on only one side of a full frontage lot; and
7. Rear access strips do not change the existing overland flow path drainage lines. Installation of culverts at cross drainage points may be required.
8. Rear access strips do not divert water onto the road reserve.
9. Where more than two lots have access to a single access, the vehicle crossover, from the road pavement for a minimum distance of 12m, must be a minimum of 5.5m wide for combined entry and exit.
10. Where more than two lots have access to a single access a vehicle passing bay is to be provided on the driveway at 30m intervals, at minimum width for passing sections is 5.5m.
11. All concrete of driveways are to be designed and certified by an RPEQ in accordance with site conditions and traffic loading.

Figure SC6.6-3: Ideal rear lot access strip arrangement

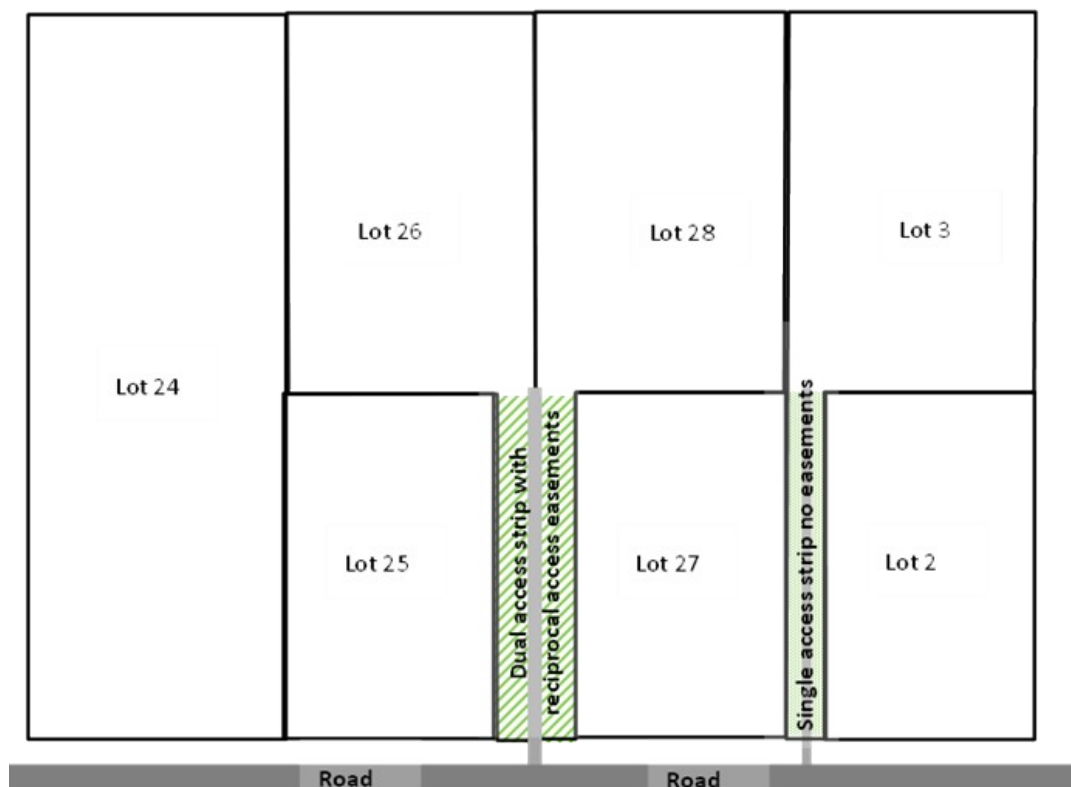


Table SC6.6-6: Rear lot access strip dimensions

ZONE OR AREA	MINIMUM WIDTH FOR ONE LOT	MINIMUM WIDTH FOR MORE THAN	DRIVEWAY WIDTH (M)	MAXIMUM LENGTH (M)	MAXIMUM GRADE
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	(M)	ONE LOT (M)			
Urban Residential	5	6	3.5	30	10%
Rural Residential	6	6	3.5	60	10%
Rural	10	10	4	120	10%

Table SC6.6-7: Rear lot access strip construction

NO OF LOTS	LENGTH OF ACCESS WAY	MINIMUM REQUIREMENTS
1	Less than 30m	Where in an Urban Residential Zone or Area: Grade N32 concrete driveway. <i>Note—Concrete of driveway to be designed and certified by an RPEQ in accordance with site conditions and traffic loading.</i> Where in a Rural Residential Zone or Area: Bitumen or asphalt, to suit nominal traffic Loading 2×10^3 ; ESA. Where in a Rural Zone or Area: all weather gravel pavement.
1	30m and greater	Where in an Urban Residential Zone or Area: Grade N32 concrete driveway. Where in a Rural Residential Zone or Area: Bitumen or asphalt 3.5m wide to suit nominal traffic Loading 2×10^3 ; ESA. Where in a Rural Zone or Area: all weather gravel pavement.
2-3	Less than 30m	Where in an Urban area: Grade N32 concrete driveway. Where in a Non-Urban area: Bitumen or asphalt 3.5m wide to suit nominal traffic Loading 5×10^3 ; ESA. Where in a Rural Zone or Area: all weather gravel pavement.
2-3	30m and greater	Where in an Urban area: Grade N32 concrete driveway. Where in a Non-Urban area: Bitumen or asphalt 5.5m wide to suit nominal traffic Loading 5×10^3 ; ESA. Where in a Rural Zone or Area: all weather gravel pavement.

SC6.6.5.3 Pavement design

SC6.6.5.3.1 Introduction

1. This policy provides Council's minimum standards for pavement designs for roadworks associated with Council and development works. They must be read in conjunction with the latest version of the following publications:
 - a. Guide to Pavement Technology Part 2: Pavement Structural Design, Austroads;
 - b. DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.

SC6.6.5.3.2 Subgrade evaluation

SC6.6.5.3.2.1 Determination of subgrade strength

1. A subgrade design CBR must be determined for each section of road and defined based on topography, drainage and soil type. The subgrade CBR must be determined through single-point four-day soaked CBR testing in accordance with AS.1289 Methods of testing soils for engineering purposes. Testing must be carried out in a NATA registered laboratory.
2. Subgrade testing is to include the requirements as outlined in AS.1289 with the exception of:
 - a. 4-day soaked CBR (1 Point), including swell @ 95% standard compaction @ 100% OMC - Fill and subgrade.

SC6.6.5.3.2.2 Frequency of subgrade testing

1. The frequency of sampling for determination of the subgrade CBR is to be agreed between the designer and Council, with minimum testing frequencies provided in Table SC6.6-8: Minimum Testing Frequency.

Table SC6.6-8: Minimum Testing Frequency

ROAD LENGTH	TESTING FREQUENCY
≤ 120m	Minimum of two tests for each subgrade type
> 120m	One test every 60m or part thereof, with a minimum of three tests for each subgrade type

2. When determining the testing frequency to be adopted, consideration must be given to the following:
 - a. spacing of test sites must be selected to suit subgrade, topographic and drainage characteristics of the road;
 - b. sampling must be taken in the general position of the outer wheel path on both sides of the road; and
 - c. Where existing fill is present, an engineer (RPEQ) is required to verify that in addition to near surface fill material, deeper soil layers including fill and natural soils are considered in the design. This will require sampling and CBR testing of multiple layers with CBR values of deeper layers being considered in the design. This provision must also apply where the natural soil profile exhibits decreasing CBR values with depth.

SC6.6.5.3.2.3 Selection of pavement design subgrade CBR

1. The design subgrade CBR must be calculated using the following guide:
 - a. Two test results — adopt the lowest value of the results;
 - b. Three test results — adopt the mean value of the lowest two results;
 - c. Six tests results — adopt the lesser of the second lowest test result or the mean value of the lowest three test results (the material can be regarded as inconsistent when for a set of six test values, the mean is more than 10 above the mean of the lowest three results);
 - d. 10 or more tests results - if the testing interval and data are unbiased, and the variability of test results is low, then statistical analysis can be used to determine a design CBR at an appropriate percentile level. To ensure homogeneous sub-sections of subgrade, the CBR values must have a coefficient of variation (i.e. standard deviation divided by the mean) of 0.25 or less. The ten-percentile level (i.e. 90% of results exceed this level) is commonly adopted as the design CBR of higher order roads.

SC6.6.5.3.2.4 Expansive clays

1. This section relates to the identification and mitigation of expansive soils and must be read in conjunction with the latest version of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.
2. A guide to the identification and qualitative classification of expansive soils is presented in Section 5: Subgrade Evaluation of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology. Where CBR swell and Weighted Plasticity Index (WPI) on the same material indicate different classifications, the CBR swell must take precedence.
3. Providing minimum cover should be in accordance with Section 5: Subgrade Evaluation of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.
4. In areas where it is not economical to provide a minimum cover, other treatments such as lime stabilisation may be considered. When stabilisation of the subgrade material is being considered, additional testing may also be required such as lime demand, sulphate content and UCS. Further guidance on the evaluation of materials for stabilisation is provided in DTMR Specification MRTS04 General Earthworks, the DTMR Pavement Rehabilitation Manual and the DTMR Materials Testing Manual (Part 2).

SC6.6.5.3.2.5 Lime stabilised subgrades

1. The following section must be read in conjunction with the latest version of the following publications:
 - a. Material Testing Manual Part 2: Application;
 - b. Structural design procedure for lime stabilised subgrade Guideline, DTMR.
2. If the amount of lime is insufficient to achieve enhanced properties long-term, no allowance must be made for the change in design CBR due to stabilisation.
3. For the purposes of mechanistic design, lime stabilised subgrades are considered to behave as unbound soil materials with improved stiffness and must be modelled with the properties outlined in Section 6: Design parameters of DTMR Guideline Structural design procedure for lime stabilised subgrade.

SC6.6.5.3.2.6 Subgrades with design CBR less than 2%

1. Refer to Section 5: Subgrade Evaluation of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads

Guide to Pavement Technology.

2. A presumptive subgrade design CBR of 2% for the assumed semi-infinite layer (that is, from the top of the treatment and extending infinitely below) is typically adopted for the following treatments with thicknesses determined in Section 5: Subgrade Evaluation of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology:
 - a. geotextile wrapped unbound granular material;
 - b. geotextile wrapped recycled material blend;
 - c. geotextile wrapped rock fill.
3. Typically, the materials are modelled as selected subgrade materials with design parameters not exceeding those of a CBR 15% selected fill material.
4. Alternate subgrade treatments that meet the minimum design requirements can be submitted to Council for approval.
5. A reduction in pavement thickness due to any reinforcing provided by the geotextile is not generally applied. The exception to this may be when it is necessary to maintain cover or separation to existing services in soft subgrades and it is not practicable to construct full-depth pavement. In this case, the use is to be supported by technical information and RPEQ certified pavement design calculations from the manufacturer and the resulting design pavement based on a working platform.

SC6.6.5.3.2.7 Rural roads

1. Rural road pavement depth design will be based on:
 - a. Non-inundated areas - Unsoaked CBR;
 - b. Inundated areas, including flood plains, 4 day soaked CBR. Maps defining the regions flooding areas are available on Council's website.

SC6.6.5.3.3 Design traffic

SC6.6.5.3.3.1 Selection of design period

1. The design traffic must be calculated based on the following minimum pavement design period for each pavement type:
 - a. Flexible pavement – 20 years;
 - b. Rigid pavement – 40 years.

SC6.6.5.3.3.2 Calculation of design traffic loading

1. Design traffic must be calculated for the applicable design life of the pavement in accordance with the latest version of the following publications:
 - a. Guide to Pavement Technology Part 2: Pavement Structural Design, Austroads;
 - b. DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.
2. For the mechanistic-empirical design method for pavements containing one or more bound materials, the design traffic is characterised by the cumulative heavy vehicle axle groups (HVAG) together with the traffic load distribution (TLD). For the empirical design method for unbound granular pavement with thin bituminous surfacing, the design traffic is described in terms of equivalent standard axles (ESA).
3. Where the pavement design is being undertaken for the realignment or rehabilitation of an existing road, the design traffic loading must be based on current site-specific traffic survey data. If the pavement design is being undertaken for a greenfield site, the calculation of design traffic must take the following into consideration:
 - a. traffic survey data for nearby roads of a similar nature;
 - b. estimated traffic generated by the new road and any land development likely to occur nearby the project site calculated in accordance with the latest version of the Guide to Traffic Impact Assessment DTMR.
4. Where historical traffic data is not available, and the nature of the project does not warrant a site-specific traffic survey (e.g. for some projects on minor and local roads), minimum presumptive values provided in Appendix 1 may be used as a guide for the pavement design process for urban roads. These values may be subject to variation based on the surrounding traffic generating catchment for the road.
5. Where historical traffic data is not available for rural roads, a site-specific traffic survey must be undertaken to determine the percentage and classification of heavy vehicles to determine the design traffic loading and must take into consideration seasonal use of the road.
6. All traffic data and/or assumptions made in the calculation of the design traffic must be included in the Pavement Design Report and submitted to Council.

SC6.6.5.3.3.3 Design traffic at intersections

1. Design traffic at an intersection must be calculated by adding the design traffic to one road to the design traffic applicable to the crossroad. Selection of the pavement structure must take the minimum maintenance requirements into

consideration.

SC6.6.5.3.3.4 Design traffic for car parking facilities

1. The design traffic calculation for car parking facilities must be based on traffic load concentrations within the car park areas, such as entrances or exits. The minimum flexible pavement thickness for car parking facilities must be 250mm.

SC6.6.5.3.4 Pavement types

1. Guidance on the selection of appropriate pavement type is provided in Section 2 Pavement Design Systems of DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.
2. Guidance on the commonly used pavement types is provided in the following sections.

SC6.6.5.3.4.1 Unbound granular pavement with thin bituminous surfacing

1. Typically, unbound granular pavements with either a bituminous seal or asphalt less than 40mm thick are desirable for lightly-trafficked minor and local roads as this pavement type provides the lowest whole-of-life cost. Where asphalt is used for the surfacing, a prime and initial seal or primer seal must be applied to the surface beneath the asphalt to aid bonding of the asphalt layer to the granular material and water proofing.
2. Unbound granular material must be in accordance with the current version of DTMR Specification MRTS05 Unbound Pavements.

SC6.6.5.3.4.2 Asphalt over granular pavements

1. These pavements comprise multiple asphalt layers over a granular base and/or subbase. The main application for asphalt on granular pavement is on medium traffic urban roads. It may also be suitable for rural highways and main roads depending on climate and traffic loads.
2. All asphalt pavement is to be in accordance with DTMR Specification MRTS30 Asphalt Pavements.

SC6.6.5.3.4.3 Full depth asphalt

1. Full depth pavements are not used for local streets. They may be used in areas where speed of construction is critical, such as on major roads or narrow pavement widening. Full depth asphalt must be underlain by a minimum of 150mm thick lightly bound improved layer.
2. Any full depth pavement design, where proposed, must be submitted to Council for consideration.

SC6.6.5.3.4.4 Cement modified pavements

1. Cement modified pavements, which may include lightly-bound bases or working platforms, are acceptable. Cement modified materials will typically have a maximum target UCS of 2mPa. Details of any proposed cement modified materials to be used must be submitted to Council for consideration. A NATA registered laboratory must undertake all the required testing.

SC6.6.5.3.4.5 Concrete pavements

1. Full depth concrete pavements are used only on heavily trafficked roads with a design traffic loading of 106 HVAG or more and must be designed in accordance with the following publications current at the time the design is prepared:
 - a. Guide to Pavement Technology Part 2: Pavement Structural Design, Austroads;
 - b. DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.
2. Special attention is to be paid to the jointing and subbase details regarding rideability and the provision of additional conduits for future services. Where a concrete pavement is chosen, a concrete pavement design is to be submitted to Council for approval.

SC6.6.5.3.5 Design of flexible pavements

SC6.6.5.3.5.1 Mechanistic empirical design procedure

1. The mechanistic-empirical design procedure as specified in Section 8: Design of Flexible Pavements of Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, may be used for flexible pavements with one or more bound layers and is typically undertaken using the latest version of CIRCLY or AustPADS.

2. It must be noted that thin interlayers and surfacing (less than 40mm thick) are non-structural and are not typically included in the design model.
3. Where the subgrade design CBR is less than 3%, subgrade treatments must first be applied, and a presumptive design CBR of 3% is adopted at the top of this treatment in the mechanistic-empirical design model.

SC6.6.5.3.5.2 Empirical design procedure for pavements with thin asphalt surfacing

1. For the design of granular pavements which are surfaced with either a bituminous seal or asphalt, the empirical design procedure as specified in Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, may be used.
2. The minimum pavement thickness must be determined using one of the following methods:
 - a. Figure 8.4 Design chart for granular pavements with thin bituminous surfacing of Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, for moderately-heavily trafficked roads where the design traffic exceeds 105 ESA;
 - b. Figure 12.2 Example design chart for lightly-trafficked granular pavements with thin bituminous surfacings of Austroads Guide to Pavement Technology Part 2: Pavement Structural Design, for lightly trafficked roads where the design traffic is less than 105 ESA;
 - c. the mechanistic-empirical design procedure as specified in Section 8.2 Mechanistic-empirical Procedure of Austroads Guide to Pavement Technology Part 2: Pavement Structural Design.
3. If the thin surfacing is dense graded asphalt or stone mastic asphalt, its thickness (< 40mm) may be considered to contribute to the required total thickness over the insitu subgrade but does not affect the required thickness of granular base. Other surfacing types (such as sprayed seals) are considered to make no contribution to the required thickness of granular material.

SC6.6.5.3.6 Design of rigid pavements

1. The design of rigid pavements must be in accordance with the latest version of the following publications:
 - a. Guide to Pavement Technology Part 2: Pavement Structural Design, Austroads;
 - b. DTMR Supplement to 'Part 2: Pavement Structural Design' of the Austroads Guide to Pavement Technology.

SC6.6.5.3.7 Rural road pavement

1. To be based on SC6.6.5.3.5 Design of Flexible Pavements.
2. Roadworks pavement:
 - a. The developer is to submit to Council a certificate from a NATA-registered laboratory indicating conformity with the pavement requirements;
 - b. The pavement material may be supplied ex-quarry or delivered to site, and the supplier is to have in place a quality system ensuring the quality of the material;
 - c. A certificate indicating conformity with the pavement requirements is to accompany the pavement material.
3. Roadworks construction:
 - a. Construction of works is to be undertaken in accordance with approved drawings and specifications;
 - b. Table drains are to be constructed in accordance with road typologies and discharge to a lawful point of discharge and ensure no adverse impacts.

SC6.6.5.3.8 Pavement design - Gravel roads

1. Pavement design for gravel roads is to be based on SC6.6.5.3.5 Design of Flexible Pavements plus 50mm wearing course. Minimum depth — 200mm.
2. Gravel quality to be in accordance with Austroads Guide to Pavement Technology Part 6: Unsealed Pavements. Table 3.5 Typical properties for unsealed road wearing course, of Austroads Guide to Pavement Technology Part 6: Unsealed Pavements, is a guide to suitable gradings for unsealed road wearing course. The materials are to exhibit the characteristics of the performance base specification as outlined in Section 3: Pavement Materials, of Austroads Guide to Pavement Technology Part 6: Unsealed Pavements. The following specification is to be used:
 - a. Shrinkage Product = ((% Passing 26.5mm sieve - (% Passing 2mm sieve) x (Linear Shrinkage x % Passing 0.425mm sieve));
 - b. Grading Coefficient = ((% Passing 26.5mm sieve - (% Passing 2mm sieve) x (% Passing 4.75mm sieve/100)).
3. Rural road characteristics to be in accordance with Table 3.6 Typical specifications, of Austroads Guide to Pavement Technology Part 6: Unsealed Pavements.
4. The relationship between shrinkage product, grading coefficient and performance of wearing course is illustrated in Figure 3.6 Relationship between shrinkage product, grading coefficient and performance of wearing course gravels, of Austroads Guide to Pavement Technology Part 6: Unsealed Pavements.
5. California Bearing Ratio (CBR) — minimum 40.
6. Local gravel may be used if the properties conform with Section 3: Pavement Materials, of Austroads Guide to Pavement Technology Part 6: Unsealed Pavements, and is approved by Council (may require testing at applicant's expense).

7. Natural surface may be used where all weather access can be sustained.

SC6.6.5.4 Construction

1. All work is to be supervised by a RPEQ or their authorised representative competent in roadworks and undertaken by a nominated principal contractor experienced in the construction of public (municipal) works.
2. Council may request evidence of the RPEQ's or their authorised representative and the principal contractor's competency.
3. On the completion of the works, the supervising engineer is to submit RPEQ certification to Council certifying that the works have been completed in accordance with the approved plans and specifications.
4. Certification is to include the submission of 'as constructed' plans, ADAC and copies of all relevant test results.
5. Works involving State-controlled roads must be referred to the DTMR for approval.
6. Road construction methods and practices must accord with those specified in:
 - a. DTMR Specifications and Standard drawings;
 - b. Austroads guidelines;
 - c. DTMR MUTCD;
 - d. Council's Roads and Drainage Policy;
 - e. Council's Standard drawings.
7. Where there is an inconsistency between the specified manuals and Council's Standard drawings, the standard drawings are to take precedence to the extent of the inconsistency.

SC6.6.5.5 Pavement construction

1. Each pavement course is not to be commenced until the previous course (i.e. subgrade, sub-base, base or existing pavement) has been inspected, approved and certified by the RPEQ with respect to compaction, finished levels and texture of finish.
2. Compaction tests of each layer are required, and the RPEQ is to ensure that all tests meet specification before proceeding to the next layer.
3. All test results are to be provided to Council before asphalt surfacing.
4. Subgrade affected by rainfall after final trimming is not to be accepted until appropriate drying out, testing and proof-rolling treatment has been affected.
5. Unbound pavement course material is always to be kept at optimum moisture content.
6. Minimum compacted layer thickness is to be 125mm, with the maximum compacted thickness not exceeding 150mm.

SC6.6.5.5.1 Compaction testing

1. Determination of the compaction performance of the earthworks, subgrade and pavement gravel materials (i.e. laboratory reference density, field density, optimum moisture content, field moisture content) is to be carried out in accordance with AS.1289 Methods of Testing Soils for Engineering Purposes, the 'E' series tests.
2. The laboratory reference density is to be as follows:
 - a. earthworks — 97% standard maximum dry density (MDD);
 - b. subgrade — 100% standard MDD;
 - c. pavement — 100% standard MDD.
3. The minimum frequency of testing is to be as follows:
 - a. roads <120m — 3 tests;
 - b. roads >120m — 1 test every 50m.
4. A minimum of 3 tests for each project are to be undertaken.
5. A lot layout plan showing the location of the tests is to be submitted to Council with the test results.
6. All tests are to be distributed reasonably evenly through the full depth and area of pavement.
7. The testing frequencies are to be based on a 'not one to fail' basis.
8. Failure of material quality tests will require removal of the material or further in situ testing.
9. Failure of compaction tests will require:
 - a. retesting at the same depth and location if the failure is minor (e.g. localised single failure by 1%—3%);
 - b. removal or reworking of material if the failure is significant or widespread.
10. Subgrade and base courses are to be compacted to the following densities:
 - a. earthworks up to 300mm below subgrade — 95% MDD, then 97%;
 - b. natural surface and subgrade — 97% MDD;
 - c. pavement courses — 100% MDD.
11. Any failed test results on any layer, together with the remedial treatment undertaken at the direction of the RPEQ, is to be submitted with other test results before the pre-seal inspection.

SC6.6.5.5.1.1 Pavement depth verification

1. Pavement depths are to be verified by the provision of 'as constructed' levels of the subgrade and top of asphalt surfacing at a frequency of three levels (right-hand side, centre and left-hand side) every 10m.
2. The surveyed information is to be provided in a tabulated format and is to be certified by both the surveyor and RPEQ.
3. A copy of the certified results is to be submitted with the engineer's certification of the works.

SC6.6.5.5.2 Pavement surfacing

SC6.6.5.5.2.1 Asphaltic concrete surfacing

1. Asphaltic concrete surfacing of the road pavement is to be carried out to the width specified in the LVRC Standard drawings, Typical Cross Sections for the appropriate road type and in accordance with the construction requirements outlined in the DTMR Specifications.
2. Asphaltic concrete surfacing is not to be commenced until the RPEQ and Council have inspected the substrata (either as a base course or existing surface) and the RPEQ has certified that it is suitable for the laying of asphalt concrete (AC) surfacing.
3. Before issuing the required certification the RPEQ is to consider the quality of the finished levels, compaction and texture finish.
4. The surface of all asphaltic concrete is to be finished true to grade and profile with smooth joints and a neat finish around manholes and other road surface fittings and finished at a level at kerb lip such that the surface will remain free draining.
5. The finished compacted thickness of asphaltic concrete is to be as specified in the Deemed to Comply tables for the appropriate road type.
6. Where finished levels have been outlined in the engineering plans, the final asphalt surfacing is not to deviate from these levels by more than -5mm or $+10\text{mm}$ except adjacent to kerb and channel and remain free draining.

SC6.6.5.5.2.2 Spray surfacing

1. Bitumen surfacing is to be hot-sprayed bitumen or approved bitumen emulsion.
2. Bitumen surfacing of the road pavement is to comprise the construction of a bitumen surface coat to the width specified in the typologies for the appropriate road type and in accordance with the construction requirements outlined in the DTMR Specifications.
3. Bitumen surfacing is not to commence until Council approves the proposed roadworks.
4. All necessary precautions are to be taken to prevent binder, aggregate or other material used on the work from entering or adhering to kerb and channelling, gratings, hydrant or valve boxes, manhole covers, bridge or culvert decks, or similar road fixtures.

SC6.6.5.5.3 Subsoil drainage of pavements

1. Subsoil drains are to be constructed in accordance with IPWEAQ Standard drawing, RSD-801 Subsoil Drains - Details & Locations.

SC6.6.5.5.3.1 Location of subsoil drains

1. Where kerb and channel has been or is to be constructed, the subsoil drains are to be constructed immediately below the back of the kerb, as outlined in the IPWEAQ Standard drawing RSD-801 Subsoil Drains - Details & Locations.
2. Subsoil drains must be extended to interface and connect with existing subsoil system and lawful point of discharge.
3. Where the road musters are unsealed, the subsoil drains are to be placed as outlined in the approved engineering plans, except where kerb and channel is to be constructed in the future, in which case the subsoil drain is to be located as outlined in clause 1 above.

SC6.6.5.5.3.2 Order of construction

1. Subsoil drains are to be constructed after placement of the lower sub-base material (CBRI5) or after preparation of the pavement box on minimum depth pavements.
2. Council may, when conditions are suitable, approve the construction of the subsoil drains before placement of subgrade replacement material or lower sub-base material, subject to the bedding or filter material being brought to the underside of upper sub-base level.

SC6.6.5.5.3.3 Excavation of drains

1. Trenches for pipe drains are to be excavated to the required line to a depth of at least 900mm below the finished pavement surface level and to the gradients as outlined on the approved engineering plans (minimum 1%). In situations

where the grade is <1% 'strip drains' are to be used.

2. Trenches are to be a minimum 100mm wider than the nominated pipe outside diameter.

SC6.6.5.5.3.4 Type of pipe

1. All subsoil drainage pipes are to be socked Humes 'Draincoil' or similar socked perforated plastic drainage pipe complying with AS.2439 Perforated Plastics Drainage Pipe and Fittings.
2. Perforations must not exceed 0.7mm diameter or width.
3. Joints are to be constructed in accordance with the manufacturer's recommendations.
4. Where approved by Council, strip drains may be used.
5. Strip drains are to be a proprietary product comprising a regular patterned cusp-shaped plastic core, of nominal thickness not less than 40mm, encased by a nonwoven geotextile.
6. The plastic core is to permit the passage of high-volume water flows and have a crush strength not less than 100 kPa.

SC6.6.5.5.3.5 Pipe size

1. The minimum pipe size is 100mm outside diameter.
2. The pipe is to be bedded on a minimum of 50mm of graded filter material in accordance with the IPWEAQ Standard drawing RSD-801 Subsoil Drains - Details & Location.

SC6.6.5.5.3.6 Pipe laying

1. All subsoil drainage pipes are to be laid on a prepared filter or sand bed to ensure a uniform grade.

SC6.6.5.5.3.7 Outlets

1. All subsoil drainage pipes are to be connected to gully pits, as outlined in the IPWEAQ Standard drawings RSD-801 Subsoil Drains - Details & Location, and RSD-802 Subsoil Drains - Access Points, or to open channels below the edge of an embankment.
2. For outlets not connected into gully pits, a concrete headwall is to be provided to the outlet.
3. Where provided, the headwall is to be at least 100mm thick and is to extend for a minimum of 150mm on all sides of the pipe.
4. The outlets to the pipes are to be fully enclosed by vermin-proof flaps.

SC6.6.5.5.3.8 Clean-outs

1. Clean-outs as outlined in the IPWEAQ Standard drawings, RSD-801 Subsoil Drains - Details & Location, and RSD-802 Subsoil Drains - Access Points, are to be located at the head of the subsoil drain and at subsequent spacings not exceeding 90m.
2. Clean-outs located at gully pits are to be constructed with caps or plugs, as outlined in the IPWEAQ Standard drawings, RSD-802 Subsoil Drains - Access Points.
3. A marker is to be installed in the kerb adjacent to clean-out points.

SC6.6.5.5.3.9 Joining

1. Subsoil drains are to be joined in accordance with the manufacturer's recommendations.
2. Clean-out pipes are to be joined to the subsoil drains using oblique 'T' connections.

SC6.6.5.5.3.10 Flushing

1. After the drains are constructed, they are to be flushed out.
2. Flushing is to continue until the outlet water is clean and flows consistently.
3. Treatment of islands and speed control devices:
4. for islands and speed control devices, a mitre drain is to be constructed to drain subsurface water from these structures into the nearest gully box or access chamber.
5. Landscaped islands are to have perimeter subsoil drainage discharging into the nearest gully box or access chamber.

SC6.6.5.5.4 Traffic control devices and provision for traffic

1. Street signs, road line-marking and road furniture must be designed, located, constructed and erected in accordance with the DTMR MUTCD and the relevant standard drawings.

2. All permanent signs in concrete paved areas are to be sleeved and bolted.
3. Kerb-side posts are to be installed using v-locks and spears.
4. Vandal-proof bolts and fittings are to be used on all permanent signing.
5. Concrete used in traffic calming is to have a minimum strength of 32mPA.
6. Raised retro-reflective pavement markers (RRPMs) are to be installed in accordance with the MUTCD.
7. Traffic control devices:
 - a. The developer must implement Traffic Management in accordance with the MUTCD.
8. Dust control:
 - a. The contractor is to minimise any dust problems that may occur during the construction of the roadworks and that may affect the safety and general comfort of the travelling public and surrounding residences;
 - b. As a minimum, the contractor is to carry out regular applications of water or other palliative measures along the sections of the roadworks and side-tracks traversed by the travelling public.
9. Urgent repairs and protective works:
 - a. If by reason of any circumstances arising in connection with the work, any urgent remedial, protective, repair or other work is necessary to prevent damage to the work or to provide protection for pedestrians and traffic and the contractor is unable or unwilling to do such work, Council may do such remedial work;
 - b. Council is to determine the reasonable costs incurred in carrying out the works, and the amount so determined is to be paid by the contractor to Council, no later than before acceptance of the works on maintenance.

SC6.6.5.5.5 Kerb and channel construction

SC6.6.5.5.5.1 Kerb and channel foundation

1. The foundation is to comply with the requirements of the approved engineering plans.
2. The foundation is to extend at least 300mm behind the back of the kerb.
3. No concrete is to be placed until the foundations have been inspected and approved by Council.

SC6.6.5.5.5.2 Concrete works

1. The concrete used in kerb and channelling work and vehicle crossings is to be Grade N32 concrete and conform in all respects with the IPWEAQ Standard drawings, Road suite, Vehicle crossing and Kerb & Channel series and approved engineering plans.
2. Industrial kerbing must have an additional 50mm concrete base thickness over standard profiles as a minimum.
3. Concrete is to be placed true to line and grade to the depths, thicknesses and dimensions as shown on the standard Drawings as referenced above.
4. Any kerb and channel not true to line or with noticeable kinks, bends or other faults or not of the required dimensions is to be condemned and is to be broken out and removed from the site.
5. The channel is to be shaped in true conformity with the standard drawings referenced above.
6. The invert of the channelling is to be finished in true grade and alignment.
7. Council will not accept channelling which is found to pond water.
8. Channelling that ponds water and surfaces that are chipped, cracked or otherwise damaged are to be cut away to a clear surface and rendered 12mm minimum thickness.
9. The concrete kerbing and channelling are to join neatly and transition smoothly with existing kerb and channel or be finished so that it will join neatly with channelling to be constructed.
10. Where kerbing and channelling joins inlet pits, the width of channel is to be uniformly widened, as shown on the standard drawings referenced above, to join neatly with the pit.
11. Kerb ramps are to be constructed at all street intersections as shown on the relevant IPWEAQ Standard drawings, Active Transport suite to connect cycleways and footpaths.

SC6.6.5.5.5.3 Kerb and channelling — hand-formed and finished

1. Forms are to conform to the profile specified in the IPWEAQ Standard drawings, Road suite, Vehicle crossing and Kerb & Channel series, and be rigid, true to line and grade, and well braced.
2. Back forms are to be used on the footpath side of the full depth of the kerb back.
3. In the carrying out of this work, the whole of the water channel is to be cast simultaneously.
4. The casting of invert and kerb at different times is not acceptable to Council.
5. Concrete is to be well rodded and sliced or vibrated during placing to ensure maximum density and a dense surface finish.
6. Immediately following the casting of the kerb and channel, the top of the kerb and channel is to be finished with an approved steel finishing tool.
7. The 'arris' and 'invert' are to be formed with approved steel finishing tools.
8. The front board of the kerb is to be stripped within 24 hours of casting and the kerb face immediately bagged using a damp hessian bag and cement mortar.
9. The concrete kerb and channel are to be placed in 3m sections and provision made at the joints to prevent the binding of

the concrete at the joint.

10. Joints are to be finished square and at right angles to the section of the water channel and show a neat joint line on the kerb face and top truly at right angles to the length.

SC6.6.5.5.4 Kerb and channelling — machine formed and finished

1. Kerb and channelling may be cast by approved slip form machines, provided that the kerb and channelling conforms to the profile specified in IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel, and the following additional requirements:
 - a. The minimum slump is to be 12mm;
 - b. Concrete is to be thoroughly compacted;
 - c. Exposed faces and edges of kerbs are to be finished with a steel tool to the true shape of the kerb.
 - d. Grooves are to be cut with a suitable grooving tool to a depth of at least 100mm in the channels and inverts at equal intervals of 3m. Grooves are to be at right angles to the length and perpendicular.
 - e. Adjacent concrete is to be finished to a smooth, level surface;
 - f. Concrete is to be supplied ready-mixed and placed within 30 minutes of delivery on site. Any concrete not placed within this time is to be removed from the site.

SC6.6.5.5.5 Curing of concrete

1. When curing compounds are used on concrete work, they are not to be detrimental to the quality or appearance of the finished concrete.

SC6.6.5.5.6 Verges

1. Verges are to be covered full width with suitable topsoil free of stones and deleterious matter, to a depth of not less than 100mm, lightly compacted and turfed.

SC6.6.5.5.7 Urban roadworks and access

SC6.6.5.5.7.1 Vehicular crossings

1. Where applicable, all vehicular footpath crossings (together with any necessary adjustments to the kerb and channel) are to be constructed in accordance with IPWEAQ Standard drawings, Road suite, Vehicle crossing and Kerb & Channel series.

SC6.6.5.5.8 Traffic islands

1. Traffic islands are to be indicated by raised kerb islands.
2. Islands may include channelling (or directional) islands, roundabouts, median islands, medians, separators and pedestrian refuge islands, and are to be classified in accordance with the DTMR MUTCD.
3. Raised kerbed islands less than 12m² or less than 2m in width between kerb faces are to be constructed with a minimum 100mm thickness N32mPa reinforced-concrete on a compacted sand base. The surface treatment for these islands is to be brushed or stencilled concrete.
4. A water service conduit is to be installed approximately every 80m, with a minimum of one service for each median.
5. Where the fall across an island is greater than 1V:4H, the island is to be surfaced with brushed or stencilled concrete.
6. Subsoil drainage (connected to an underground drainage system) is required in all islands where the surface treatment is other than concrete.
7. Whenever the centre island or part of a roundabout or traffic island is landscaped, a water service conduit and perimeter subsoil drainage are to be provided.
8. Pedestrian refuge islands have:
 - a. a minimum width of 2m and no more than 2.5m;
 - b. a minimum length of 10m and no more than 12m.

SC6.6.5.5.9 Bus stops

1. Bus stops (including indented bus bays) are to be located on arterial, sub-arterial, distributor and collector roads, as outlined in section SC6.6.5.2.1 Road design summary of this policy and as per agreement with Council and DTMR to support the bus network.
2. Where bus bays front any lot on a collector road, a driveway is to be constructed for each affected lot — not within the bus set-down area, but within the tapers of the bus bay or outside the bus bay area.

SC6.6.5.6 Bridges

SC6.6.5.6.1 Introduction

1. This policy provides Council's standards for bridges associated with Council and development works. They must be read in conjunction the relevant sections of this planning scheme policy.
2. The purpose of this part is to:
 - a. provide a serviceable infrastructure for the specified lifetime with minimal maintenance;
 - b. provide safe and trafficable bridges for vehicles, pedestrians and cyclists;
 - c. ensure design is appropriate for the traffic use and water flows;
3. This part is intended as a guide only and must not take precedence over the prescribed design standards.

SC6.6.5.6.2 Siting

1. The location of the structure must comply with the strategic plans and/or approved layout plans that:
 - a. Manages the location in relation to property, boundaries, existing structures and land use;
 - b. Manages impact to existing vegetation;
 - c. Complement existing and future infrastructure (i.e. road networks pedestrian ways and bikeways);
 - d. Considers future maintenance and growth requirements;
 - e. Considers construction methods including material delivery;
 - f. Considers impacts that disturbance and final landform;
 - g. Manages safety and security requirements;
 - h. Considers flood impacts.

SC6.6.5.6.3 Bridge design standards

1. The following are some of the design reference for bridges but not limited to:
 - a. Australian Standard Bridge Design AS/NZS.5100 Bridge design, and its relevant parts;
 - b. DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures;
 - c. Austroads Guide to Bridge Technology, Guide to Road Tunnels and Guide to Road Design;
 - d. Authority requirements by Queensland Rail. Utility service authorities. Where a document (i.e. manual or guideline) is not consistent with the standards of the authority, the aforementioned standards prevail to the extent of the inconsistency.
2. Bridge design, construction parameters and design reports are to be in accordance with the DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures.
3. The bridge designer must be a RPEQ qualified and experienced.
4. Designers and contractors must demonstrate BD2, CE2, GE2, HE2, HD2 - DTMR pre-qualification status and must be able to demonstrate recent bridge design and construction supervision experience similar to the bridge works proposed (minimum three bridges within the last 5 years).
5. Road bridges are to be concrete in structure, incorporate footpaths and provide service ducts for existing and future services are required by Council and the service authority.
6. Scour protection and stabilisation control works are required at the bridge abutments, and at culvert inlets and outlets. These works can include grouted rock, sprayed concrete suitably finished to match the environment or formed concrete.
7. A brass plug PSM and brass Date-plaque is installed on one of the bridge abutments in a location approved by Council.
8. Terrestrial and aquatic fauna movement solutions are included in all waterway crossings in accordance with the Fauna Sensitive Transport Infrastructure Delivery manual.
9. Hydraulic analysis is a critical component for design of bridges that cross water courses and must be undertaken by a suitably qualified and experienced RPEQ.
10. The minimum clear width for a pedestrian bridge is 2.5m or where it is deemed necessary for Council to access the pedestrian bridge with maintenance vehicles, 3.5m.
11. The Applicant will arrange a review of the Bridge Design. The review will not relieve the RPEQ of responsibility for the code compliance and performance of the bridge. Work must not commence on the bridge until the review is completed and all issues raised in the review are resolved by the RPEQ and to Council's satisfaction.
12. Table SC6.6-9: Bridge design and construction requirements, sets out the minimum requirements for design and construction requirements for a bridge.

Table SC6.6-9: Bridge design and construction requirements

PARAMETER	REQUIREMENT
Design life	In accordance with the DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures or a minimum 100 years

Design load	AS.5100 Bridge design, Part 1: Scope and general principles
Waterway Design	Austrroads Guide to Bridge Technology Part 8: Hydraulic Design of Waterway Structures and DTMR Supplement to Austrroads Guide to Bridge Technology Part 8
Traffic volume	AADT to be determined
Design average stream velocity	To be determined by stream modelling however, 4m/s must be the design minimum design value used.
Bridge carriageway widths	DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures.
Bridge level	To be above AEP 1% flood event (if practicable)
Bridge superstructure	Prestressed concrete construction
Bridge Barrier	DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures.
Bridge geometry	Square to flow direction (if practicable)
Abutments	1V:1.5H spill-through abutments, in accordance with AS.5100 Set: Bridge design
Public Utilities	Current and/or future provision of utility services must be considered
Scour Protection	Scour, flood and erosion protection will be required at the abutments.
Deck wearing surface	Asphaltic concrete
Relieving slabs	Cast in-situ relieving slabs must be provided in accordance with DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures.

SC6.6.5.6.4 Geotechnical parameters

1. A geotechnical investigation must be carried out by a RPEQ qualified and experienced Geotechnical Engineer before the design being commenced. In conjunction with this requirement, Council also requires that the investigation includes a minimum of one borehole at each abutment and pier location to be included in the investigation.
2. Driven piles that are likely to set prematurely on boulders will be an unsuitable design solution and will not be accepted by Council.
3. Tests are to be carried out for the presence of sulphate, salt, chloride and pH and other known aggressive soil environments. Design of concrete elements must take the results of testing into consideration.
4. DTMR, March 2020 publication - Design Criteria for Bridges and Other Structures refers.

SC6.6.5.6.5 Culverts

1. All culverts must be reinforced concrete. The use of steel, plastic or glass reinforced plastic is not permitted.
2. Precast concrete pipe or box culverts, designed and manufactured in accordance with the relevant Australian Standards, must be used. Joints between culvert units must be waterproofed across the tops of units and down both external legs, with an approved membrane (500mm wide strip of Bituthene 5000 or equivalent).
3. Culverts exposed to high salinity areas need to consider the local soil characteristics. Lockyer Valley has areas with salinity, dispersive or erosive soils. Soil characteristics are discussed in SC6.6.6 Earthworks.

SC6.6.5.6.6 Safety measures

1. Appropriate safety measures must be incorporated into all bridges and culverts including rails, barriers, approach warning signs and flood depth indicators.
2. All handrails and vehicle barriers must be designed to withstand stream and debris loads as well as other forces. Steel handrails and vehicle barriers must be hot dipped galvanised and painted with a suitable recoat paint system in accordance with AS/NZS.2312 Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings. Rigid vehicle barriers on the bridge or culvert must be suitably terminated and transitioned to flexible barriers on the approaches.
3. Lighting as required by Council is to be included in accordance with the provisions set out in this policy.

SC6.6.5.6.7 Inspection of works

1. An RPEQ must be engaged during the bridge construction period to answer design queries and make inspections as required in specifications. The RPEQ is to ensure the work is constructed in accordance with the approved plans including all relevant geotechnical information. Certification of the works is required as:

- a. The RPEQ will prepare written reports covering each inspection made, in a form acceptable to Council. Copies of each report must be submitted on the date of the inspection;
- b. Work must not proceed until the works under a nominated hold point have been inspected by Council and the inspection and test plan is presented and signed by Council;
- c. Upon completion of the piling and before any subsequent work proceeds, an RPEQ working for the designer for the project must provide a certificate verifying that the installed piles meet with the nominated design criteria and specified requirements;
- d. The RPEQ must provide a certificate at the end of construction that the works have been inspected and the works have been constructed in accordance with the documentation and meet the intent of the design;
- e. Council may undertake periodic inspections during the construction phase.

SC6.6.5.6.8 Construction handover documentation

1. Bridge construction handover documentation must include:
 - a. As Constructed Plans certified by an RPEQ working for the designer;
 - b. Bridge Design Report including any changes during construction certified by the RPEQ working for the designer;
 - c. Independent Verification Report;
 - d. Construction Handover Report including all test result certificates;
 - e. Certificates as nominated above.
2. Detailed requirements for construction handover documentation can be found in DTMR 'Design Criteria for Bridges and Other Structures'.

SC6.6.6 Earthworks

SC6.6.6.1 Introduction

The standards for the provision of Earthworks are to be in accordance with:

1. Bills and Legislation:
 - a. Council's Planning Scheme;
 - b. *Aboriginal Cultural Heritage Act 2003*;
 - c. *Biosecurity Act 2014*;
 - d. *Building Act 1975*;
 - e. *Building Regulation 2021*;
 - f. *Environmental Offset Act 2014*;
 - g. *Environmental Protection Act 1994*;
 - h. *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)*;
 - i. *Land Act 1994*;
 - j. *Local Government Act 2009*
 - k. *Nature Conservation Act 1992*;
 - l. *Nature Conservation (Koala) Conservation Plan 2017*;
 - m. *Nature Conservation (Plants) Regulation 2020*;
 - n. *Nature Conservation (Protected Areas) Regulation 1994*;
 - o. *Planning Act 2016*;
 - p. *Planning Regulation 2017*;
 - q. *Vegetation Management Act 1999*;
 - r. *Water Act 2000*;
2. Australian Standards:
 - a. AS/NZS.1170 Structural design actions (set);
 - b. AS.2870 Residential slabs and footings;
 - c. AS.3798 Guidelines on earthworks for commercial and residential developments;
 - d. AS.4678 Earth-retaining structures;
 - e. AS.4970 Protection of trees on development sites;
3. Manuals, Guidance and Drawings:
 - a. Australian Geomechanics Society's Practice Note Guidelines for Landslide Risk Management 2007;
 - b. Best Practice Erosion and Sediment Control — for Building and construction sites, IECA 2008.
 - c. Guideline: Listing and removing land on the land registers;
 - d. IPWEA - Queensland Urban Drainage Manual;
 - e. IPWEAQ Standard drawings;
 - f. Koala-sensitive Design Guideline — a guide to koala sensitive design measures for planning and development activities;
 - g. Queensland Acid Sulfate Soil Technical Manual — Soil Management Guidelines v4.0, Department of Science, Information Technology, Innovation and the Arts (2014);
 - h. Queensland Auditor Handbook for Contaminated Land (2015);
 - i. State Planning Policy, State Interest Guidance material: Emissions and hazardous activities, February 2018;

SC6.6.6.2 Cut and fill

SC6.6.6.2.1 Clearing

1. All clearing must be kept to a minimum and comply with current Federal, State and Local legislation, local laws and Council's conditions of approval.
2. Before the development design phase, all ecological values must be mapped and assessed in accordance with the PSP 1 Biodiversity to ensure the development results in the best outcomes for the ecological values of the site.
3. Trees on existing roads and within road reserves must not be damaged or removed without the approval of Council. The applicant is to submit a Vegetation Management Plan to Council, for approval, in accordance with Planning Scheme. Vegetation Management Plan is to include:
 - a. a clear indication of all trees to be disturbed, removed and retained;
 - b. details of all operational works (including cut, fill, construction of roads, services, drainage, signage, wildlife corridors and building envelopes), likely to impact on existing vegetation (both on the site and within any road reserves or other land);
 - c. temporary and permanent exclusion and protection fencing;
 - d. roles and responsibilities for site contractors, the proponent, and the consultant group;

- e. stockpiling and reuse of cleared vegetation;
 - f. a clearing sequencing plan showing the commencement of clearing and the direction of removal (this should be in conjunction with the Fauna Management Plan to allow fauna time to relocate to safe haven areas);
 - g. methods for management of any restricted and invasive weeds present across the entire site (not just the construction area) and ongoing weed management;
 - h. a detailed ongoing rehabilitation and maintenance plan including the restoration and enhancement of disturbed areas in the post construction phase and processes to maximise survival opportunities for areas of retained vegetation and newly rehabilitated areas; and
 - i. specific details on the removal of potential habitat trees.
4. Refer to SC6.6.4.5.1 Erosion and sediment control plans (ESC Plans), which informs those persons constructing the development on what controls need to be implemented throughout all stages of the development from site establishment to project completion. Typically, a separate ESC Plan is required for each phase of the development including the bulk earthworks, civil construction (typically roadworks and stormwater drainage), services installation, final stabilisation and the decommissioning of construction phase sediment basins. These plans could be considered an element of complying with the general environmental duty, that is, doing all that is reasonable and practicable to prevent or minimise environmental harm.
 5. The instruments that nominate the protection of trees and vegetation of significance are referenced in SC6.6.6.1 Introduction.
 6. On slopes 16.6% and steeper special consideration must be given to the retention of groundcover. Special consideration should be given to the retention of vegetation on shaded areas or steep slopes with a southern aspect.
 7. Extreme caution must be shown when undertaking clearing works near watercourses, floodplains, steep slopes, wetlands, habitat trees and any other nominated environmentally sensitive areas. Refer to impacts and recommendations for ecological assessments as outlined in PSP 1 Biodiversity.
 8. Vegetation clearing is to comply with the following:
 - a. Ensure that an accredited spotter catcher is present to check all potential habitat before vegetation removal or earthworks. They are to:
 - i. inspect vegetation approved for removal (or any dams to be removed or dewatered) and advise contractors when it is appropriate to commence works;
 - ii. clearly mark (flag) vegetation found to contain fauna or fauna habitat (such as tree hollows, arboreal termite mounds, stick nests or possum drays with flagging tape), and visually and verbally communicate this information to the tree feller to ensure flagged trees are not felled until authorised by the fauna spotter;
 - iii. Where native vertebrate animals are found, clearing must only continue in coordination with a fauna spotter. All native vertebrate animals located within, on and amongst vegetation or areas of vegetation approved for clearing, are only to be managed under the guidance of the fauna spotter;
 - iv. Keep and maintain accurate records of all animal captures, incidents and disposals for the site and a report prepared for Council and other relevant authorities within one month of completion of the project.

Note—An accredited fauna spotter catcher is a person or company holding a current Rehabilitation Permit — Spotter Catcher issued by the Department of Environment and Science.

- b. Any clearing of koala habitat trees must ensure the clearing is carried out in a way the complies with the sequential clearing conditions in Part 3, Section 10, of the *Nature Conservation (Koala) Conservation Plan 2017*.

Note—Koala habitat tree has the same meaning as the Nature Conservation Act.

- c. Limit the felling of habitat and hollow bearing trees to the following methods:
 - i. segmental removal of the tree, with hollow-bearing limbs being checked by the wildlife spotter and cleared of fauna using a cherry picker;
 - ii. segmental removal of the tree, with hollow-bearing limbs plugged and lowered to the ground for inspection by the wildlife spotter;
 - iii. use of an excavator with vertical grab to lower the main trunk; or
 - iv. a combination of the above methods.
- d. Preserve valuable habitat features such as large fallen logs, log piles, rock piles or outcrops wherever practicable through the translocation and re-establishment in coordination with the wildlife spotter;
- e. Ensure compliance with AS.4970 Protection of trees on development sites, including but not limited to the implementation of a 'Tree Protection Zone' where trees are to be retained onsite and undertake the following:
 - i. install protective fencing to prevent any damage to areas not in the approved vegetation clearing area in general accordance with AS.4970 Protection of trees on development sites;
 - ii. provide signs identifying the 'Tree Protection Zone' on exclusion fencing that are clearly visible from all areas within the development site within 20m of the exclusion fencing; and
 - iii. ensure all trees to be retained within allotments are protected from harm during works on site. Ensure activities such as traffic, stockpiling and compaction are excluded from areas of retained vegetation particularly within the tree protection zones of retained trees.
- f. Ensure vegetation and rubble piles are not left to serve as a refuge for displaced or roaming wildlife through the implementation of the following measures:

- i. immediately (within 12 hours) remove or destroy such materials or
 - ii. ensure old (>12 hours) piles of felled vegetation are treated as potential wildlife habitat and inspected by a wildlife spotter catcher before removal or destruction.
- g. Ensure all vegetation cleared as a result of this development approval and requiring disposal is disposed of:
- i. on the premises for landscaping and sediment and erosion control purposes (for example as mulch); and/or
 - ii. at a waste disposal facility operated by Council provided that the waste is delivered to the waste disposal facility in a manner and form which allows it to be mulched at the facility; and/or
 - iii. in such other environmentally responsible manner as meets with the written approval of Council;
 - iv. ensure any vegetation cleared as a result of this development approval is not burnt or incinerated except for the purpose of domestic heating inside a dwelling on the subject site.

SC6.6.6.2.2 Filling

SC6.6.6.2.2.1 Material

1. The following materials are considered unsuitable as structural fill:
 - a. materials from wetlands, swamps, marshes or bogs, or containing peat, logs, stumps and perishable material;
 - b. materials susceptible to spontaneous combustion;
 - c. materials contaminated through past site usage or containing prohibited or restricted biosecurity matter weeds and other matter which may adversely affect the local environment, except where these are treated in an appropriate manner;
 - d. materials that contain substances that can be dissolved or leached out, or which undergo volume change or loss of strength when disturbed and exposed to moisture, unless conforming to the requirements of reuse of excavated material;
 - e. silts or silt-like materials, unless conforming to the requirements of reuse of excavated material;
 - f. materials containing wood, metal, plastic, boulders or other deleterious material;
 - g. building rubble including concrete, asphalt and other materials except where broken down or otherwise treated and proved to be suitable for use;
 - h. abandoned public utility plant and any associated material;
 - i. material which is not capable of being compacted in accordance with the contract;
 - j. material forming the foundation for a structure which has an allowable bearing pressure less than that nominated;
 - k. material forming the foundation for an embankment which has an insitu California Bearing Ratio (CBR) less than 3;
 - l. material with a sulphur content exceeding 0.5 % within 500mm of cement bound elements (for example concrete structures or masonry) unless such elements are protected by impermeable membranes or equivalent means. materials prone to dissolving or that undergo physical or chemical changes on exposure to moisture;
 - m. contaminated soil.
2. Such material, except for contaminated soil, must be confined to non-critical areas, and must be provided with suitable topsoil and revegetation and/or chemical treatment to prevent erosion.

SC6.6.6.2.2.2 Structural fill

1. Structural fill is any filling that will be required to support structures or pavements, or for which it is intended the time-dependent settlement will be restricted.
2. Most naturally occurring earth, soil and rock, with the exceptions of those noted in SC6.6.6.2.2.1 Material, above, are capable of being compacted to form a homogeneous mass to support commercial and residential developments and associated infrastructure.
3. Special measures will need to be undertaken if the following materials are proposed to be used for structural fill:
 - a. natural material:
 - i. clays of high plasticity that are reactive are only included with fill under strict moisture and density control conditions
 - ii. material that, after compaction, contains large particles and will cause difficulties for:
 - A. excavation of trenches and footings; or
 - B. driving piles; or
 - C. drilling piers; if this is necessary.
 - iii. over wet materials (i.e. where filling in low-lying areas)
 - iv. single-sized or gap-graded gravels or rock fill that will not break down upon compaction that leaves voids into which finer material can migrate
 - v. saline, chemically aggressive or polluted soils
 - vi. carbonate soils where acid dispersal may occur.
 - b. waste material such as building and demolition material may be accepted as structural fill, if the supply placement and compaction is specified and supervised by a RPEQ;
 - c. materials prone to dissolving and natural materials may be used for structural fill where supported by a geotechnical report, and only in accordance with the recommendations of that report;

- d. All building sites that are filled will require Level 1 supervision by a suitable qualified RPEQ as set out in Section 8: Inspection and testing, of AS.3798 Guidelines on earthworks for commercial and residential developments.

SC6.6.6.2.2.3 Transportation of material

1. If the development requires either the import of fill to site or export of fill offsite, the following information must be supplied to Council at the prestart meeting:
 - a. details of the source location, including a haul route plan which includes times of operation, the number of anticipated vehicle movements deliveries each day and the duration of the hauling activities;
 - b. written certification from a suitable qualified (RPEQ) in geotechnical engineering that all imported material has a CBR value equal to or greater than 5 and is appropriate for the works the material is to be used for and suitable for inclusion within the development works;
 - c. Adequate control measures are to be implemented to prevent soil or mud from falling from vehicles, including tyres, entering and leaving any work site.
2. Materials must not be imported to or exported from the site other than:
 - a. from or to site/s that have a current Development Approval enabling them to export or accept any material; or
 - b. the material is being exported to and accepted at a licensed Council refuse facility.
3. Further Development Approvals may be required for sites (e.g. Sites impacted by Flood Hazard Overlay or Steep Slope Overlay) proposed to import material from or export material to, before commencement of such work.
4. Evidence of a Biosecurity Instrument Permit (BIP) where applicable demonstrating compliance with the soil management and transport restrictions in fire ant biosecurity zones under the *Biosecurity Act 2014*.

SC6.6.6.2.2.4 Filling of dams

1. Structural and clean fill material is only acceptable.
2. Supply, placement and compaction is fully specified and supervised by a suitable qualified RPEQ.
3. Level 1 supervision, as set out in Section 8: Inspection and testing, of AS.3798 Guidelines on earthworks for commercial and residential developments, will be required if waste material is to be used as structural fill.
4. Due allowance is to be made for any implications that result from the filling of existing dams. e.g. change to drainage flow paths.
5. In some cases, a fauna spotter catcher may need to conduct a pre-works survey and potentially relocate wildlife where necessary before and during draining and/or filling of dams.
6. More guidance on dam safety can be found in the State Department of Natural Resources, Mines and Energy, Dam Safety Management Guidelines.

SC6.6.6.2.2.5 Previously filled land

1. In locations where land was previously filled is to be used for building, the site is to be investigated to identify the filled areas and remedial work undertaken to ensure that the material fulfils the requirements of structural fill material.
2. All building sites that are filled will require Level 1 supervision by a suitable qualified RPEQ as set out in Section 8: Inspection and testing, of AS.3798 Guidelines on earthworks for commercial and residential developments, for structural fill. Certification from a suitably qualified RPEQ along with supporting test results (refer to AS.3798 Guidelines on earthworks for commercial and residential developments, for testing requirements) must be provided to Council before undertaking any works within the subject area.
3. Building envelopes will be required if only part of a lot is covered by the certification.

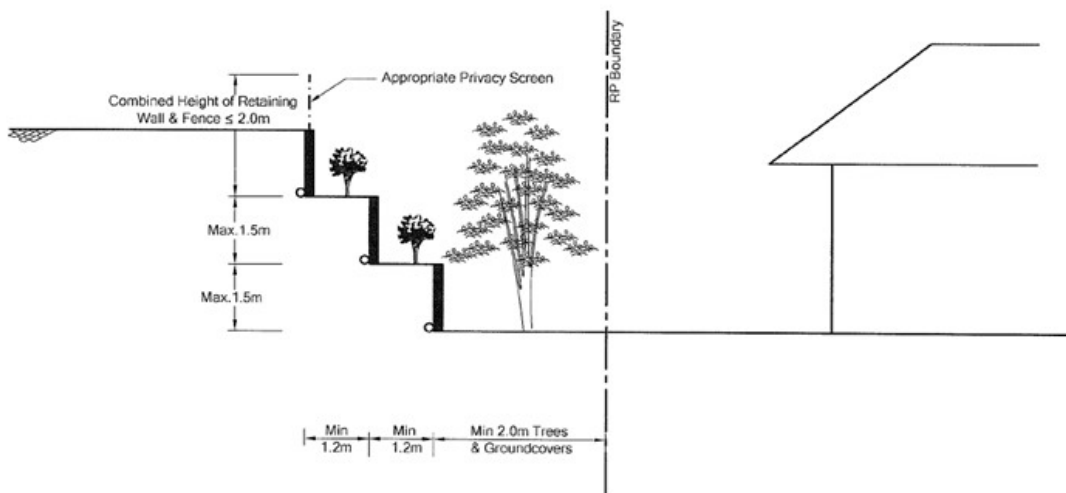
SC6.6.6.3 Earth retaining works

SC6.6.6.3.1 Batters and earth-retaining structures

1. Batters and earth-retaining structures should conform to the requirements set out in the current edition of the Building Regulation, the Building Code of Australia and AS.4678 Earth-retaining Structures.
2. Fill batter's steeper than 1V:6H and retaining walls greater than 1m in height will require the lodgement of building applications if the retaining walls were not approved under a development permit for operational work.
3. Batters and earth-retaining structures (including footings) are to be wholly contained within the allotments (subdivision) or development site that it supports.
4. Batters and earth-retaining structures (including footings) must not encroach on the public space or public infrastructure.
5. The maximum slope of batters, including table drains, stormwater drainage channels and road batters must not be steeper than 1V:6H.
6. Retaining walls greater than 1m in height or with a surcharge loading must be designed and certified by a RPEQ and in accordance with relevant Australian standards and relevant building code requirements.
7. Earthworks abutting public spaces are to be treated as follows:

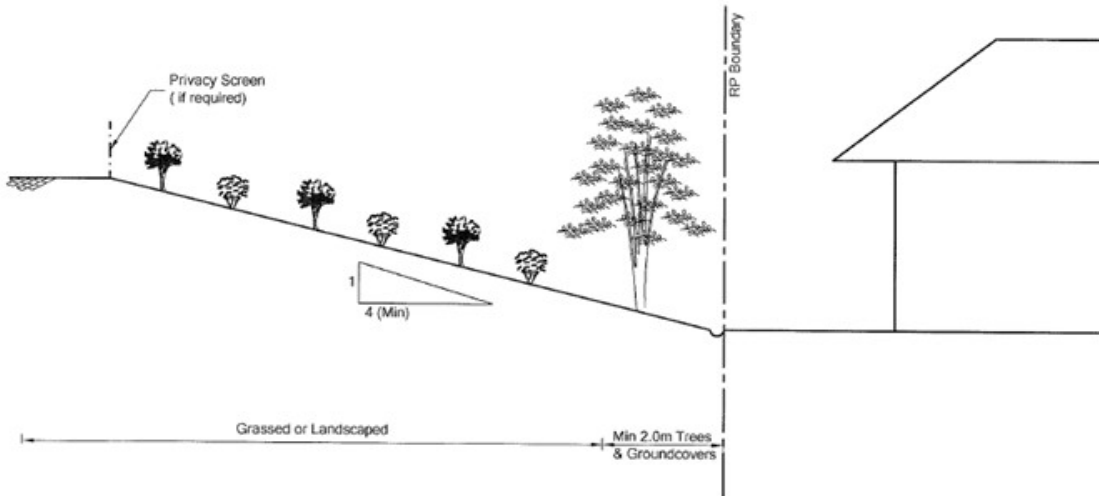
- a. Earthwork batters rather than retaining walls are preferred adjacent to existing or future public spaces (e.g. road reserves, parks). Where the slope of the batter is steeper than 1V:4H, the toe of fill batter or the top of cut batter must be provided with a minimum setback distance of 1m from the property boundary;
 - b. Where a retaining structure cannot be avoided, the preferred design solution is a retaining wall that does not exceed 1m in height. Where the change of level exceeds 1m, terraced retaining walls in accordance with Figure SC6.6-4: Typical acceptable treatment.
8. Fill batters no steeper than 1V:6H are to be provided adjacent to residential properties.
 9. If any proposed fill or cut is likely to have a damaging effect on the visual amenity (i.e. batters greater than 1m high) of the adjoining property, or if 1V:6H batters are impracticable, consideration is to be given to providing a low retaining wall and associated landscaping of the reduced embankment.
 10. The minimum treatment required for batters is topsoiling and grassing where the slope is no steeper than 1V:6H. Irrespective of the treatment, a cross-section showing the interface between the proposed development and the existing properties should be shown on the approved engineering drawings. The effects on the drainage of adjoining properties of any cut or fill operation should be considered and details shown on the engineering approved drawings. No ponding or nuisance from stormwater run-off will be accepted. Typical acceptable treatment alternatives are illustrated in Figure SC6.6-5: Fill embankment: landscaped batter, with 1V:4H slope to Figure SC6.6-8: Excavation: combined batter and retaining wall.
 11. The locations of batters and earth-retaining structures are to be shown on plans certified by a registered surveyor before the development is accepted as 'on maintenance' or before a certificate of classification is issued.
 12. Any associated landscaping species are to be included in the engineering drawings for approval by Council. Refer to PSP 7 Landscaping.

Figure SC6.6-4: Typical acceptable treatment



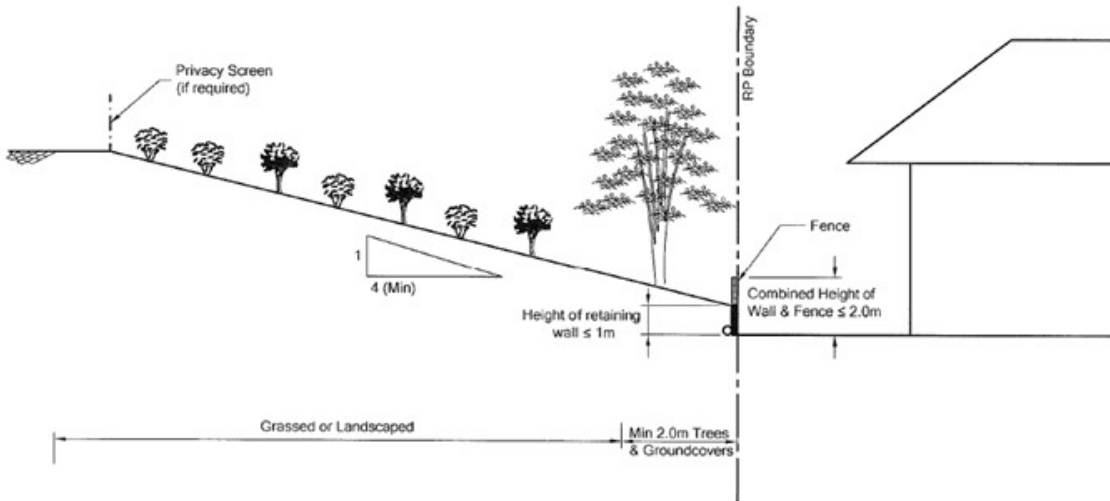
Source: Toowoomba Regional Council

Figure SC6.6-5: Fill embankment: landscaped batter with 1V:4H slope



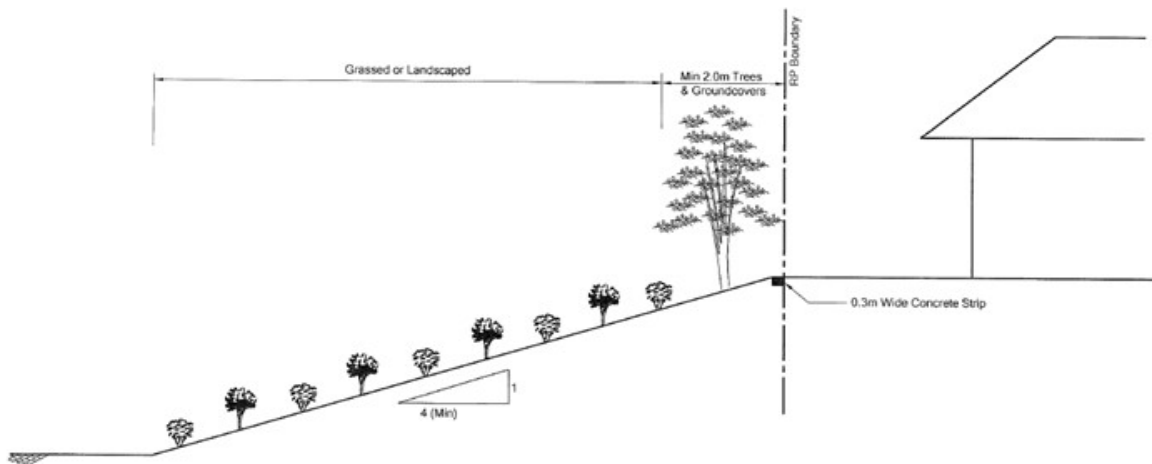
Source: Toowoomba Regional Council

Figure SC6.6-6: Fill embankment: landscaped batter with low retaining wall



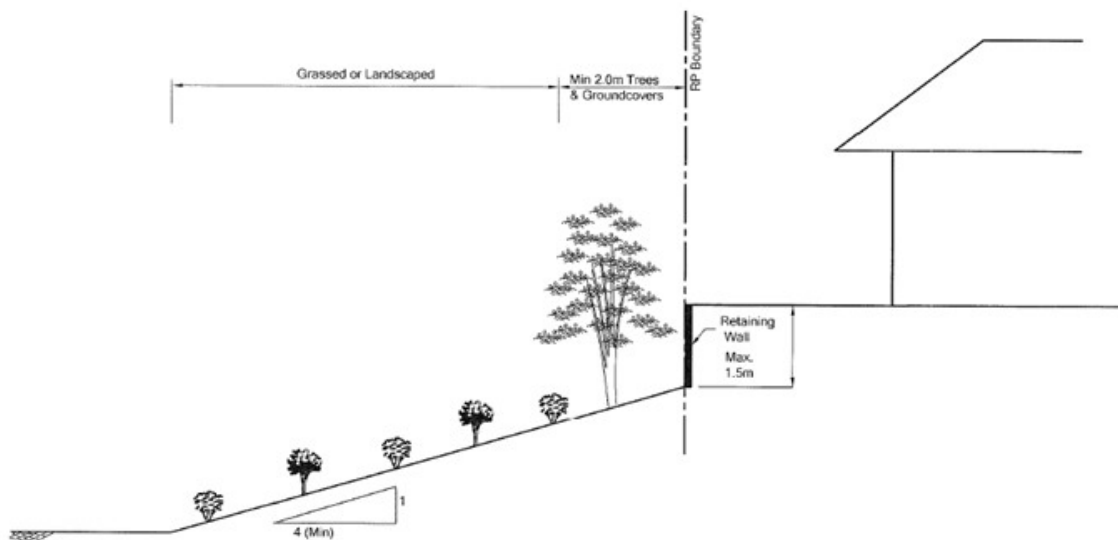
Source: Toowoomba Regional Council

Figure SC6.6-7: Fill embankment: landscaped batter adjacent to a concrete strip



Source: Toowoomba Regional Council

Figure SC6.6-8: Excavation: combined batter and retaining wall



Source: Toowoomba Regional Council

SC6.6.6.3.2 Retaining walls

1. An earth-retaining structure is built to protect land, buildings and structures near proposed excavation or filling. Retaining walls are classified into the following two categories:
 - a. Category A: Council-built, Council-owned. Council builds the retaining-wall structure, and the maintenance responsibility lies with Council as stated in Section 265 of the *Local Government Act*. The wall is characterised using a consistent construction material over a lengthy stretch across several properties. The wall may be located on Council land or private property. The private property may be subject to an easement (in favour of Council) to provide unimpeded maintenance access. This category is most commonly associated with transport infrastructure upgrade projects;
 - b. Category B: privately built, privately owned. The developer or property owner builds the retaining-wall structure. The ownership and maintenance responsibilities remain private. This category is characterised using different construction material or discontinuity in retaining-wall structure past the subject property boundaries. The category is most

commonly associated with development applications pertaining to a material change of use and/or operational work for filling and excavation exceeding 1m in height relative to the natural ground.

2. Timber (which has a limited life span) and bush rocks (which have stability and vermin problems) are not permitted on land adjoining public space or road reserves. Construction materials acceptable to Council include grouted rock, reinforced concrete and masonry (bricks and blocks).
3. Retaining walls adjacent to existing or future public space (e.g. road reserves, parks, etc.) must be constructed of saw-cut Class-A sandstone, split faced sandstone or reinforced concrete sleepers with full-depth colouring (Suitable colour options must be submitted to Council for approval before the construction of the wall. Paints, varnishes, coatings and materials must have a matte appearance and muted colours or tones).
4. All walls are to be:
 - a. aesthetically pleasing when viewed from the adjoining property (i.e. the retaining wall finishes have a high-quality appearance and are compatible with the surrounding development);
 - b. Constructed without encroaching (including the footing) onto adjoining properties or public land;
 - c. contained wholly within the property (i.e. consideration for access for maintenance to retaining walls is to be given at the design stage);
 - d. terraced and landscaped to mitigate any adverse visual impacts. Plant species selected must preserve the structural integrity of the wall. The minimum bench width must be 1.2m to allow for plantings and maintenance access. Where planting is not practical in the area between the retaining wall and boundary fence (e.g. because it is too narrow or less than 0.5m wide), this area is to be paved with concrete or other approved materials to avoid future maintenance problems;
 - e. designed with catch drains along the toe of the wall to catch any overland flow that may overtop the wall;
 - f. designed for catch drains along the top of the walls;
 - g. designed with approved backfill drainage material contained within a geo-fabric wrap and subsoil drainage with connection to an approved point of discharge;
 - h. minimum 5kPa design surcharge load;
 - i. bridge footing where applicable to not impose any additional loading upon underground services.
5. Walls exceeding 1m in height will require a building application and must be designed and certified by a RPEQ. When the combined height of a retaining wall is equal or greater than 1.5m, the RPEQ certification plus the written authorisation from the low-side neighbour will need to be provided to Council with the approved engineering drawings. Typical acceptable treatment alternatives are illustrated in Figure SC6.6-4: Typical acceptable treatment.
6. Earthworks within 4m of the road boundary of a site do not result in retaining walls facing towards the street that are greater than 1m in height.
7. Earthworks beyond 4m of the road boundary do not result in retaining walls greater than 1.5m in height within 1.5m of a side or rear boundary.
8. All retaining structures are to be shown and detailed on engineering plans for approval by Council.

SC6.6.6.3.3 Ground anchors

1. Council approval is required for ground anchor systems (permanent or temporary) proposed within 2m of infrastructure, such as sewer pipes, water mains, stormwater lines or associated structures. The application will form part of the filling and excavation or bulk earthworks plans submitted at the operational works stage.
2. The ground-anchoring system must be designed and certified by a suitably qualified RPEQ. Anchors must not be located closer than 1.2m vertically above or 1m below or 1m horizontally from the existing Council infrastructure. The following information must accompany the operational works application:
 - a. payable fees;
 - b. site plan (layout, elevation and sections) depicting details of the anchoring system (position, length, inclination angle and lock-off load) and surveyed locations of Council infrastructure and other services, such as telecommunications, electricity, water, sewerage and gas;
 - c. approval from the Department of Environment and Resource Management if the anchoring system extends into the road reserve;
 - d. approval from the providers of affected services.

SC6.6.6.3.4 Slope stability

1. The development of land or any part of any land greater than 15% (1V: 6.667H) must require a slope stability assessment report prepared by a suitably experienced and a suitably qualified RPEQ in accordance with Australian Geomechanics Society's Practice Note Guidelines for Landslide Risk Management 2007 (including all records or forms in support of assessment as outlined in Appendix D — Example Forms).
2. As a minimum, the report must include an analysis of the following:
 - a. A review of the recent history upon the site and surrounding areas;
 - b. A site plan of existing and proposed cross sections;
 - c. A geotechnical model and site investigation including site mapping, borehole and/or test pit investigation, soil or rock characteristics, groundwater conditions;
 - d. A detailed assessment of the risk posed by geotechnical hazards for works (building works, earthworks, vegetation

- clearing, driveway or drainage construction, on-site effluent disposal, etc.) undertaken or required to be undertaken on the site for the proposed development;
- e. Recommendations of works to be undertaken to remove, reduce or manage the risks to both property and persons to either “very low” or “low”;
 - f. Soil classification to AS.2870 Residential slabs and footings.

SC6.6.6.3.4.1 Maximum allowable grades

1. A limit has been set on the maximum developable land to:
 - a. Minimise and manage stormwater runoff;
 - b. Minimise erosion and land slippage;
 - c. Minimise loss of property and amenity.
2. Council will not allow development of land above the slopes of:
 - a. 15% in Urban areas; and
 - b. 20% in Rural and Rural Residential areas.

SC6.6.6.4 Soil management

SC6.6.6.4.1 Dispersive soils and salinity management

SC6.6.6.4.1.1 Dispersive soils management

1. Dispersive soils have the potential to result in infrastructure and environmental impact. Typically, types of works that increase the risk to exposure of dispersive soils include:
 - a. removal of topsoil;
 - b. soil excavation, filling and ground profiling;
 - c. trenching and supply of services;
 - d. road and culvert construction;
 - e. construction of dams and detention basins.
2. Field testing can be conducted to identify dispersive soils by observing the behaviour of air-dried aggregates in distilled water or rainwater. The Emerson crumb test can be used as an initial test to identify soil susceptible to dispersion, with the following steps applicable:
 - a. Where evidence of dispersion is recorded, additional management techniques and the preparation of a management plan will be required;
 - b. Further testing using approved Australian Standard techniques is required, where results of the field testing are inconclusive, or where large areas are likely to be disturbed by development, including for the construction of infrastructure.
3. The thresholds and dispersive soil management measures that apply are:
 - a. Development within areas containing non-cohesive, saline or dispersive soils that meet or exceed the thresholds identified below are required to provide a Dispersive Soil Management Plan (DSMP), prepared and certified by a suitably qualified soil scientist or RPEQ with appropriate competence in addressing such soils, as part of the development application for the works;
 - b. The DSMP is to be submitted to Council where it satisfies the requirements of Table SC6.6-10: Thresholds for Dispersive Soil Management Plan;
 - c. The DSMP must be submitted with a stormwater management plan and earthworks plan as part of the development application;
 - d. The DSMP must also address areas of difficult topography, with soil disturbance avoided on slopes of greater than 20% slope.

SC6.6.6.4.1.2 Thresholds for dispersive soil management

1. Development, including building works, within areas containing dispersive soils that meet or exceed the thresholds in Table SC6.6-10: Thresholds for Dispersive Soil Management Plan below are required to provide a Dispersive Soil Management Plan (DSMP).

Table SC6.6-10: Thresholds for dispersive soil management plan

DEVELOPMENT TYPE	THRESHOLD
Material change of use within an area containing non-cohesive, saline or dispersive soils	Includes newly constructed road
	5 or more additional dwellings (attached or unattached)
	Disturbing a ground area greater than 2,500m ²

	Any other use not listed above requiring on-site effluent treatment
Reconfiguration of a lot within an area containing non-cohesive, saline or dispersive soils	Includes newly constructed road
	Any number of lots requiring on-site effluent treatment
	Disturbing a ground area greater than 2,500m ²
Operational works within an area containing non-cohesive, saline or dispersive soils	Disturbing a ground area greater than 2,500m ²
	Earthworks involving the construction or decommissioning of any dam, and stormwater systems including but not limited to swales and detention basins
Building works within an area containing non-cohesive, saline or dispersive soils	All building work requiring Council approval and requiring on-site effluent treatment

2. A DSMP must address Council's expectations in relation to the reporting and presentation requirements as outlined in Table SC6.6-11: Recommended Reporting Template for DSMP's:
3. DSMP's are required to be submitted with the primary approval for Development Types as outlined by Table SC6.6-11: Recommended Reporting Template for DSMP's.

Table SC6.6-11: Recommended reporting template for DSMP's

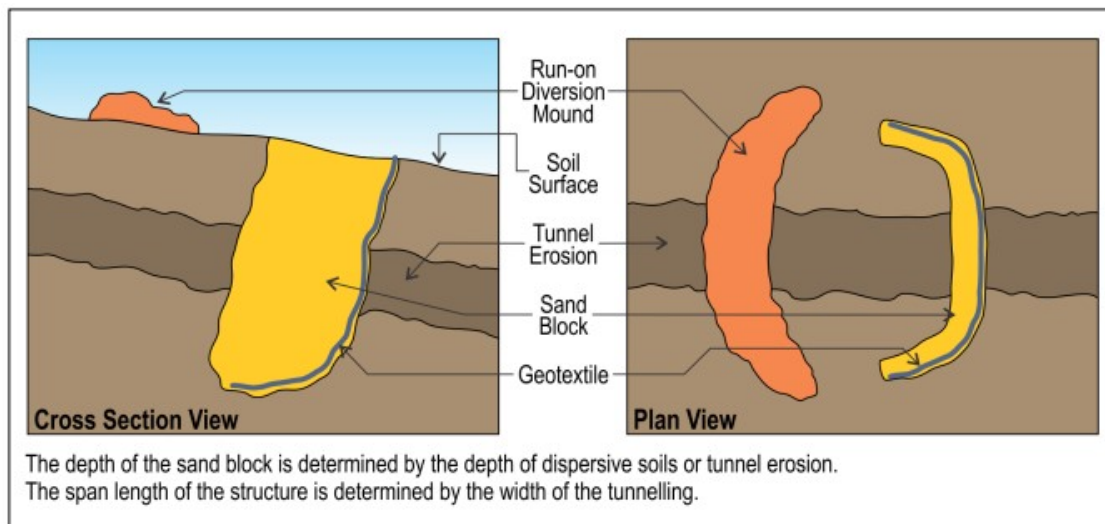
SECTION	CONTENTS
Cover Page	Title, details of development, date
Document Information Page	This page must outline information relevant to the authorship of the DSMP (ideally provided in tabular form), including document title (reference number, date and version tracking), document ownership (including names of personnel that have issued and checked the DSMP), RPEQ certification or suitably qualified and experienced professional (e.g. soil scientist) plus registration number, name of client and site address.
Summary	Concise summary of study methodology and findings
Responses to Information Request	Details of how (if any) previous information request/s from Council have been addressed
Table of Contents	
1. Introduction	General description of proposed development or works, existing site, scope of DSMP and names of the project team members
2. Site Constraints	General description of site limitations that affect on-site erosion and sediment control measures, grouped into five main categories: Soil; Topography; Water; Vegetation and Ecology. Included must be a detailed site plan showing: <ol style="list-style-type: none"> location of site or property boundaries; accurate location of boreholes (including reduced level) and proposed earthworks; site contours and drainage paths (existing and final); soils and associated risk mapping; difficult topography and associated hazard mapping; ecological values to be retained map scale suiting site area or features (maximum 1:2,000)
3. Soil Data	Document soil sampling, testing and interpretation of test results, notably in terms of salinity, acidity, dispersion and erosion potential
4. Erosion Risk Mapping	Aim to identify: <ol style="list-style-type: none"> zones of various erosion risk; areas where soil disturbance must be avoided; well-defined links between assessed risks and the required construction practices and erosion and sediment control design standards
5. Recommendations	Recommendations based on the assessment undertaken and requirements of Lockyer Valley Regional Council and must include: <ol style="list-style-type: none"> any specific soil characteristics (e.g. fine grained and dispersive soils); suggestion of alternative construction practices and top soil management to reduce present and future erosion (particularly tunnel) impacts areas where disturbance of extremely high risk or dispersive soils is to be avoided recommendations for monitoring to ensure implemented recommendations are appropriate for

	managing the risks.
6. Conclusions of the erosion assessment	Summary of site constraints, erosion hazards and recommended outcomes
7. Appendices	Include bore logs and copies of all laboratory test results

Note—The recommended reporting template table is not prescriptive but provides a summary of the type of information that Council will typically require for most developments. The onus is on the Applicant to demonstrate the performance outcomes of any proposed management techniques.

4. In preparing a DSMP, applicants are to address the management of water flowing through backfill material used in excavated trenches through dispersive soils. For example, the use of small size aggregate to intercept or carry water flows which will cause ‘tunnelling’ in adjacent soil may lead to subsequent road subsidence or failure. This applies to trenching for all infrastructure including water reticulation, installation of electrical conduit and the like.
5. The prevention and management of erosion is achieved using a combination of the following:
 - a. Identification and avoidance of dispersive soils;
 - b. Soil re-compaction;
 - c. Chemical amelioration:
 - i. The application of chemical treatments (e.g. gypsum) must avoid harmful changes to pH levels, particularly when near waterways (e.g. 20m from top of bank). The mechanical application of chemical amelioration must also be avoided in areas intended for tree or vegetation retention.
 - d. Use of sand blocks and barriers (refer to Figure SC6.6-9: Modified Sand Block Design);
 - e. Use of non-dispersive topsoil and revegetation;
 - f. Adopting a risk reduction approach for soil dispersion, including:
 - i. The Applicant is to commission a RPEQ or soil scientist to prepare a Dispersive Soils Management Plan (DSMP) for developments proposed within the areas effected by dispersive soils
 - ii. Minimise the amount of time land is exposed (e.g. by staging development)
 - iii. Discharge stormwater and runoff into erosion resistant areas (e.g. garden beds mixed with gypsum, existing well vegetated areas with ample topsoil and stony elevated areas) away from dispersive soils
 - iv. Use rainwater tanks to capture runoff from roofs and buildings and pipe overflow to erosion resistant areas. (NB: Captured runoff must be dissipated and spread over as wide an area as possible)
 - v. Cover exposed dispersive soils with topsoil (at least 150mm deep), mulch and use geotextile barriers
 - vi. Re-vegetate and mulch all exposed areas, particularly areas of steep slopes.

Figure SC6.6-9: Modified sand block design



Source: Ipswich City Council

6. The following activities must be avoided in areas affected by dispersive soils:
 - a. Exposing dispersive subsoils to rain (both during construction and post construction);
 - b. Allowing water to pond on dispersive soils;
 - c. Stockpiling or spreading dispersive soils;
 - d. Concentrating stormwater in drainage lines containing dispersive soil;

- e. Using table drains, trenches or cut and fill construction techniques in areas containing dispersive soils (unless appropriate measures are implemented in accordance with an approved DSMP);
 - f. Extracting topsoil or re-profile land in areas with dispersive subsoils (unless an appropriate management plan is prepared and adopted);
 - g. Clearing vegetation or profiling soil in areas of difficult topography, particularly where greater than 20% slope (unless appropriate measures are implemented in accordance with an approved DSMP);
7. Services such as electricity, telecommunications and water are usually provided in trenches in urban areas. Where trenching is undertaken in dispersive soils, the use of chemical amelioration, sand blocks and compaction methods is likely to be required to reduce the risk of dispersion occurring.

SC6.6.6.4.1.3 Salinity management

1. Development in salinity areas has the potential to increase infrastructure damage and cause environmental harm (e.g. water table rising bringing salts to the surface, adversely affecting water quality and causing damage to the ecosystem and infrastructure). The repair of salinity affected areas is often expensive and very difficult. Development in salinity areas must be avoided, to prevent exacerbation of salinity issues and ongoing maintenance of infrastructure. The management of salinity requires a focus on prevention at the design and construction phase rather than intervention, and a shift in standard construction techniques and development practices. Development must consider and address any negative impacts upon the development and natural environment.
2. Thresholds for salinity management:
 - a. Development, including building works, construction of dams and roads within areas containing salinity that meet or exceed the thresholds contained below are required to provide a Salinity Management Plan (SaIMP);
 - b. The SaIMP is to be submitted to Council in a format that satisfies the requirements in Table SC6.6-12: Thresholds for Salinity Management Plan;
 - c. The SaIMP must be submitted with a stormwater management plans and earthworks plan as part of the development;
 - d. All other development undertaken in areas affected by salinity, including works such as landscaping and the installation of pools that would not normally require planning approval must ensure that adequate measures are taken to manage salinity.

Table SC6.6-12: Thresholds for salinity management plan

DEVELOPMENT TYPE	THRESHOLD
Material change of use within an area affected by salinity	Includes newly constructed road
	5 or more additional dwellings (attached or unattached)
	Disturbing a ground area greater than 2,500m ²
	Any other use not listed above requiring on-site effluent treatment
Reconfiguration of a lot within an area affected by salinity	Includes newly constructed road
	Any number of lots requiring on-site effluent treatment
	Disturbing a ground area greater than 2,500m ²
Operational works within an area affected by salinity	Disturbing a ground area greater than 2,500m ²
	Earthworks involving the construction or decommissioning of any dam, and stormwater systems including but not limited to swales and detention basins
Building works within an area affected by salinity	All building work requiring Council approval and requiring on-site effluent treatment

SC6.6.6.4.1.4 Salinity management plans

1. A SaIMP must address Council's expectations in relation to the reporting and presentation requirements as outlined in Table SC6.6-13: Recommended Reporting Template for SaIMP's.
2. SaIMP's are required to be submitted with the primary approval as outlined by Table SC6.6-13: Recommended Reporting Template for SaIMP's.

Table SC6.6-13: Recommended reporting template for SaIMP's

SECTION	CONTENTS
Cover Page	Title, details of development, date
Document	This page must outline information relevant to the authorship of the SMP (ideally provided in tabular

Information Page	form), including document title (reference number, date and version tracking), document ownership (including names of personnel that have issued and checked the SalMP), RPEQ certification or suitably qualified and experienced professional (e.g. soil scientist) plus registration number, name of client and site address
Summary	Concise summary of study methodology and findings
Responses to Information Request	Details of how (if any) previous information request/s from Council have been addressed
Table of Contents	
1. Introduction	General description of proposed development or works, existing site, scope of SalMP and names of the project team members
2. Site Constraints	General description of site limitations that affect on-site salinity, grouped into five main categories: Soil; Topography; Water; Vegetation; Infrastructure and Services. Included must be a detailed site plan showing: <ol style="list-style-type: none"> location of site or property boundaries; accurate location of boreholes (including reduced level) and proposed earthworks; site contours and drainage paths (existing and final); soils and associated risk mapping; water table heights and above and below ground water sampling; difficult topography and associated hazard mapping; ecological values to be retained; map scale suiting site area or features (maximum 1:2,000)
3. Soil and Water Data	Document soil and water sampling, testing and interpretation of test results, notably in terms of electrical conductivity.
4. Salinity Risk Mapping	<ol style="list-style-type: none"> Aim to identify zones of salinity risk; areas where soil disturbance and water table recharge must be avoided; well-defined links between assessed risks and the required construction practices and design outcomes.
5. Recommendations	Recommendations based on the assessment undertaken and requirements of Council and must include: <ol style="list-style-type: none"> any specific soil and water characteristics; suggestion of treatment measures and development constraints; areas where disturbance of water table recharge areas are of extremely high risk, are to be avoided. recommendations for monitoring to ensure implemented recommendations are appropriate for managing the risks.
6. Conclusions of the salinity assessment	Summary of site constraints, salinity hazards and recommended outcomes

SC6.6.6.4.2 Contaminated soils

- Areas must be considered contaminated unless proven otherwise by NATA approved geotechnical testing.
- Areas identified as being contaminated soils must be treated in accordance with:
 - Department of Environment and Heritage Protection, Queensland Auditor Handbook for Contaminated Land;
 - State Planning Policy State Interest Guidance material: Emissions and hazardous activities.
- Areas identified as containing acid sulphate soils must be treated in accordance with State Planning Policy Guideline State Interest - emissions and hazardous activities, Guidance on acid sulphate soils, Department of Infrastructure, Local Government and Planning, and the guidelines published by Queensland Government <https://www.qld.gov.au/environment/land/management/soil>.

SC6.6.6.4.3 Environmental Management Register (EMR) or Contaminated Land Register (CLR)

- Unless removed from the registers, notified activities that have been, or are being carried out on the land should be listed on the EMR (e.g. abrasive blasting, service stations, engine reconditioning and livestock dip operations) or land that is known to be contaminated should be listed on the CLR (e.g. landfill) are areas considered contaminated.
- The official process for removing the land from a register involves undertaking an investigation of the land by a suitably qualified person, producing a site investigation and validation report, an auditor providing a compliance permit that the land is not contaminated, and finally the DES remove the land from the register <https://www.qld.gov.au/environment/management/environmental/contaminated-land/assessing/change-registers>.

SC6.6.6.4.4 Onsite contamination

1. Any land affected by a contamination incident or pre-existing minor contamination (e.g. asbestos) must be managed, remediated and confirmed free of contamination by NATA approved geotechnical testing (this is dependent on the contaminant involved).
2. The remediation of land affected by a contamination incident or pre-existing minor contamination needs to be remediated in accordance with:
 - a. The requirements of the *Environmental Protection Act 1994* and its regulations;
 - b. State Planning Policy State Interest Guidance material: Emissions and hazardous activities.

SC6.6.6.5 Water management

SC6.6.6.5.1 Impacts on surface water

1. Plans submitted for approval need to indicate effects on surface water created by filling.
2. No ponding or nuisance from stormwater is to occur. In redeveloped areas, concrete spoon drains constructed along the toe of the embankment will permit drainage of an adjoining property. In low areas, subsoil drainage is required along the toe of the fill batters as the compaction of fill affects drainage of the area. Drainage or subsoil drainage is also required where seepage is likely from irrigated lawns and gardens.
3. Provide a Hydraulic Impact Assessment prepared by a suitably qualified RPEQ with recommendation to mitigate any impacts identified and undertake any mitigation works further to any approvals as applicable.

SC6.6.6.5.2 Earthworks within an overland flow path or flood hazard area

1. Earthworks are not to be carried out within overland flow path or flood hazard area unless approved by Council.
2. Council may approve earthworks within an overland flow path or flood hazard area, if it has been demonstrated by a Flood Impact Assessment or a Hydraulic Impact Assessment, prepared by a suitably qualified RPEQ that proposed works would not create adverse impacts on upstream or downstream properties.
3. As constructed ground level survey prepared by a cadastral surveyor must be submitted to Council before commencement of use or before sealing of a survey plan as applicable.

SC6.6.6.6 Earthworks construction

1. Earthworks are to be carried out in accordance with AS.3798 Guidelines on earthworks for commercial and residential developments.
2. Provide certification from a suitably qualified RPEQ for a fill over 500mm in depth has been placed in accordance with the level of supervision required under AS.3798 Guidelines on earthworks for commercial and residential developments.
3. The fill is to be compacted in layers not exceeding 150mm.
4. Dust, noise and odour generated from the site and from earthworks is to be controlled so it does not adversely affect adjoining properties and the travelling public.
5. Watering is to be undertaken on non-working days or where necessary to control dust emissions (i.e. dry windy days).
6. Implement measures to ensure that construction traffic or run-off from the development site would not track mud or sediments onto existing roads, adjoining properties or Council drainage system.
7. Mud deposited onto existing roads is to be removed immediately so it does not affect the safety of traffic or stormwater infrastructure.

SC6.6.6.6.1 Testing

1. Council will not give blanket approvals to any consulting body to carry out geotechnical testing at a level (i.e. Levels 1 or 2 as set out in *Section 8: Inspection and testing, of 3798 Guidelines on earthworks for commercial and residential developments*).
2. The level of testing will vary with the nature of the project and the locality.
3. Section 8: Inspection and testing, of AS.3798 Guidelines on earthworks for commercial and residential developments, details the frequency of field density testing for earthworks.

SC6.6.6.6.2 Compaction

1. For areas of structural filling, the minimum relative compaction values are those outlined in Section 5: Compaction criteria, of AS.3798 Guidelines on earthworks for commercial and residential developments.

SC6.6.6.3 Dust control

1. The Principal Contractor is to minimise any environmental nuisances that occur during the construction of the roadworks and affect the safety and comfort of the travelling public and surrounding residences.

SC6.6.6.4 Stockpiling

1. All temporary stockpiles of erodible material must be:
 - a. Protected from wind, rain, concentrated surface flow, and excessive up-slope stormwater surface flows; and
 - b. Located up-slope of an appropriate sediment control system; and
 - c. Provided with an appropriate protective cover (synthetic or organic) if the materials consist of dispersive soils or are likely to be stockpiled for more than four (4) weeks or located in close proximity of a sensitive site; or
 - d. Provided with an appropriate protective cover (synthetic or organic) if the materials are likely to be stockpiled for more than ten (10) days during months of high erosion risk; or
 - e. Provided with an appropriate protective cover (synthetic or organic) if the materials are likely to be stockpiled for more than five (5) days during months of extreme erosion risk.

SC6.6.6.5 Topsoil and grassing

1. All unpaved areas where earthworks have been undertaken are to be grass seeded or turfed as described in this section.
2. Following the placing and spreading of topsoil to a minimum depth of 100mm either won from the site or imported, the footpaths, parks, allotments and other disturbed areas are to be seeded.
3. Seeding is to consist of dehusked couch seed mixed with other seeds and fertilisers in accordance with the following criteria:
 - a. the seed is to be mixed with fertiliser and loam in the following proportions:
 - i. 200g, dehusked couch seed
 - ii. 10kg, super phosphate fertilizer or equivalent
 - iii. 12kg, loam.
 - b. the resultant mixture is to be spread evenly over the surface at the rate of 21kg of mixture to 100m²;
 - c. the mix is to also include a nursery grass suitable for the growing season (e.g. millet);
 - d. watering is to be continued throughout the maintenance period to ensure the continued growth of the grass.
4. Where stormwater drainage overland flow paths are constructed, grass seeding will not be acceptable, Council will only accept topsoil and turf coverage for these areas up to 1% AEP flood level plus 300mm. The turf must be established in accordance with best practice.
5. Turf is to be placed behind all kerb and channel, kerbing etc. for a minimum distance of 0.8m.
6. All unpaved areas where earthworks have been undertaken are to be grass-seeded as soon as possible to achieve a good grass cover:
 - a. Following the placing and spreading of topsoil, either from the site or imported to the site, to a minimum depth of 100mm, the footpaths, parks, allotments and other disturbed areas are to be seeded with an approved seed mixture that includes a nursery grass (e.g. millet);
 - b. The type of grass must be selected to suit the site soil conditions and must be drought tolerant;
 - c. The rate of application will depend on the season;
 - d. Immediately before the seed mixture is spread, the areas are to be watered to promote seed germination.
7. After seeding, the seeded areas are to be kept moist by watering until the grass is established. Grass is deemed to be established when vigorous green growth is in evidence from the planted seeds.
8. Such watering is to be continued throughout the maintenance period to ensure the continued growth of the grass.

SC6.6.6.5.1 Reuse site topsoil

1. If reusing of site topsoil has been proposed, make sure all foreign material and impurities including the following are removed before stockpiling:
 - a. stones > 25mm diameter;
 - b. clay lumps > 75mm diameter;
 - c. prohibited or restricted biosecurity matter weeds and tree roots;
 - d. sticks, rubbish and deleterious material; and
 - e. material toxic to plants.
2. Remove topsoil that is unsuitable for reuse from the site as detailed in Section 6: Construction, of AS.3798 Guidelines on earthworks for commercial and residential developments.

SC6.6.6.5.2 Reused site topsoil testing

1. If directed, submit samples of the topsoil proposed for reuse to an approved soils laboratory to determine requirements for

topsoil improvement before reuse. Submit a copy of the soil testing report received from the soils laboratory to Council.

SC6.6.6.5.3 Imported topsoil

1. If imported, supply topsoil that is free of material toxic to plant growth, weeds, seeds and roots, and has the properties specified in Table SC6.6-14: Topsoil Properties.

Table SC6.6-14: Topsoil properties

PROPERTY	PROPERTIES OR LIMITS
Texture	Light — medium friable (i.e. capable of being handled when moist, but lacking cohesion so that it will fall apart easily when dry) sandy loam textured.
Organic matter by mass (minimum)	2%
Chloride content (maximum)	500 mg/kg
Electrical resistivity of a 1 in 5 soil-water mixture (maximum)	1 mS/cm
pH (minimum)	5.5
pH (maximum)	6.5
Linear shrinkage (maximum)	3% — Soil Type A 5% — Soil Type B

2. Import of topsoil to comply with soil management and transport in fire ant biosecurity zones under the *Biosecurity Act 2014*.

SC6.6.6.7 Final earthworks presentation

1. Before grassing of all unpaved areas where earthworks have been undertaken, the finished earthworks must be graded to a minimum of 1V:150H.
2. Water must not pond on finished surfaces.
3. Cut off or diversion drains with a minimum free board as in QUDM to be constructed to the appropriate standard to mitigate impacts from cumulative overland sheet flows.
4. Provide a minimum 100mm capping layer of good quality, non-dispersive soil on all areas disturbed during the earthworks operation.
5. All erosion and sediment control measures in place in accordance with the approved Erosion Sediment Control Plans (ESC Plans) or in accordance with the Best Practice Erosion and Sediment Control guidelines by the International Erosion Control Association Australasia <https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document>. Where the drawings and the guidelines are conflicting, the requirements of the guidelines take precedence.
6. Grass cover on all disturbed areas must be achieved as follow:
 - a. A minimum of 80% grass coverage at the time of on-maintenance;
 - b. A minimum of 80% grass coverage at the time of off-maintenance.

SC6.6.7 Infrastructure works

SC6.6.7.1 Road and public space lighting

SC6.6.7.1.1 Introduction

1. This part has been prepared for the guidance of developers and their consultants to ensure that Lockyer Valley Regional Council's requirements for service providers Standard Street Lighting Lamps and Luminaires are achieved.
2. Sustainable developments must be provided with adequate utility services that will:
 - a. operate safely and efficiently;
 - b. perform to the required standard of service appropriate to the development;
 - c. meet the future servicing requirements that support its intended use.
3. Unless specified otherwise in this policy or as directed by Council, the provision and detailed design of street-lighting and pathway-lighting installations must conform to the current edition of the following standards:
 - a. Australian Standard AS/NZS.1158 Lighting for Roads and Public Spaces;
 - b. Australian Standard AS.4282 Control of the Obstructive Effects of Outdoor Lighting;
 - c. Australian Standard AS/NZS.3000 Electrical Installation Wiring Rules;
 - d. Service providers policies and standards;
 - e. Australian Standard AS.1798 Luminaire Mounting Height.
4. All electricity reticulation is to be constructed in accordance with this planning scheme policy and IPWEAQ Standard drawings:
 - a. RSD-601 Public Utilities - Typical Service Corridors & Alignments;
 - b. RSD-602 Public Utilities - Typical Service Conduits Sections;
 - c. RSD-6033 Public Utilities — Optic Fibre Pit.
5. Council's standard requirement for the provision of electricity to new development requires underground reticulation.
6. Unless stated otherwise, it is the applicant's responsibility to provide the service providers Standard Street Lighting Lamps and Luminaires;
7. The design is to consider the DTMR and Council's future planning proposals.
8. At the time of approval, Council and/or DTMR will nominate the category and extent of service providers Standard Street Lighting Lamps and Luminaires required.
9. Service providers Standard Street Lighting Lamps and Luminaires are to be installed in association with the installation of all new traffic islands, new roads, pathways and existing road frontages.
10. Unless otherwise approved by the DTMR or Council, all road lighting installed as a condition of development is to be in accordance with AS/NZS.1158 Lighting for Roads and Public Spaces.
11. The developer must meet the cost of any alterations to the existing electricity and street-lighting networks required in connection with the development.
12. If road widening is required along the frontage of the development, the developer must apply for and seek approval from the relevant public utility authority for the undergrounding or, if approved, the relocation of the services onto the correct alignment within the new verge. In some instances, this may require lowering of services to provide enough cover where the footpath is regraded to the design profile. Services may also need to be raised if significant fill is used to raise the level of the verge.
13. The service corridors and alignments must conform to the LVRC Standard drawings:
 - a. SD-256 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section;
 - b. SD-257 Regional Road Standard Urban & Rural Residential Streets — Typical Cross Section & Typical Service Locations;
 - c. SD-258 Regional Road Standard Urban & Rural Residential Streets — Rural Roads Typical Cross Sections & Details;
 - d. SD-259 Regional Road Standard Industrial Streets — Typical Cross Sections.
14. All service providers Standard Street Lighting Lamps and Luminaires associated with a development are to be certified by a RPEQ.
15. Service providers Standard Street Lighting Lamps and Luminaires must be provided at the following locations:
 - a. new public streets (including laneways and paths) created as part of the development;
 - b. all road frontage/s to the development, including any road construction required outside the limits of the development, including upgrading existing lights to current standards.

SC6.6.7.1.2 Lighting categories

1. The lighting categories acceptable to Council are in accordance with AS/NZS.1158 Lighting for Roads and Public Spaces. The lighting categories referred to in AS/NZS.1158 Lighting for Roads and Public Spaces are broadly described as follows:
 - a. Category 'V' lighting — lighting that is applicable to roads on which the visual requirements of motorists are dominant (e.g. major traffic routes) (refer to AS/NZS.1158 Lighting for roads and public spaces, Part 1.1: Vehicular traffic (Category V) lighting — Performance and design requirements);

- b. Category 'P' lighting — lighting that is applicable to roads on which the visual requirements of pedestrians are dominant (e.g. on local roads, pathways and bikeways). This category includes lighting that is applicable to outdoor public areas such as outdoor shopping precincts, car parks and stairways (refer to AS/NZS.1158 Lighting for roads and public spaces, Part 3.1: Pedestrian area (Category P) lighting — Performance and design requirements).
2. Where special circumstances beyond the requirements of standards require, Council may vary the required service providers Standard Street Lighting Lamps and Luminaires category for any street or road requiring additional lighting, or modifications in the following situations:
 - a. Intersections;
 - b. Roundabouts;
 - c. sharp bends;
 - d. speed control devices (including local area traffic management);
 - e. pedestrian crossings;
 - f. cul-de-sacs;
 - g. channelisation;
 - h. bridges and culverts;
 - i. night-time accident locations;
 - j. frequently used night-time bus stops;
 - k. areas that may generate pedestrian traffic or vehicle night traffic;
 - l. sensitive habitat areas.
3. Decorative lighting cannot be used on 'V' category roads as the primary method to illuminate the roadway. Council will not accept any decorative light or supportive pole for the lighting of public roads and pathways unless it is a current standard stock item with service providers (i.e. available as a Rate 2 installation).
4. An RPEQ electrical engineer or lighting consultant should design and certify a lighting arrangement to meet Council's requirements.

SC6.6.7.1.3 Standard street light fittings

1. In accordance with the current equipment available from service providers, luminaires are to be generally used on residential streets and along traffic routes.
2. Other wattage HPS luminaires will only be considered if acceptable to service providers as a Rate 2 installation and if they are proven to be cost-effective to Council.
3. Council will not accept any luminaires that are not acceptable to Service Providers on a Rate 2 installation.
4. Council will consider light fittings that are less vulnerable to vandalism.

SC6.6.7.1.4 Poles

1. Street light poles should not be placed in locations where they are vulnerable to damage from vehicles (e.g. narrow medians). Where this is unavoidable, suitable protection must be provided to minimise the risk of injury and/or the pole must be of a frangible (slip base) type.
2. Risk assessment for street lighting and other electrical structures placed in clear zones must be undertaken using the Roadside Impact Severity Calculator (RISC) or the Road Safety Analysis Program (RSAP) in accordance with Austroads Guide to Road Design Part 6 and DTMR Road Planning and Design Manual Edition 2, Volume 3 — Supplement to Austroads Guide to Road Design, Part 6: Roadside Design, Safety and Barriers. Both quantitative evaluation and qualitative evaluation are to be undertaken.
3. Council's preferred street-lighting column for category 'P' roads is a 7.5m mounting height, base-plate-mounted (BPM) column.
4. Twin outreach arms are available for installations requiring lighting from a central median.
5. Pole footing design is to be undertaken by a suitably qualified RPEQ to suit soil and environmental conditions to the pole manufacturer requirements.
6. To achieve a balanced streetscape, it is desirable that lights be installed alternatively on opposite sides of the street (i.e. a staggered arrangement). Installation of lights in a single-sided arrangement is unacceptable. Development layouts may require some short spans of single-sided lighting subject to the location of traffic-calming devices and side streets.
7. Energex's requirements for the provision of Public Lighting Services in the design, installation and maintenance of Public Lighting apply. Refer to Energex documents Public Lighting Standard Conditions for Public Lighting Services and Energex Limited Public Lighting Management Standard.

SC6.6.7.1.5 Standalone solar (PV) power systems

1. Solar lights are acceptable in locations where the provision of reticulated electricity may not be cost efficient, e.g. parks, public car parks, pedestrians pathways.
2. Lighting output is to be in accordance with AS/NZS.1158 Lighting for Roads and Public Spaces.
3. Standalone power systems are to be in accordance with the relevant sections of:
 - a. AS.4086.1 Secondary batteries for use with standalone power systems – General Requirements;

- b. AS/NZS.4909.1 Standalone power systems – Part 1: Safety and Installation;
 - c. AS/NZS.4909.1 Standalone power systems – Part 2: System Design;
 - d. DTMR Specifications MRTS263 Standalone Solar (PV) Power Systems.
4. Warranty provisions are to meet the requirements of MRTS201 General Equipment Requirements except where the warranty period is noted for the items below:
- a. Solar photovoltaic modules and inverter: 10-year manufacturer's warranty against defects in materials and workmanship;
 - b. Solar photovoltaic module power output: 25-year manufacturer's power output warranty, with the first 10 years at 90% minimum rated power output and the balance of the 25 years at 80% minimum rated power output;
 - c. Charge controllers: 5-year manufacturer's warranty against defects in materials and workmanship;
 - d. Lead acid batteries, minimum design life of 5 years with 5-year warranty;
 - e. Lithium batteries, minimum design life of 10 years with 10-year warranty.

SC6.6.7.2 Electrical reticulation design standards

SC6.6.7.2.1 Introduction

1. Electrical Reticulation is to be designed in accordance with the Electrical Authorities requirements and is to be carried out by competent electrical designers and certified by an RPEQ.
2. No development is to occur within a registered electricity easement.
3. No development is to occur within 4.6m of an electricity line.

SC6.6.7.2.2 Underground reticulation

1. Underground electrical reticulation is to be provided in all new subdivisions or developments within zones as defined in the planning scheme. Developments in Rural zones and Rural Residential zones where 5,000m² or greater are subject to case-by-case assessment.
2. The service alignments are to be as depicted on IPWEAQ Standard drawings:
 - a. RS-100 Public Utilities - Typical Service Corridors and Alignments;
 - b. RS-101 Public Utilities - Typical Service Conduits Sections;
 - c. Electrical crossings are generally to be to the opposite boundary to water service crossings;
 - d. Exceptions will be considered where electrical crossing is at 45° and water crossing perpendicular;
 - e. Electrical crossings are not permitted within an intersection unless on standard alignment of projected intersecting property line.
3. Pillar Locations:
 - a. Pillars are to be located at the property boundary in accordance with the IPWEAQ Standard drawing, RSD-602 Public Utilities - Typical Service Conduits Sections and located away from hydrants;
 - b. Pillars are not to be located on truncated boundaries at intersections.
4. Pad mount transformer locations are to be located within the frontage of proposed or existing parkland, as approved by Council.
 1. Where minor subdivisional development occurs within an area which has existing overhead reticulation, Council may approve overhead connection subject to the relevant authority's approval.

SC6.6.7.2.3 Overhead reticulation

1. Overhead power supply is acceptable in Rural Residential and Rural zones with lots greater than 5,000m².
2. Where abutting development in Rural Residential zones which has existing overhead reticulation, Council may approve extension of those services to the new areas subject to the relevant authority's approval.
3. Power pole location and alignments are referenced by IPWEAQ Standard drawing, RSD-602 Public Utilities - Typical Service Conduit Sections.

SC6.6.7.3 Telecommunications

1. The service alignments are to be as depicted on IPWEAQ Standard drawings:
 - a. RS-100 Public Utilities - Typical Service Corridors and Alignments;
 - b. RS-101 Public Utilities - Typical Service Conduits Sections.
2. A telephone reticulation approved plan is to be obtained and submitted to Council before the issuing of Operational Works approval.
3. Evidence of the Telecommunication Authority's agreement to provide services is to be given to Council before sealing of plans of survey.
4. Subject to the Power and the Telecommunication Authority's approval, joint use trenching will be adopted for telephone services.

SC6.6.7.4 Water

SC6.6.7.4.1 Introduction

1. Except as specifically varied by this policy, all water reticulation mains are to be designed in accordance with the SEQ Water Supply & Sewerage Design & Construction Code.
2. Evidence of the Urban Utilities agreement to provide services is to be given to Council at time of Development Application to Council.
3. Urban Utilities approved water design drawings are to be submitted to Council before the issue of Operational Works approval.
4. Evidence of the Urban Utilities agreement to accept all infrastructure 'On Maintenance' is to be provided to Council before sealing of plans of survey.

SC6.6.7.4.2 Road and rail crossings

1. All water main crossings of new and existing roads will be constructed in an 300mm enveloper pipe of ductile iron or similar. The enveloper (i.e. iron, steel, concrete) pipe will extend a minimum of 300mm beyond the back of the kerb and channel or the edge of pavement where no kerb is provided.
2. Crossings of existing roads will be bored.
3. Council may approve open trenching to roads below Collector subject to the location, traffic conditions, condition of the existing pavement and surfacing, space available for boring pits and substrate conditions.
4. If HDPE pipe is used with no joints or welds underneath roadways nor within 300mm beyond back of the kerb and channel or edge of pavement where no kerb is provided, then no enveloper pipe would be required for roads below Collector.
5. Trenching, where permitted, should be at or incorporate existing joints in pavement. Trenching is to be in accordance with IPWEAQ Standard drawing, RSD-803 Pavement Extension - Trenching & Widening.
6. Written approval from either the DTMR or Queensland Rail is required if a sewer is to be constructed on land under the control of these bodies. In such cases the crossings will generally be designed and constructed in accordance with relevant bodies' requirements:
 - a. All road crossings underneath a state-controlled road at to be in accordance with DTMR Technical Note 163 'Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines';
 - b. If the water main is to be constructed underneath a railway line the crossing will be in accordance with the requirements of Queensland Rail.
7. The details of the crossing, pipe materials and grouting will be submitted to Council for approval.

SC6.6.7.4.3 Water main backfill in existing roads

1. Where crossings cannot be bored and where approved by Council, excavation across existing roads and trench backfilling, is constructed in accordance with the IPWEAQ Standard drawing, RSD-803 Pavement Extension - Trenching & Widening, and:
 - a. sand bedding up to 600mm, of the finished surface is to be placed and compacted by flooding, vibrating or another approved means;
 - b. then restore the top 600mm the lean mix low slump concrete (1V:20H) and 50mm of asphalt surfacing.
2. Excavated crossing that across existing roads are to be completed in the shortest possible time to maintain road safety and traffic flow.

SC6.6.7.4.4 Water main backfilling to footpaths and other non-trafficable areas

1. Backfilling is to be carried out in accordance with the Urban Utilities specifications.
2. The material is to be placed in layers not exceeding 300mm in depth and is to be compacted to a minimum consolidation of 95% Standard Compaction.

SC6.6.7.4.5 Markers

1. Brass or stainless steel indicator discs to be placed in kerb over all conduits (refer to IPWEAQ Standard drawings, RSD-601 Public Utilities - Typical Service Corridors & Alignments and RSD-602 Public Utilities - Typical Service Conduit Sections).
2. Hydrant and valve markers are to be in accordance with Urban Utilities requirements outlined in approved water design drawings.

SC6.6.7.5 Sewer

SC6.6.7.5.1 Introduction

1. Except as specifically varied by this policy, the design and construction of reticulation sewers is to comply with the SEQ Water Supply & Sewerage Design & Construction Code.
2. Evidence of the Urban Utilities agreement to provide services is to be given to Council at time of Development Application to Council.
3. Urban Utilities approved sewer design drawings are to be submitted to Council before the issue of Operational Works approval.
4. Evidence of the Urban Utilities agreement to accept all infrastructure 'On Maintenance' is to be provided to Council before sealing of plans of survey.

SC6.6.7.5.2 Road and rail crossings

1. A sewer may cross a road to reduce the number of manholes to be used, provided house connections are not located within the road reserve.
2. Crossings of existing roads will generally be bored. Council must approve open trenching to roads below Collector subject to the condition of the existing pavement and surfacing, space available for boring pits and substrate conditions.
3. Written approval from either the DTMR or Queensland Rail is required if a sewer is to be constructed on land under the control of these bodies. In such cases the crossings will generally be designed and constructed in accordance with relevant bodies' requirements.
 - a. All road crossings underneath a state-controlled road are to be in accordance with DTMR Technical Note 163 'Third Party Utility Infrastructure Installation in State Controlled Roads Technical Guidelines';
 - b. If a sewer is to be constructed underneath a railway line, the crossing is to be in accordance with the requirements of Queensland Rail.

SC6.6.7.5.3 Sewer backfill in existing roads

1. All crossings of existing bitumen or AC sealed roads are to be under road bored.
2. Where crossings are not able to be bored and where approved by Council, excavation is to be carried out across existing roads and expediency in the backfilling of the trenches is required, the following methods in accordance with the IPWEAQ Standard drawing, RSD-803 Pavement Extension - Trenching & Widening, are to be employed:
 - a. If HDPE pipe is used with no joints or welds underneath roadways nor within 300mm beyond back of the kerb and channel or edge of pavement where no kerb is provided, then no envelope pipe would be required;
 - b. Trenching, where permitted, should be at or incorporate existing joints in pavement. Trenching is to be in accordance with IPWEAQ Standard drawing, RSD-803 Pavement Extension - Trenching & Widening.

SC6.6.7.5.4 Filling over existing sewers

1. Where fill is placed over an existing sewer the Applicant will need to comply with Urban Utilities requirements.

SC6.6.7.5.5 Markers

1. Brass or stainless steel indicator discs to be placed in kerb over all conduits (refer to IPWEAQ Standard drawings, RSD-601 Public Utilities - Typical Service Corridors & Alignments, and RSD-602 Public Utilities - Typical Service Conduit Sections).
2. Infrastructure markers are to be in accordance with Urban Utilities requirements outlined in approved water design drawings.

SC6.6.7.6 Fences

1. Unless all survey pegs are obvious, the developer is to submit a certification by a Registered Surveyor that the fences are contained entirely within the development before the acceptance of works as 'off maintenance'. Under the *Building Regulation 2021*, fences higher than 2m above the natural ground surface would require a building application.
2. The following requirements will apply to fencing:
 - a. The minimum standard of pedestrian safety fence is the galvanised tubular handrail, in accordance with IPWEAQ Standard drawing, FBD-105 Fencing - Tubular Steel Fence With & Without Chain Wire. However, powder-coated galvanised steel or aluminium pool fencing to AS.1926 Swimming pool safety, of minimum 1.2m height is the preferred barrier installation at traffic islands, signalised crossings and refuge islands;
 - b. A galvanised tubular handrail with chain wire or galvanised weld mesh fencing is to be provided where there is a danger of children gaining access to high-risk areas or where the drop height exceeds 1m. Where the drop height exceeds 1.5m, a powder-coated steel fence (hunter rod top or approved equivalent), capable of sustaining the

imposed actions specified in AS.1170 Structural design, actions is to be installed;

- c. Where required, barrier fences are to be in accordance with PSP 7 Landscaping including a lock rail for access must be provided in accordance with IPWEAQ Standard drawing, FBD-104 Fencing - Locking Rail Types 1, 2 & 3.
- d. A site-specific attenuation solution for each development is to be determined in accordance with the attenuation criteria and methodologies set out in the current relevant legislation;
- e. The fencing must not hinder maintenance, otherwise the fencing is to incorporate vehicular access gates, or the fencing panels are designed for easy removal. Pedestrian gates are to be provided along road frontages:
 - i. A concrete (extruded or cast in situ) mowing strip must be provided under all fences (including acoustic barriers) that abut lawn and landscaped areas. A minimum 150mm wide x 100mm deep strip, flush with the surrounding ground, will need to be installed under timber fences or walls or galvanised steel fences. Mowing strips are not required under masonry or concrete fences or walls as the footings are satisfy this purpose
 - ii. Wildlife friendly fencing and exclusion fences are to be constructed in accordance with the Queensland Government Koala-Sensitive Design Guideline.

SC6.6.7.6.1 Hydraulic constraints

1. Fencing is not erected inside any drainage easement or overland flow path or flood hazard area or waterway corridor. The construction of fence types would promote debris-retaining or solid fences, as these structures will impact the conveyance of floodwaters and divert the flow onto adjoining properties.
2. In instances where the overland flow between private allotments is shallow (i.e. less than 125 deep), solid fences can be constructed with a clearance of 125 mm between the existing ground and the bottom of the solid fence to allow unobstructed conveyance of overland flows.
3. Council approval is required where fencing is proposed inside any drainage easement or overland flow path or flood hazard area or waterway corridor. Some suggested fencing styles include:
 - a. open post and rail, where no panels of fencing are incorporated between the post and rail structure to provide minimum resistance to flood flows. Examples include log barrier fencing and galvanised tubular handrail;
 - b. collapsible fencing, where sections of the fence are designed to collapse under flood loading so as not to increase flood levels but are also anchored to avoid being washed away. Low-strength ties can be used to hold the fence in place where outside a flood hazard area;
 - c. swing fencing, where sections of the fence are designed to yield under the pressure of flood flows so as not to increase flood levels but are also anchored to avoid being washed away. Fence panels are fitted with hinges or pivot points to allow opening during floods. Low-strength ties can be used to hold the fence in place where outside a flood hazard area.
 - d. lifting fencing, where sections of the fence may be temporarily raised to not obstruct flood flows.

SC6.6 Appendix 1: Urban and industrial road design

Note—The dimensions listed below are for mid-block design standards and may need to be adjusted for other road features (e.g. street trees, public transport facilities, intersections, accesses and stormwater quality devices).

ENVIRONMENT	URBAN AND RURAL RESIDENTIAL (<5,000M ²)					URBAN				COMMERCIAL OR INDUSTRIAL	
	Laneway	Local Access	Access Street	Minor Collector	Minor Collector	Major Collector (no access)	Major Collector	Sub-arterial (undivided, no parking)	Sub-arterial (divided, no parking)	Access Street	Collector
QUDM Classification	Minor Road	Minor Road	Minor Road	Minor Road	Minor Road	Major Road	Major Road	Major Road	Major Road	Minor Road	Major Road
Bus service	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Traffic Catchment (vpd)	50	150	150-750	750-3,000	750-5,000	5,000-10,000	5,000-10,000	10,000-16,000	10,000-16,000	3,000	12,000
Traffic Catchment Lots	5	15	15-75	75-300	75-500	N/A	N/A	N/A	N/A	N/A	N/A
Access number	1	1	1	1	1	No	No	No	No	1	2
Maximum Design speed (km)	10	30	40	50	50	60	60	70	70-80	60	60
Reserve - minimum width (m)	10	15	16	18 ^a	18 ^a	24	34	20	32	22	24
Carriageway - minimum width (m)	5.5	7	8	8	8	12	12	17	19	12	14
Verge - minimum width (m)	2.5 one side	4 each side	4 each side	5 ^a each side	5 ^a each side	6 each side	6 each side	6.5 each side	6.5 each side	5 each side	5 each side
Number of Traffic Lanes	1	2	2	2	2	2	2	2	4	2	2
Number of parking lanes	1	0	1 un-marked	2 un-marked	2 un-marked	2 marked	2 marked	2 marked	No	1 each side	1 each side
Maximum Grade %	5%	12%	12%	12%	6%	6%	6%	6%	6%	6%	6%
Foot path - minimum width (m)	1.6	1.8	1.8	2.0	2.0	2.0	2.0	2.5	2.5	2.0	2.0
Foot path number and type	1 within verge	1 within verge	1 within verge	2 within verge	2 within verge	2 within verge	2 within verge	2 within verge	2 within verge	2 within verge	2 within verge
Cycle path - minimum width (m)	1.8	1.8	1.8	2.0	2.0	3.0 ^b	3.0 ^b	3.0 ^b	3.0 ^b	2.0	2.0
Cycle path	1 within	1 within	1 within	2 within	2 within	2	2	2	2	Within	Within

number and type	carriageway	carriageway	carriageway	carriageway	carriageway	separate from carriageway and verge	separate from carriageway and verge	separate from carriageway and verge	separate from carriageway and verge	verge	verge
Intersection spacing (m) same side	N/A	60	60	60	60	80	Refer to Austroads	Refer to Austroads	Refer to Austroads	60	80
Intersection spacing (m) opposite side	N/A	40	40	40	40	60	Refer to Austroads	Refer to Austroads	Refer to Austroads	60	60
Intersection treatment	N/A	Priority	Priority	Roundabout / priority	Roundabout / priority	Roundabout / priority	Refer to Austroads	Refer to Austroads	Refer to Austroads	Roundabout / priority	Roundabout / priority
Pavement Design (ESA)	4.5 x10 ³	1.5 x10 ⁴	7.6 x 10 ⁴	1 x 10 ⁶	2x10 ⁶	By Design	By Design	By Design	By Design	By Design	By Design
Crossfall (%)	2-3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Edge Treatment	Flush concrete	Mountable (M1)	Mountable (M1)	Mountable (M1)	Mountable (M1)	Barrier (B1)	Barrier (B1)	Barrier (B1)	Barrier (B1)	Barrier (B1)	Barrier (B1)
Lighting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tree Height (m)^c	N/A	Small	Small	Small	Small	Medium	Medium	Medium	Medium	Small	Medium
Tree planting interval^c	N/A	5 to 10	5 to 10	5 to 10	5 to 10	6 to 12	6 to 12	7 to 15	7 to 15	5 to 10 or Grouped	7-15 or Grouped

Note—

- a. Unless identified as part of a Principal Cycle Route, then on a case by case basis.
- b. Includes a minimum 0.5m separator or protection for cycle lanes from adjacent transport modes.
- c. Refer to Planning Scheme Policy SC6.7 Landscaping.

SC6.6 Appendix 2: Rural road design

Note—For lower order roads refer to the IPWEA Lower Order Road Design Guideline.

Road Classification	Collector	Major Collector	Sub-Arterial	Sub-Arterial	Regional Arterial
Austrorads classification	5	4	4	4	3
Nominal AADT	150 to 1,000 or >20% CV	150 to 1,000 or >20% CV	100 to 500	500 to 1,000	>1,000
Traffic lane width (m)	3.25	3.5	3.5	3.5	3.5
Shoulder sealed (m)	0.5	0.5	1	1	1.5
Formation width (m)	8	8.5	9	9	10
Pavement width(m)	8	8.5	9	9	10
Primer seal width (m)	8	8.5	9	9	10
Bitumen seal width (m)	7.5	7.5	9	9	10
Higher order vehicle access	B-Double, A-Double	B-Double, A-Double	B-Double, A-Double	B-Double, A-Double	B-Double, A-Double
Number of lanes	2	2	2 to 4	2 to 4	2 to 4
Minimum pavement depths (mm)	300	By Design	By Design	By Design	By Design

SC6.6 Appendix 3: Water-sensitive urban design

1. Water-sensitive urban design (WSUD) applies the sustainability principles of water conservation, waste minimisation and environmental protection to the management of the urban water cycle. At various points along the drainage system, controls or combinations of controls are used to manage the quality and quantity of stormwater so that the impact on the environment and existing drainage systems is managed.
2. WSUD aims to minimise the impact of urban development on the natural water cycle, and its principles can be applied to single allotments or to whole subdivisions.
3. With regard to stormwater management, the core principles of WSUD include:
 - a. Protect natural ecosystems;
 - b. Integrate stormwater treatment into the urban landscape;
 - c. Protect water quality;
 - d. Reduce run-off and peak flows;
 - e. Add value while minimising development costs.
4. These principles require a considered approach to urban development in which sustainable land and water management decisions underpin all development proposals.
5. For stormwater quality management, WSUD promotes an 'at source' philosophy that is based on the premise that it is easier and more cost-effective to control pollution at its source rather than remove it once it has made its way into a formal stormwater drainage system.
6. An 'at source' approach also allows for greater integration between stormwater management function and public realm landscape elements. Garden beds within building forecourt areas, street trees and other 'soft' streetscape elements can all be used as part of an integrated stormwater management system. Landscape elements can be designed to filter stormwater run-off from hard surfaces, the added benefit being the use of stormwater runoff to water the landscaped areas.

SC6.6 AP3.1 Introduction

1. The application of WSUD requires significant input from a range of professions. It is essential that a logical process is followed that considers not only the implementation of WSUD practices but integrates these within the overall urban design framework.
2. This section addresses the recommended planning and design process, and site-planning concepts and practices that must be incorporated into the design of greenfield and infill development. The practices presented are central to effective site planning and design of stormwater management facilities and the protection of receiving waters throughout the region. The focus of this policy is the consideration of stormwater management in the initial layout and design of a development rather than as an ad hoc development requirement or one that is left until all other elements (such as lot layouts, street design, hydraulics etc.) have been completed.

SC6.6 AP3.2 WSUD planning process

1. To achieve the optimum outcome in the application of WSUD principles and measures within a development, integration of detailed planning, engineering, landscaping and ecology is an absolute necessity. For this to occur, a process that addresses the relevant tasks in a logical manner is required.
2. The process set out below highlights key steps in the overall conceptual design process. In most cases, the WSUD professional will lead a team through the required tasks, or at least seek to facilitate the team through it. This process cannot be conducted separately to other processes, such as the overall urban, engineering or landscape design. This process requires several iterations through the overall urban development project.

SC6.6 AP3.2.1 Step 1: Site analysis

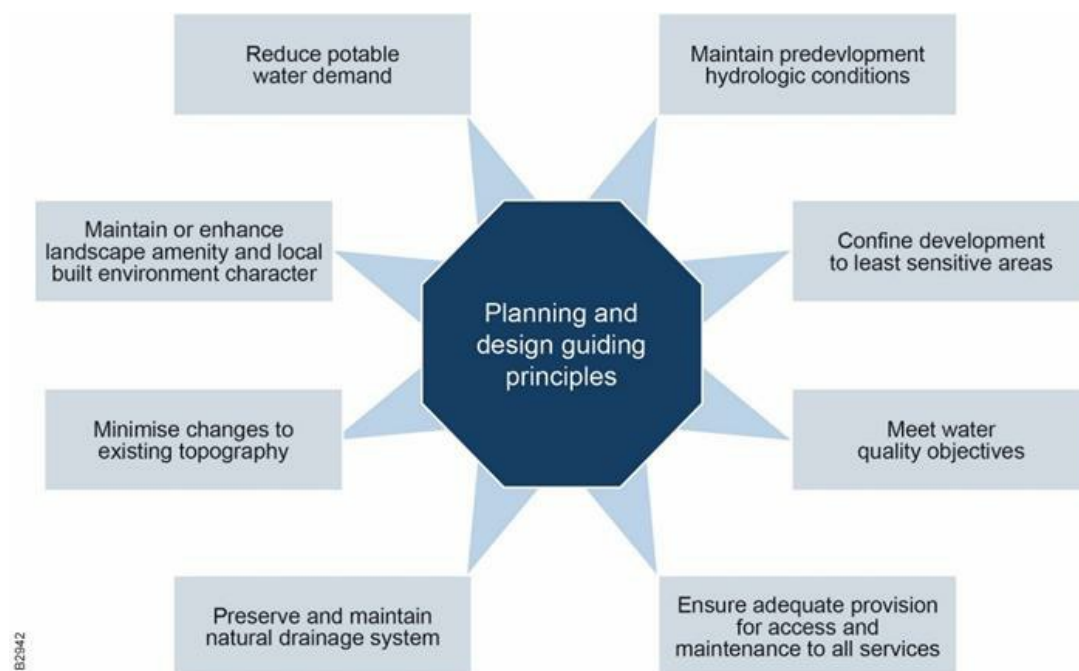
1. Understanding the location where WSUD is to be applied is fundamental to the overall success of implementation. This task is about gathering a broad overview of the subject site and identifying those issues that will assist or hamper the delivery of WSUD practices.
2. This task must involve initial data collection, such as land use zonings, terrain information, aerial imagery and previous studies, and reviewing the data in conjunction with planning scheme maps. A site visit is considered essential. The following items will need to be identified and considered:
 - a. terrain — areas of high and low gradients, flatter areas that allow larger WSUD measures such as wetlands, level areas which may present difficulties in terms of hydraulic head and high groundwater table catchment boundaries internal to the site and catchment areas external to the site;
 - b. natural features, especially creek lines, permanent water bodies, existing vegetation;
 - c. planning constraints — environmental corridors, waterway corridors, flood hazard, open space or recreational nodes;

- d. receiving environment — waterways or drainage lines where discharge off site is likely to occur;
 - e. strategic catchment planning — catchment or sub-catchment plans (in Councils region this will include catchment management plans, stormwater management plans and master drainage strategies) to identify any regional or catchment-scale strategies applicable to the site;
 - f. existing hydrological patterns and features;
 - g. extent of the the 1%AEP and 5% AEP is mapped;
 - h. topography and slope stability;
 - i. geology and soil characteristics;
 - j. existing water quality;
 - k. waterways, wetlands and floodplains;
 - l. minor drainage features;
 - m. existing known stormwater or drainage 'problem' areas;
 - n. vegetation;
 - o. erosion-prone areas;
 - p. groundwater and recharge areas;
 - q. existing infrastructure and services (potholing to obtain levels is considered a mandatory requirement in most cases);
 - r. planned infrastructure and services;
 - s. existing easements and drainage reserves on the site and the possible need to secure additional areas at downstream locations.
3. From this, a list of opportunities and constraints as they apply to WSUD at the subject site must be prepared to assist in the remaining tasks.
 4. The information layers compiled during the resource mapping then need to be overlaid to provide a composite site analysis that:
 - a. identifies the developable area of the site
 - b. shows the relationship between constraints and opportunities at the site
 - c. guides lot and road layout
 - d. identifies the area's best used for stormwater treatment, storage and conveyance.

SC6.6 AP3.2.2 Step 2: Identification of objectives

1. The implementation of WSUD in a development seeks to achieve a range of outcomes relating to water quality, hydrology, conservation and amenity, as shown in Figure SC6.6-10: WSUD conceptual design outcomes.

Figure SC6.6-10: WSUD conceptual design outcomes



Source: Gold Coast City Council WSUD Conceptual Design Guidelines

2. Each of these outcomes is met by ensuring development complies with the appropriate objectives identified for the site.

Before any other activities are undertaken with respect to site planning, the objectives must be clearly established using the information provided in the sections below.

3. In most cases, site-specific objectives will be available and need to be identified clearly so that they can be referred to during the remaining tasks in the concept design process.

SC6.6 AP3.2.2.1 Water quality objectives

1. One of the primary roles of WSUD is to reduce the impacts of urban development on receiving environments. As part of the design process, relevant environmental values and water quality objectives of receiving waters or other water quality targets relevant to the site must be identified, where available, and documented. These include:
 - a. concentration-based water quality objectives for receiving waters
 - b. concentration-based discharge standard from a site load-based criteria (mass per unit of time) or reduction in load.
2. The relevant water quality objectives must be used as the primary performance criteria on which a development is assessed for its ability to ensure protection of receiving water quality. Stormwater Management Design Objectives are included within the Stormwater Management Code in Table 9.4.7-2: Construction Phase — Stormwater Management Design Objectives, to Table 9.4.7-5: Post Construction Phase — Stormwater Management Design Objectives.

SC6.6 AP3.2.2.2 Water quantity objectives

1. A key principal of WSUD is to reduce the impact of urban development on the natural hydrologic conditions of a site and other water quantity objectives may also be relevant. Inundation times must be considered as part of the setting of water quantity objectives. This is relevant where inundation times are increased for downstream properties.
2. Further discussions must be held with Council development assessment officers during Step 3 to ensure appropriate quantity targets have been identified.
3. It must be recognised that WSUD elements in isolation will not be enough to address all flooding or hydraulic requirements but may be integrated within the overall hydraulic design of the development.

SC6.6 AP3.2.2.3 Integrated water cycle management objectives

1. One of the major benefits of WSUD is the ability to incorporate measures that can benefit all parts of the water cycle. WSUD elements such as rainwater tanks, aquifer storage and recovery, bioretention basins and sediment control ponds can all be useful elements in an integrated water management plan.

SC6.6 AP3.2.2.4 Landscape and amenity objectives

1. When deterministic objectives are not available, broad objectives for the integration of landscape elements into WSUD should include the following:
 - a. Ensure the integration of landscapes, recreational amenity and WSUD functionality facilitates creative expression and solutions, meets standards of service for recreation and landscape amenity, can be comprehended by the community, and is sensitive to the environment and the local setting.
 - b. Provide appropriate buffers to open-space areas or environmental corridors. In most circumstances, the functionality of open-space areas must not be compromised by the WSUD elements.
 - c. Provide a desirable community amenity and integrate WSUD into the overall design of the urban framework.
 - d. Ensure the sustainability of landscape amenity through a design that accounts for longevity of the system by considering maintenance and community use aspects (e.g. vandalism, litter protection).
 - e. Provide 'green' elements and visual breaks in the urban landscape.

SC6.6 AP3.2.2.5 Vegetation and natural features

1. The objectives of WSUD relating to vegetation and natural features include:
 - a. protection and enhancement of waterways, wetlands and their buffers appropriate development setbacks from waterways and wetlands
 - b. protection of remnant vegetation communities
 - c. retention and reinstatement of native vegetation
 - d. natural channel design responses for natural gullies and waterways.
2. Each of these objectives must be developed in conjunction with Step 6 to ensure natural features of the site are identified and their protection or enhancement is listed as an objective for that development.

SC6.6 AP3.2.2.6 Social outcomes

1. Objectives relating to public safety, community enhancement and recreational opportunities may be identified through other processes; however, it is important that they are considered as a specific outcome.

SC6.6 AP3.2.3 Step 3: Conceptual site design

1. Based on the outcomes of Steps 1 and 2, an initial conceptual site design based on broad development outcomes is undertaken.
2. This can be a simple sketch using intended land uses (e.g. residential areas, local open space, regional open space, protected zones), but must identify areas for implementation of lot-, local- and regional-scale WSUD measures. The objectives previously identified provide guidance, but key to this conceptual design will be addressing the opportunities and constraints identified in Step 1 in a whole-of-development context. This conceptual site design becomes the overall vision for more detailed design in later steps.
3. There will be occasions when the above process will generate the apparent need for stormwater treatment devices that are out of proportion or inappropriate for the proposed development. In these exceptional circumstances, Council is prepared to consider alternative 'best practice or best fit' solutions that may not deliver the targeted, desired standards of service. Council will require compelling justification to vary its position on achieving these targets against the following criteria:
 - a. Cost of construction and whole-of-life cost is prohibitive.
 - b. Land area required is excessive against the scale of the development.
 - c. Environmental constraints prohibit the full implementation of the required facility.
 - d. Topographical constraints prohibit the full implementation of the required facility.
 - e. Hydraulic constraints prohibit the full implementation of the required facility.
 - f. Other matters prohibit the full implementation of the required treatment measures.

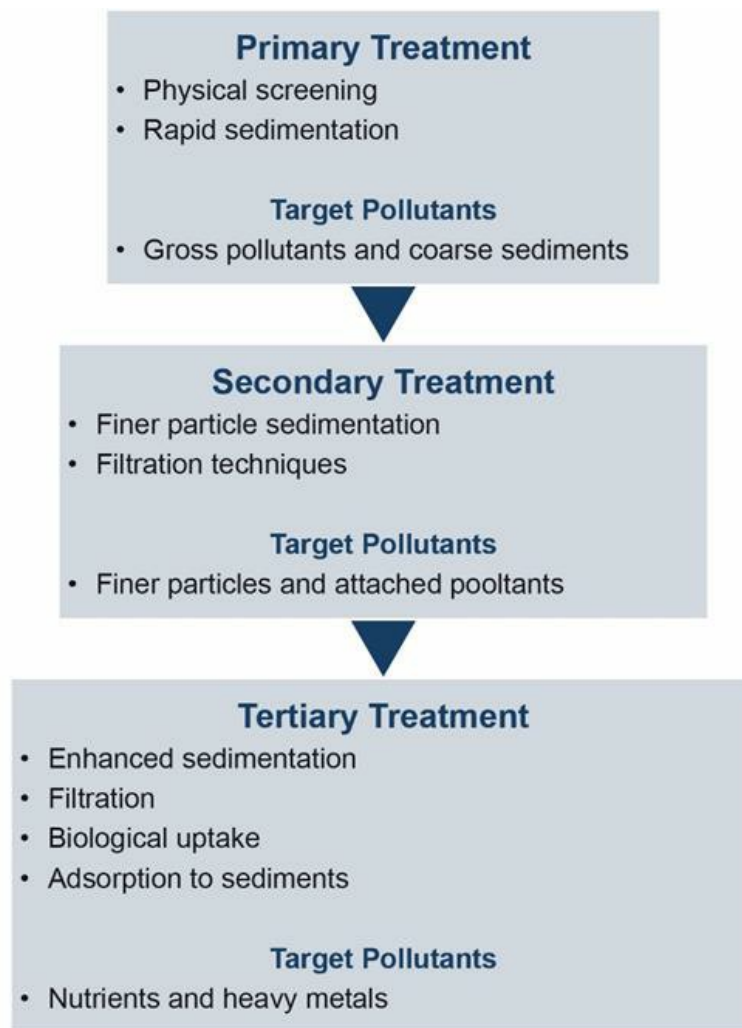
SC6.6 AP3.2.4 Step 4: Pre-lodgement meeting

1. In most applications, it will be beneficial to the overall development application process to meet with Council officers to discuss the existing site, proposed development and Council requirements. Typically, this would form part of a pre-lodgement meeting in which informal discussions are held between the developer (and its consultants) and Council.
2. A draft concept design of the proposed development (including potential WSUD locations) must be prepared and form the basis of discussion at the pre-lodgement meeting.
3. This meeting must also be used to discuss the implications, if any, of Council catchment and stormwater management plans, particularly in relation to the opportunity or requirement for larger catchment-scale regional detention or water quality treatment devices that account for upstream catchment areas.

SC6.6 AP3.2.5 Step 5: Identification of suitable WSUD measures

1. WSUD best management practices (BMPs) are best provided as a series of 'fit for purpose' treatment measures placed sequentially to form a 'treatment train'. One individual measure will not address the full range of pollutants generated from a typical urban development. An appropriate collection of individual treatment measures in series within a treatment train must be developed. This must consider the best operating environment for each treatment measure, considering:
 - a. contributing catchment area
 - b. hydraulic and pollutant loading
 - c. treatment processes employed
 - d. soil type and groundwater
 - e. maintenance and public health and safety issues.
2. The treatment train must provide an integrated drainage system suitable for the site that includes a graduated level of treatment, from primary through to tertiary treatment, with a specific aim of treating stormwater for the target pollutants (refer to Figure SC6.6-11: Stormwater treatment train categories).

Figure SC6.6-11: Stormwater treatment train categories



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Source: Gold Coast City Council WSUD Concept Design Guidelines

1. MUSIC Modelling can be used to develop alternate treatment measures to support the treatment train and provides information on their application and performance.
2. Subject to a risk assessment 'deemed to comply' solutions are to be implemented to meet the stormwater quality objectives. The designer is referred to Deemed to Comply Solutions — Stormwater Quality Management (South East Queensland), prepared by Water-by-Design for Healthy Waterways. The use of wetlands is not acceptable to Council as a 'deemed to comply' solution.
3. The list of possible WSUD devices must be used to develop a series of potential treatment trains for the proposed development, based on the interpreted site conditions and site opportunities and constraints. Other issues that must also be taken into consideration in selecting appropriate treatment measures include:
 - a. cost—benefit ratio of the number of treatment devices (capital and maintenance costs) against the (b) water quality achieved
 - b. workplace health and safety issues (for maintenance crews)
 - c. public amenity and safety
 - d. whether a distributed or 'bottom-of-catchment' approach will be used
 - e. integration with urban design, including road and lot layouts
 - f. life cycle costs and ongoing maintenance requirements and resources.
4. Several factors must be considered in the selection of the final treatment train for the site. These factors must be considered alongside the opportunities and constraints identified at the site and the opportunities to lay out the development to respond to WSUD requirements.
5. The following factors must be considered in the selection of the treatment train:
 - a. maintenance
 - b. life cycle costs
 - c. location

- d. public safety
- e. establishment
- f. access
- g. erosion and sedimentation control.

SC6.6 AP3.2.5.1 Maintenance

1. The devices selected must represent a reasonable maintenance burden, particularly where the asset will be handed over to Council at some time in the future.
2. The maintenance requirements must be within Council's capacity in terms of skills, resources and equipment.
3. There must be enough resources to undertake maintenance at the required frequency.
4. The treatment devices must be safe to maintain and must not require maintenance staff to have direct contact with pollutants and other trapped materials.
5. Maintenance procedures must be simple and must not require specialised equipment.
6. Disposal of waste (e.g. gross pollutants, vegetation etc.) must be considered.

SC6.6 AP3.2.5.2 Life cycle costs

1. A life cycle cost assessment may be undertaken in the process of selecting the best devices (e.g. many smaller devices rather than larger treatment devices).

SC6.6 AP3.2.5.3 Location

1. The device must be able to integrate with the local character and built environment and must be suitably located to treat the maximum amount of run-off from the site.

SC6.6 AP3.2.5.4 Public safety

1. The safety of the public adjacent to the WSUD device is a priority. Consideration must be given to the risks associated with open water bodies, ponded water etc. Risks must be appropriately managed through selection of devices and subsequent detailed design.

SC6.6 AP3.2.5.5 Establishment

1. The establishment period will be dictated by the period required for the measure to become fully functional. For vegetated systems, this may take two or three growing seasons.

SC6.6 AP3.2.5.6 Access

1. The devices and their locations must be accessible for ongoing maintenance. Maintenance access must be ensured for all equipment required for ongoing maintenance (including any heavy machinery).

SC6.6 AP3.2.5.7 Erosion and sedimentation control

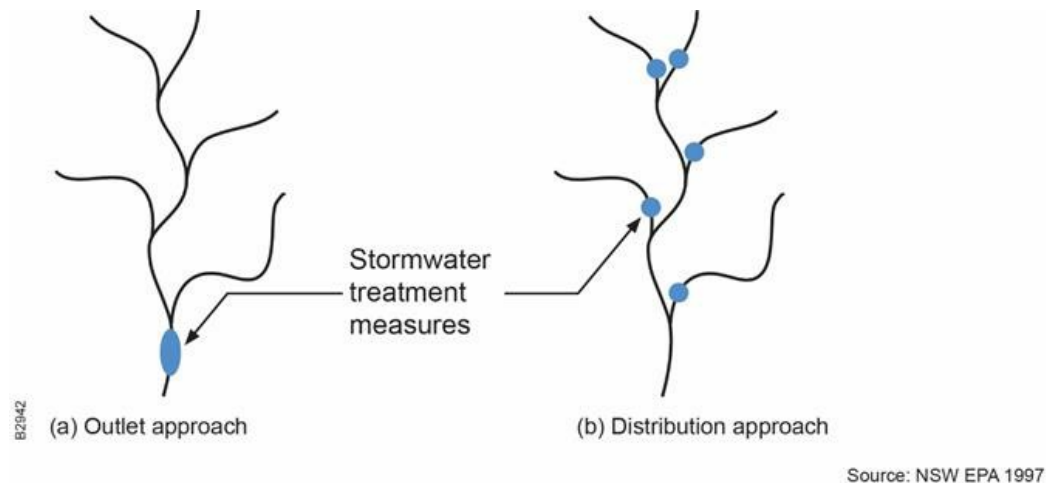
1. Construction phase performance criteria are limited to those parameters that are linked to construction site management practices. Typical parameters include turbidity or suspended solids, pH, dissolved oxygen, litter and hydrocarbons.
2. Unless otherwise stated in a Council-endorsed catchment management plan or study, the construction phase performance criteria for discharges from development sites are those listed in SPP Part E Appendix 2 — Stormwater Management Objectives. These criteria are discharge standards, so they apply to run-off events or pumped discharges from development sites.
3. It is highly recommended that a site-specific relationship be developed between turbidity and suspended solids on high-risk development sites. This will enable the rapid feedback of turbidity monitoring into site management actions (such as flocculation and timing of discharge from a sedimentation basin).
4. Setting concentration-based criteria allows for compliance checks through water quality monitoring. Construction phase water quality monitoring will be required for sites where dewatering is required.
5. The designer is referred to SC6.6.4.4 Stormwater Quality.

SC6.6 AP3.2.6 Step 6: Location of WSUD elements

1. When determining the best WSUD measures for a site, some consideration must be given to the site analysis, the

opportunities available, and the 'natural' or obvious areas for WSUD devices (e.g. overland flow paths). The site analysis may provide information on whether a bottom-of-catchment, regional approach or a distributed, treatment-at-source approach to WSUD is best for the site. These two options are shown in Figure SC6.6-12: Location of stormwater treatment measures below:

Figure SC6.6-12: Location of stormwater treatment measures



Source: NSW EPA 1997

Source: Gold Coast City Council WSUD conceptual design guidelines

2. WSUD principles are most effective and economical when integrated into development design at the concept design stage. Subdivision patterns for different development types may vary significantly and present different WSUD opportunities. Different development types and suitable WSUD can include:
 - a. low-density subdivisions (e.g. park residential). These developments have larger allotments and may incorporate a broad range of WSUD initiatives. These sites may have enough space to incorporate significant landscape WSUD elements, such as swales and buffer strips in road reserves, bioretention in natural depressions etc.
 - b. low- to medium-density subdivisions. These contain a range of low-rise dwelling types on smaller allotments and afford less opportunity for landscape WSUD elements. In this instance bioretention devices may be incorporated into street design or through more effective lot layout design
 - c. high-density development. This contains several dwellings in strata or community title. Private open space will be hard paved with limited pervious area. Open-space areas will be multifunction areas acting as treatment measures and recreational areas. WSUD opportunities may include common open-space areas, courtyards and roof areas.

SC6.6 AP3.2.6.1 Public open space

1. The open-space system must be developed with the aim of establishing a network of natural features and compatible land uses that will act as a green network throughout the development.
2. The integration of stormwater management initiatives as components of the open-space system contributes to open-space outcomes by increasing the physical area of general open-space and green elements within a community, enhancing terrestrial and aquatic habitat diversity and enhancing recreational and educational opportunities. The following are examples of techniques that can be used to integrate stormwater management and the open-space network:
 - a. incorporation of waterways and bioretention systems within parks as ecological and/or recreational features
 - b. integration of playfields within dry detention basins
 - c. design of subsurface storage and/or infiltration systems beneath playfields within parks or school yards
 - d. development of gardens within open-space areas as bioretention systems.

SC6.6 AP3.2.6.2 Road configuration and layout

1. Most impervious hard surfaces in urban developments are roads. Road designs can change the way water is transported through a development. Roads also generate water-borne stormwater contaminants including fine sediments, metals and hydrocarbons. Road alignments and streetscapes must be carefully planned to incorporate some degree of treatment. Appropriate WSUD drainage elements include:
 - a. bioretention system
 - b. bioretention swales
 - c. buffer strips.

2. These devices collect, attenuate, convey and treat run-off before it is discharged to receiving waterways. Opportunities exist for incorporating stormwater elements in roadways by diverting flow paths to a treatment system. Traditional road features (medians, roundabouts, street trees and car parking nodes) can be configured to collect and treat run-off as part of a stormwater conveyance system.

SC6.6 AP3.2.6.3 Lot layout

1. The requirements of the Reconfiguring a Lot code in the planning scheme will be the key document to be used in overall lot layout. However, some general principles that can be followed in lot layout to maximise WSUD opportunities and reduce stormwater impacts are:
 - a. Minimise site disturbance.
 - b. Locate lots in a way that stormwater can be discharged to open space (and not concentrated in one location).
 - c. Maximise opportunities for on-lot treatment or for conveyance from WSUD devices.
2. Lot layout options that may be considered (refer to Figure SC6.6-13: Integration of housing with waterway corridor) include:
 - a. clustering houses to use central stormwater treatment measures
 - b. using open space and existing vegetation as buffers
 - c. reducing the impervious area of each lot (e.g. driveway length and width).

Figure SC6.6-13: Integration of housing with waterway corridor



Source: Whelans et al in Engineers Australia (2006)

Source: Gold Coast City Council WSUD Conceptual Design Guidelines

SC6.6 AP3.2.6.4 Natural channel design

1. The basic principle of natural channel design is to maintain the hydraulic conveyance requirements of engineered or affected channels, while improving environmental values. Natural channel design is important in all waterways (whether natural in formation or constructed to appear and operate as natural channels), especially where the waterway provides a link with bushland reserves or forms an important part of an aquatic or terrestrial movement corridor. An extended maintenance period may be required until the channel has sufficiently stabilised and vegetative cover is well established.
2. Where rock armour is required to control erosion, partially embedded or grouted natural rocks or boulders must be used. Planting between rocks can soften visual impacts.
3. Boulders placed on the bed of the watercourse can promote habitat diversity. Boulders recessed into the low-flow channel or the pools can increase the total submerged surface area, thus increasing the available food supply for aquatic life. Concrete lining is unacceptable to Council as this solution does not protect or enhance environmental values.

SC6.6 AP3.2.6.5 Rainwater tanks

1. Council actively supports the use of rainwater tanks as they provide a simple and effective means for property owners to manage stormwater at the source, while providing a major benefit to the management of the urban water cycle through reduced water demand and improved water quality. The application of rainwater tanks is particularly suited to new and existing houses, and small-scale residential developments of four dwelling units or less. The Queensland Development Code provides minimum water tank requirements.
2. Overflows from rainwater tanks are usually connected to soakage or rubble pits. The proposed stormwater disposal method must mitigate any potential impacts worsening the existing conditions either by ponding, concentrating or increasing the flow onto adjoining properties. The acceptable solution may include soakage trenches or a combination of

gravity-feed pipe through a drowned outlet to the kerb and channel and/or rainwater tank under the house. The soakage pit must be located at least 3m from any building or boundary and must provide every opportunity for the stormwater flow to broadsheet across the lawn. The removal of stormwater by adsorption or infiltration into permeable soils must be designed to suit the topography and soil type.

SC6.6 AP3.2.7 Step 7: Model base case

1. At this stage, enough information would have been collected to allow modelling of both the existing site and the 'untreated' developed site; the model would form the base case against which to compare future modelling of the WSUD development.
2. In most developments, water quality modelling must focus on total suspended solids, total nitrogen, total phosphorus and gross pollutants as the key pollutants of interest, as well as on the hydraulic outcomes. Further guidance on water quality modelling is provided in the Healthy Waterways Water-by-Design MUSIC Modelling Guidelines.
3. Some characterisation of the natural hydrology and an assessment of the peak flow rates and volumes for the pre-development condition must be undertaken for the full range of ARI's from 2 to 100 years. For smaller catchments, preliminary assessments can be made using simple catchment calculations based on the Rational Method. For larger catchments, characterisation of the site hydrology may require use of hydrologic models (e.g. XP-RAFTS, RORB, URBS) to represent the hydrologic conditions of the site. These pre-development conditions will be used as the reference point for which the WSUD strategy must aim. The establishment of the pre-development conditions will usually be conducted through an overall hydraulic assessment of the site, to meet flood management requirements (refer to *QUDM Section 7: Urban Drainage* for guidance on hydrological and hydraulic assessment).

SC6.6 AP3.2.8 Step 8: Model treated case

1. Evaluation and assessment of alternative stormwater strategies are based on predictions made by forecasting tools. Modelling tools such as MUSIC and hydrologic models such as XP-RAFTS, URBS etc. must be used to demonstrate that the proposed strategy:
 - a. achieves the load reduction targets adopted by Council.
 - b. results in no change to the hydrology of the site, in accordance with Council's water quantity objectives.
2. Other tools may include water balance modelling and flood or hydraulic modelling where this is appropriate to the site. Refer to the MUSIC Modelling Guidelines (Water-by-Design) for further guidance on the use of MUSIC to assess stormwater treatment trains. The Queensland Urban Drainage Manual must be referred to for hydrologic and hydraulic assessments.

SC6.6 AP3.2.8.1 Life cycle costing

1. The life cycle costing of a WSUD practice or treatment train is a process to determine the sum of all expenses associated with a product or project, including acquisition, installation, operation, maintenance, refurbishment, discarding and disposal costs. It aims to calculate a single dollar value that can be used in the overall decision-making process.
2. The MUSIC software includes a life cycle costing module that must be used to calculate the overall life cycle cost of the WSUD treatment train. Guidance on the life cycle costing module is provided in the MUSIC user guide and MUSIC modelling guidelines. Modellers will need to be familiar with the caveats within that document when using the module.

SC6.6 AP3.2.8.2 Objectives check

1. Several iterations may be required to ensure that many objectives set out in Step 2 are achieved. It may not be possible to meet all objectives and compromise may be needed in some areas to achieve the best outcome.
2. If objectives are essential, it may be appropriate to revise the conceptual site design and/or the type of WSUD practices used.

SC6.6 AP3.2.9 Step 9: Finalisation of design

1. In the development of the WSUD conceptual design, it will be necessary to confirm sizing and locations of measures before entering the detailed design process. Of key importance at this stage will be identifying services and completed design elements (e.g. roads, open-space areas, final lot layouts, hydraulic design) within which WSUD elements may need to be integrated.
2. A conceptual design must be developed that shows:
 - a. location of the WSUD device or devices within the development
 - b. proposed layout of the device in its specific location (and locations of key features such as roads and other services). The proposed layout must also provide detail about proposed access to the WSUD device for maintenance and monitoring and, where relevant, any associated recreational infrastructure around the device. This is to ensure that adequate consideration has been given to ongoing maintenance and prevent future impacts on the functionality of

- open space or other recreational space.
3. At this stage, it will also be appropriate to document operation and maintenance plans, including all ongoing requirements of the treatment train. This information will form the basis for the concept stormwater management plan, to be lodged with Council for approval with the Material Change of Use (MCU) or Reconfiguration of Lot (ROL) application.
 4. An implementation plan must also be developed for the WSUD devices, particularly where they will be used as interim erosion and sediment control measures, and when the final setting of the system will take place sometime after initial functional installation of the device.
 5. The plan must identify:
 - a. when structural elements of the device are to be constructed in relation to development staging and subdivisional works.
 - b. if devices are to be used as temporary sediment basins, and for what period.
 - c. how the final setting of the WSUD device is to be undertaken.
 6. Where it is envisaged that the final setting of the WSUD device will take place sometime after the functional installation of the device (e.g. after the building phase of the contributing catchment area has been completed), discussions must be held with Council to determine the process by which the WSUD device will be completed. Options for the developer are to either provide a contribution to Council to allow it to complete the WSUD assets or to return and complete the asset as designed later. These options must be discussed at the pre-lodgement meeting with Council outlined in Step 3.
 7. Following approval of the development and the conceptual stormwater management plan, the detailed design must be undertaken in accordance with this policy for submission to Council with the detailed stormwater management plan.

SC6.6 AP3.3 Water quality monitoring

1. The monitoring parameters included in the program will depend on the agreed performance criteria, which in turn will depend on the environmental values of the receiving waters and the key pollutants generated by the development. For construction phase monitoring, a typical list of minimum parameters would include pH, dissolved oxygen, turbidity or suspended solids and hydrocarbons.

SC6.6 AP3.4 Monitoring frequency

1. Monitoring must be undertaken at least once a month following rainfall of at least 25mm in a 24-hour period. Rainfall must be based on data from an on-site rain gauge if available or from the nearest Bureau of Meteorology rainfall station. In the case of sedimentation basins requiring flocculation, monitoring must be undertaken and documented before all pumped discharges.

SC6.6 AP3.5 Monitoring locations

1. The location of monitoring sites will depend on the topographical site constraints and nature of the development. Potential monitoring locations that must be considered for inclusion in the monitoring program include:
 - a. pumped discharges from sedimentation basins. A representative sample is required from within the basin before discharge.
 - b. upstream and downstream of the development if a creek or permanently flowing watercourse borders the site. This is beneficial in detecting any changes in receiving water quality associated with the development.
 - c. discharge points from the development site that are remote from any watercourse.
2. In practice the sampling and interpretation of discharges from sites can be exceedingly difficult. Devices such as stage-height samplers must be used to capture samples from sites with a short time of concentration.

SC6.6 AP3.6 Water quality monitoring and analysis standards

1. The water quality monitoring program must be designed in accordance with the ANZECC Monitoring and Sampling Manual, and with reference to AS/NZS.5667 Water quality - Part 1: Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples.

SC6.7 Landscaping

SC6.7.1 Introduction

SC6.7.1.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.7 Landscaping as supporting an outcome of the code.

SC6.7.1.2 Relationship to the Planning Scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the Planning Scheme and applies to the whole of the local government area.

SC6.7.1.3 Purpose

1. The purpose of this planning scheme policy is to ensure that development complies with the local government's standards for the planning, design, location and construction of infrastructure that reflects acceptable standards in engineering, asset management, environmental management and natural resource planning by:
 - a. specifying information requirements;
 - b. specifying standards and guidelines;
 - c. specifying administrative arrangements;
 - d. specifying the circumstances in which Council may accept a security for the completion of work.
2. The policy is designed to assist the designer in achieving the following:
 - a. accessibility;
 - b. Crime Prevention Through Environmental Design (CPTED);
 - c. shading and shade trees;
 - d. visual enhancement of the streetscapes;
 - e. improved living environments by reducing the impacts of noise, fumes, urban heat island effects and car headlights;
 - f. the use of a wide range of fit-for-purpose plant species with an emphasis on natives and particularly endemic species to develop increased habitat and plant diversity to provide a food source for indigenous fauna and reduce the potential impact of disease from monocultures.

SC6.7.1.4 Technical Standards

1. Planning, design, construction and maintenance of works identified in this policy are to comply with the nominated relevant standards. Where standards and/or specifications are not stipulated for certain infrastructure elements, guidance may be obtained through engagement with Council.
2. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document.

SC6.7.1.5 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.7.2 Development application requirements

SC6.7.2.1 Application preparation

1. Any conflicts or departure from the standard drawings and the policy are to be detailed in the development application.
2. Where a staged development has been approved by Council, Council may require engineering design and construction to include the whole of the site, or such additional parts of the site as this will enable Council to maintain the works in a satisfactory condition if the balance of the development does not proceed to completion.
3. All design drawings and calculations are to be supervised and certified by competent persons as referred in section SC6.7.2.2 Competent persons.

SC6.7.2.2 Competent persons

1. A person preparing a report, a plan or a drawing relating to development must be a suitably qualified person and include:
 - a. for removal of trees that relate to landscape character - a qualified arborist, with a minimum Australian Qualifications Framework Level 5 in arboriculture;
 - b. for landscaping plans (generally) that do not require the restoration of vegetation or habitat — a Registered Landscape Architect (RLA);
 - c. for restoration plan in urban and rural areas - the qualifications required under Planning Scheme Policy SC6.1 Biodiversity;
 - d. for park design - a Registered Landscape Architect (RLA).
2. The report, plan or drawing must include certification signed by the relevant, suitably qualified person that the report, plan or drawing is fit for its intended purpose and can be relied upon by Council for that purpose.

SC6.7.2.3 Planning (design) approval

SC6.7.2.3.1 Landscape plan site assessments

1. The purpose of a site assessment is to describe the values and features of the site that are relevant to the matters to be addressed in a Landscaping plan.
2. Each site assessment should comprise of:
 - a. project location and address;
 - b. project title and description;
 - c. the date on which the assessment and any plans were prepared, including any amendments;
 - d. name and relevant professional qualifications of the person/s preparing the assessment;
 - i. for smaller developments such as a dual occupancy, landscape designs are to be prepared by a qualified landscape designer.
 - ii. for a larger development such as subdivision, landscape designs are to be prepared by a qualified landscape architect.
 - e. for all plans include a north point, scale, location of property boundaries road alignments and street names;
 - f. all plans must be to of a scale for clear legibility of all information required for assessment. The following scales are recommended:
 - i. 1:1,000 Landscape Site Analysis or Statement of Landscape Intent;
 - ii. 1:100 or 1:200 General or Detailed Landscape Plans;
 - iii. 1:500 Streetscape Plans;
 - iv. 1:50 or 1:20 Construction Details;
 - g. a linear dimensions are to be indicated in metres or millimetres;
 - h. a levels are to be in relation to the AHD (Australian Height Datum);
 - i. a slopes are indicated as a ratio (i.e. 1H:6V) or as a percentage (i.e. 25%).
3. Plans are to be submitted as portable document file (PDF) that can be printed at either A3 size or retains an appropriate scale when printed at A3 size.
4. The Landscaping site assessment should also address the following matters:
 - a. existing conditions being soil types, moisture conditions, services description and direction of prevailing winds and any other climatic conditions that may impact on the landscape works and other encumbrances such as easements;
 - b. where landscaping was previous approved on a site to be redeveloped an assessment of the quality of the vegetation and any failures that have occurred;
 - c. existing site plan demonstrating the location of:
 - i. remnant vegetation, wildlife corridors, rare and threatened species, tree groupings, significant trees, habitat trees including the botanical name and size of each plant, and the intention to retain or remove the plants;
 - ii. landscape features such as any views, ridgelines, rocky outcrops, scarred or carved trees, stone circles, earthen

- arrangements or bora grounds, rock art and places of cultural significance;
- iii. waterways, wetlands and dams on the land and within 30m on adjoining land;
- iv. existing buildings, site signage, landscape structures, storage areas, pedestrian or cycleways, accesses, driveways, parking areas, lighting, outdoor furniture and fencing, including height, width and materials;
- v. any sensitive land uses on adjoining and adjacent land;
- vi. contours related to the Australian Height Datum and spot levels, including levels at the base of all significant trees and hard landscaping surface levels to be retained;
- vii. existing services, stormwater drainage systems and easements;
- viii. any existing slopes, slope analysis, specifically greater than 15% slope, retaining walls, earth cuts or mounds to be retained or remediated, including existing height, width and materials;
- ix. land below the defined flood event (DFE).

SC6.7.2.4 Landscape plans

1. The purpose of a Landscape plan is to describe how the values and features identified in a site assessment are to be managed to meet the outcomes of the relevant planning scheme codes.
2. Landscape plans should deliver:
 - a. amenity outcomes;
 - b. functional and resilient landscaping for the life of the development;
 - c. efficient and sustainable ongoing maintenance regimes.
3. The Landscape plan, in addition to the site assessment requirements, should:
 - a. state the purpose, aims and objectives of the Landscape plan;
 - b. if a Landscape site assessment has been prepared, state its key findings;
 - c. provide justification for any proposed variation from the measures outlined in the related planning scheme code;
 - d. include details of any consultation that has occurred. Examples include any discussion with Council, state or federal agencies, technical consultants, and any stakeholders, including affected landowners and the public;
 - e. identify the parties to be responsible for any specific actions identified in the Landscape plan.
4. Identify any Planning related elements such as landscape screening, buffers or rehabilitation areas.
5. The Landscape plans and documentation should identify how the matters identified in the Landscape site assessment are to be addressed by the development.
6. The Landscape plans should be accompanied by an assessment against the applicable planning scheme codes including any justification for any non-compliance with the codes.

SC6.7.2.5 Landscape management plans

1. Landscape management plans should incorporate the following information:
 - a. location and name of existing trees and plant species;
 - b. soil type and moisture conditions;
 - c. location of drainage, sewerage and other underground services and overhead power lines;
 - d. details of landscape structure including areas of deep planting;
 - e. contours or spot levels if appropriate;
 - f. proposed surfaces;
 - g. where landscaping is to be carried out above a basement, podium roof or other upper level, the means of drainage;
 - h. fence size and material;
 - i. schedule of plants;
 - j. plan of watering system indicating method by which landscaping will be maintained.
2. A landscape management plan should also provide remedial measures on screening certain areas such as:
 - a. refuse areas;
 - b. untidy, waste disposal areas and the like;
 - c. interfaces to sensitive land uses;
 - d. areas or places with a clear line of sight into neighbouring living areas.
3. Restoration areas: A rehabilitation program should be prepared to restore degraded land. Provide a list of species to be re-established in disturbed areas. Restoration should be representative of original regional ecosystem structure and composition. Topsoil should be stockpiled to assist the restoration program and measures to prevent erosion losses from the stockpile should be implemented to reduce sedimentation of watercourses. Topsoil must be stockpiled to a maximum of 1.5m to reduce microbial breakdown.

SC6.7.2.5.1 Landscape plans

1. For smaller (residential scale) developments, a basic landscape plan may be a simple freehand sketch with notes identifying the intent of the landscape areas associated with the development.
2. For larger (multiple residential) or public and civic spaces a detailed landscape plan is required.
3. A concept landscape plan should:

- a. explain how the design responds to the site assessment or analysis;
 - b. identify the intent for the external spaces and landscape areas of the proposed development;
 - c. focus broadly on issues of character, function and amenity;
 - d. identify framework species for open space areas and road reserves.
4. A typical landscape plan should include:
- a. proposed location and function of public and private open space areas;
 - b. location of any buildings, structures, roads, accesses, site furniture and an indication of their form and character;
 - c. location of planting areas, buffers, screens, rehabilitation areas, any large garden bed areas;
 - d. delineation of hardscape areas such as roads, car park, pedestrian paths, accesses and exits (including site entry or gateway statements);
 - e. delineation of visual links, sightlines or view corridors;
 - f. identification of drainage and stormwater management site issues;
 - g. identification of any desired character themes if character themes are employed in the overall concept;
 - h. identification of proposed plant species to be used in all planting areas (e.g. native, exotic, feature planting, form and colour);
 - i. a description of how other elements of the Landscaping plan such as the detailed planting plan, planting schedule (species selection), maintenance schedule and (if applicable) open space management plan is integrated into the overall concept.

SC6.7.2.5.2 Detailed landscape plans

1. For a larger development such as subdivision, a detailed landscape plan is required, comprising a written statement supported by a graphical layout supported by explanatory notes.
2. A detailed landscape plan provides the detailed design drawings for all landscape works associated with a development. These plans also provide the information for pricing the works for construction. A detailed planting plan should include the following information:
 - a. location of all existing and proposed buildings, site signage, landscape structures, storage areas, pedestrian or cycleways, accesses, driveways and parking areas, lighting, outdoor furniture (where relevant) and fencing; including height, width, and materials;
 - b. locations of proposed plants and existing plants, significant or habitat trees to be retained;
 - c. location and total area of any vegetation to be cleared;
 - d. location and total area of remediation or rehabilitation areas;
 - e. landscape features and places of cultural significance to be retained or removed;
 - f. numbers and density of plants;
 - g. dimensions of planting beds;
 - h. materials of edging, mulch; surface treatments (e.g. grass, paving), fencing, pergolas and raised gardens;
 - i. maintenance and watering systems (e.g. drip irrigation);
 - j. location and landscape treatment of waterways, wetlands, detention basins, overland flow paths, field inlets, any land below the defined flood event (DFE) or the 1% ARI;
 - k. places of cultural significance to be retained on site;
 - l. any changes to slopes greater than 15%, such as earth cuts or mounds to be retained or remediated, including existing height, width, and materials;
 - m. spot levels, of finished hard landscaping surface levels including levels at the top and base of retaining walls and related to Australian Height Datum at a 0.25m interval;
 - n. landscape treatment of slopes greater than 10% including retaining walls height, width, and materials;
 - o. schedule and details of any embellishments (furniture, fixtures, signage, lighting, etc)
 - p. any changes to stormwater drainage systems;
 - q. any change to any existing services including mains, trunk infrastructure and on-site effluent disposal systems;
 - r. location, width, and purpose of all easements (i.e. existing or proposed);
 - s. location of street and median landscaping;
 - t. location and type of permanent methods for erosion control.

SC6.7.3 All landscaping works

1. The following list identifies the IPWEAQ Standard drawings for landscaping:
 - a. Active transport suite:
 - i. PCD-301 Bikeways - Standard Entrance Control;
 - ii. PCD-302 Bikeways - Featured Entrance Control;
 - iii. PCD-303 Bikeways - Slowdown Control - Reverse Curve;
 - iv. PCD-304 Bikeways - Entrance Control - Offset Chicane
 - v. PCD-401 Bikeways - Rest Rail Detail;
 - b. Fences, barriers & public furniture suite:
 - i. FBD-102 Fencing - Chain Wire Security Fencing;
 - ii. FBD-103 Fencing - Log Barrier & Alternative Hardwood Timber Bollard;
 - iii. FBD-104 Fencing - Locking Rail Types 1, 2, & 3;
 - iv. FBD-105 Fencing - Tubular Steel Fence With & Without Chain Wire;
 - v. FBD-106 Fencing - Welded Mesh Fencing And Control Fence;
 - vi. FBD-108 Fencing - Entrance Barrier - Single Swing Gate;
 - vii. FBD-109 Fencing - Entrance Barrier - Double Swing Gate;
 - viii. FBD-201 Stairs - Reinforced Concrete;
 - c. Home owner suite:
 - i. PCD-101 Pathways - Concrete Pathway - Construction Details;
 - d. Parks suite:
 - i. PSD-101 Street Trees - Street Tree Planting Details - Including Root Barriers;
 - ii. PSD-102 Street Trees - Street Tree Planting Details - Wide Median;
 - iii. PSD-103 Street Trees - Street Tree Planting Details - Narrow Median;
 - iv. PSD-201 Park Drainage - Sub-soil Drainage Details;
 - v. PSD-202 Park Drainage - Drainage Swale Details - Sheet 1 of 2;
 - vi. PSD-203 Park Drainage - Drainage Swale Details - Sheet 2 of 2;
 - vii. PSD-301 Paths & Edging - Typical Edge Details;
 - viii. PSD-302 Paths & Edging - Decomposed Granite & Asphalt Path Details;
 - ix. PSD-501 Recreational Facilities - Basketball Halfcourt - Plans & Post Sections - Sheet 1 of 2;
 - x. PSD-502 Recreational Facilities - Basketball Halfcourt - General Notes - Sheet 2 of 2;
 - xi. PSD-601 Recreational Facilities - Cricket Practice Net - Plans & Sections - Sheet 1 of 3;
 - xii. PSD-602 Recreational Facilities - Cricket Pitch Plans & Sections - Sheet 2 of 3;
 - xiii. SD-603 Recreational Facilities - Cricket Practice Net - Notes & Specification - Sheet 3 of 3
 - e. Roads suite:
 - i. RSD-200 Kerb & Channel - Profiles And Dimensions - Including Edge Restraints, Median & Channel.

SC6.7.3.1 Design principles

1. There are six key principles for landscaping works: Safety, Resilience, Environment, Character, Community and Economics. The principles should be used to guide development of all landscaping plans and detailed below.

SC6.7.3.1.1 Safety

1. Roads are dangerous environments. Any landscaping within road reserves must prioritise the maintenance of traffic and pedestrian safety. It is important however to ensure that safety controls are appropriate to the risks posed – busier and higher speed environments obviously require increased safety measures, but it would be inappropriate and unfortunate to limit landscaping interventions if not warranted.
2. The following key objectives guide safety outcomes:
 - a. improve safety in transportation of goods and people while minimising the impact on the environment, the community and wildlife;
 - b. improve safety through early planning and design processes that take consideration of maintenance and repair processes;
 - c. provide comfortable and safe areas for the community by implementing CPTED principles;
 - d. promote practical and effective connections for both vehicles and pedestrians (prioritisation of movements).
3. The following design principles promote safety:
 - a. select species that are frangible, particularly for high speed environments;
 - b. select plants species that have minimal limb-drop, particularly where adjacent to paths;
 - c. ensure tree spacing and plant placement do not hinder the operational requirements of lighting and road safety;
 - d. encourage low vegetation to maximise sight lines, particularly at intersections;
 - e. maximise natural surveillance by using low or permeable planting in areas of high public use;
 - f. use a combination of landscape and materials to raise awareness of changing environments, and to delineate

- pedestrian movements from vehicle movements;
- g. design road reserves to avoid areas for concealment and entrapment;
- h. divide or delineate vehicular traffic and crossings adjacent to pedestrian areas;
- i. observe tree height limits where adjacent overhead powerlines.

SC6.7.3.1.2 Resilience

1. There is an ever-growing need to create environments (including road reserves) that are more able to withstand change, adapt to changing conditions, and be repaired or rehabilitated following change. The particular risks must be identified and, to the extent appropriate, measures incorporated to withstand or avoid those risks and maximise community resilience.
2. Key objectives include:
 - a. promote drought and flood mitigation measures during early stages of design;
 - b. select materials that have high tolerances to different environmental conditions (sun, shade, water, heat or fire);
 - c. encourage the use of low flammable materials, including vegetation in bushfire prone areas.
3. The following design principles promote resilience:
 - a. select materials that can withstand instances of flooding for flood risk areas;
 - b. select plant species that are drought tolerant and can withstand inundation;
 - c. improve street tree locations to maximise opportunities for passive watering;
 - d. provide shade trees to enhance pedestrian connections and provide protection from the sun;
 - e. utilise appropriate species to attenuate stormwater flow;
 - f. utilise materials that are easily repaired or replaced when damaged;
 - g. select plant species with low flammability in bushfire prone areas, particularly for windbreaks;
 - h. create separation between groups of plantings to reduce spread of fires (minimise continuous vegetation in bushfire prone areas).

SC6.7.3.1.3 Environment

1. A region's environmental resources are critical in terms of ecological processes as well as the contribution they make to sense of place and amenity. The appropriate treatments are critical for maintaining the integrity and connectivity of the broader environment.
2. Key objectives for looking after the environment are:
 - a. increase and maintain the diversity of vegetation used in the road reserves;
 - b. provide linkages integral for fauna movement and ecological sustainability;
 - c. promote the use of recycled materials;
 - d. protect the region's soils and prevent erosion and salinity.
3. The following design principals are important to improving the environment:
 - a. to significant improvement of the habitat and biodiversity of an area;
 - b. enhance and protect ecological networks adjacent to natural sensitive areas and/or provide vital connections for wildlife;
 - c. promote the use of local and native plants in areas of high ecological value;
 - d. ensure fauna movements are addressed according to the relevant local and state policies;
 - e. include systems to aid treatment of road runoff before joining the stormwater systems;
 - f. include subsoil drainage in areas of poor draining conditions;
 - g. minimise the use of impervious materials to improve infiltration of water runoff;
 - h. include the use of energy efficient lighting.

SC6.7.3.1.4 Character

1. As some of the most visible and prevalent landscape types in the region, landscaping presents a unique opportunity for defining and reflecting the particular sense of identity and characteristics of an area.
2. The following design principles are important to maintaining places character:
 - a. mark gateways or entry points through providing feature planting;
 - b. maintain views to high amenity or scenic areas;
 - c. provide screening according to land use zones along road frontages;
 - d. consider the enhancement and integration with existing heritage places;
 - e. distinguish pedestrian movements from vehicular ones by selecting and using different materials to minimise confusion — pavement selections colours, footpath crossing over driveways;
 - f. include a family of elements to maintain consistency - use of species, colours, and materials that reflect culture and heritage of the area;
 - g. ensure placement of furniture or signage is suitable to the space available;
 - h. utilise vegetation (species, spacing, type) to provide passive wayfinding.

SC6.7.3.1.5 Community

1. Towns are made and formed by their communities. It is important to provide places that promote interaction and sense of ownership.
2. The following design principles are important to creating a sense of community:
 - a. provide strong links and accessible streetscapes for the community;
 - b. provide opportunities for seating and gathering to allow the community to meet and interact, and contribute to a sense of place;
 - c. promote the use of plant species suitable for the region which contribute to the education of the community;
 - d. provide adequate lighting to all paths and areas of pedestrian traffic, controlling light spillage;
 - e. locate parking areas where they provide significant value to the community and people passing through (e.g. travellers with caravans);
 - f. incorporate seating or signage as part of walls or other elements — reduce clutter on the road reserve;
 - g. seek to retain and enhance trees or other elements that have particular meaning for the community.

SC6.7.3.1.6 Economic viability

1. Landscaping treatments proposed must balance the desired outcomes with the initial investment and ongoing maintenance costs.
2. Promoting treatments which have manageable capital costs and can be effectively maintained is paramount.

SC6.7.3.2 Design

1. The Appendices provide a list of species that are suitable for:
 - a. preferred species, generally;
 - b. salinity tolerant species;
 - c. street landscaping;
 - d. screen landscaping.
2. The regional ecosystem classification for the site may assist in selecting plant species suitable to the location (refer to Regional ecosystem species listed on Council's website).
3. Key outcomes the policy seek to promote:
 - a. ecological restoration;
 - b. maintenance efficiency;
 - c. implementation of planting and design specific to location or place;
 - d. reinforcing street hierarchy through planting design;
 - e. enhancing existing character;
 - f. consistent use of materials and finishes;
 - g. visually appealing and connected spaces;
 - h. environmentally responsive planting according to the use of the area.
4. At construction, the developer is to provide all approved landscape including:
 - a. on-street landscaping, this includes street trees grass establishment to road verges, and landscaping of traffic islands and buffer landscaping;
 - b. public open spaces;
 - c. furniture and treatments for pedestrian and cyclist facilities (including seat benches, bins, pedestrian lighting, fences, bike racks and rails);
 - d. in road reserve landscaping works, including:
 - i. street landscaping including verge and tree planting and/or turf zones, street trees, traffic islands and roundabouts;
 - ii. screen landscaping buffers;
 - e. private (on lot) landscape including:
 - i. roof tops and podium level planning;
 - ii. on grade turf and planting zones;
 - iii. communal and recreation zones;
 - f. public Open Spaces including signage, furniture and playgrounds;
 - g. natural area restoration.
5. All landscaping work that will become a public asset will be subject to a strict assessment, on maintenance, off maintenance and bonding processes to ensure that the proposed works comply with the Planning Scheme.
6. Copper Chrome Arsenate (CCA) treated timber is not to be used for the construction of Council assets

SC6.7.3.3 Landscape plans for certain settings

1. Landscaping plans that are for screening or restoration areas should consider the location. Where development is occurring for example in a Conservation zone; Rural zone, or Special industry zone species used for buffers should be consistent with the regional ecosystem category as to thrive with minimal maintenance while achieving the requirements.
2. In urban areas consideration should be given to ongoing maintenance and the character of the locality. Planting plans

should demonstrate that 80% of the species are from the preferred species list for the location or be consistent with the regional ecosystem category. Character and street trees that are not native but relevant to the locality can form the remaining 20% of plantings.

3. Selections of species and densities must also consider other factors such as Natural hazards, risk and resilience assessments and management.
4. Detailed planting plans should consider specific landscape treatments, to address the outcomes of the relevant code. Landscaping treatments may include the following arrangements of planting for:
 - a. detention basins, waterways, wetlands, and dams should use preferred species listed for wetlands and riparian areas, respectively (refer to Appendices 1 to 5);
 - b. undesirable species listed should be considered at all locations to determine if a plant species is suitable for the location and activity (refer to Appendix 6).

SC6.7.3.4 Site stability

1. To ensure that landscapes provide for the stability of soils and minimise potential for erosion, landscapes are to be sited and designed to respond appropriately to site specific conditions in accordance with an approved landscape plan which addresses the following:
 - a. the removal of vegetation on steep, sensitive or unstable land does not undermine the stability of the land or impact unnecessarily on downstream conditions. Where vegetation is removed outside construction or project boundary, it shall be reinstated;
 - b. stabilising of plant species and supporting establishment materials to be utilised on erosion prone areas, such as batters, slopes and waterway and drainage line edges. Planting is to be at a sufficient density to support stability of the site and where soil is imported onto the site, soils used shall be well constructed and contain adequate organic material.
2. Erosion prone and degraded areas in an open space or proposed park (e.g. bare areas with a steep gradient, unstable slopes, compacted ground and habitat areas invaded by environmental weeds) is effectively stabilised and improved through rehabilitation works.
3. Rapid site capture is to only be used on sites where the only objective of the project is to rapidly stabilise or provide cover to a site. A high percentage of pioneer and early successional species are used in these projects, to obtain the quickest growth rates. Direct seeding is not a viable option in wet season where high intensity rainfall washes seed away.
4. Rapid site capture is to provide a quick environmental solution in an area in the shortest possible time with the least amount of input by using quick growing local species. By providing a canopy cover in the shortest possible time period is to reduce the site maintenance input and risk to the environmental values.

SC6.7.3.5 Site drainage

1. Grassed areas and paved areas are graded to ensure that drainage is directed to landscaped areas, stormwater inlets or to infiltration areas (e.g. natural wetlands or recharge areas) and not be channelled towards erodible batters, retaining structures, visitor and recreation facilities, or neighbouring properties.
2. Soil ground-water profile is recharged by directing subsoil drainage or swale drains to planting areas, with provision for overflow to the stormwater system.
3. Hollows are eliminated to prevent ponding, or field gullies are provided in low spots with connections to the stormwater system or infiltration areas.
4. Potential trip hazards by siting raised inlets in activity areas is avoided. The design of roads and car parks incorporates the principles of water sensitive urban design.
5. If required, bioretention swales are installed to polish and disperse drainage

SC6.7.3.6 Existing vegetation

1. To retain established landscape character, all trees located within existing road reserves are to be protected and retained unless approved otherwise by Council.
2. Existing vegetation is to be included as part of the landscape plan submission indicating information about the proposed treatment, classification and description of existing vegetation to be retained or removed.
3. Information about existing vegetation is to be provided in a tabular format and include:
 - a. position;
 - b. height;
 - c. diameter at breast height (DBH) — Tree Protection Zone (TPZ);
 - d. diameter at root flare, Structure Root Zone (SRZ);
 - e. identify dead and defective trees not worth keeping;
 - f. Botanic Name and Common Name (if known);
 - g. crown spread;
 - h. measurements taken in accordance with AS 4970 Protection of trees on development sites.
4. Existing trees with a trunk diameter of 150mm or greater are to be identified.

5. Existing trees located within a proposed new road reserve verge are to be protected. This may require the adoption of non-standard utility service alignments, as such designers are encouraged to discuss proposed solutions with Council.
6. The construction of roads, pathways, fire breaks and building setbacks on private lots adjoining the open space or park is preferred, particularly where:
7. there is a slope greater than 15% within the site;
8. continuous natural vegetation must be retained across the boundary between the site and the private property;
9. vehicle access to the proposed firebreak is restricted and future maintenance would only be possible using handheld equipment;
10. the firebreak has no strategic value for fire suppression or prescribed burning operations.
11. The removal of native vegetation to construct a firebreak or fire management line on Council owned land or Council managed open space or park to protect neighbouring properties may be approved by Council where no reasonable alternative is available.
12. Development that results in the removal of existing shade and street trees replaces these trees with vegetation identified in the Appendices 1 to 5 suitable to the location with 100L minimum stock size planted in sufficient quantity to achieve a total canopy area of at least 100% of the removed vegetation when mature.

SC6.7.3.6.1 Weed eradication

1. Restricted weeds are to be managed on site before planting in line with General Biosecurity Obligation. Any pest that would interfere with a planting is to be managed on site before a planting occurs.
2. The Lockyer Valley Biosecurity Plan has been developed as a requirement under the *Biosecurity Act 2014*. This plan identifies the roles and responsibilities of all stakeholders, including Council, state government and landowners. This plan also sets out guidelines for monitoring and evaluating pest management activities across the region.
3. The Lockyer Valley Region Biosecurity Plan specifies species that may not be approved for landscaping installation on Council land.

SC6.7.3.6.2 Weed control

1. Technical advice must be obtained before the commencement of the weed control program. Removal of all prohibited and restricted matter weeds is required from the site during site preparation and weed control works must continue during the landscaping maintenance period. Prohibited and restricted matter weeds are designated under the *Biosecurity Act 2014*.
2. Other environmental weeds must be removed from the site, subject to the following requirements:
 - a. Environmental weeds in the understorey must be removed progressively throughout the site establishment and maintenance period and replaced with desirable species. In some cases environmental weeds can be important in stabilising erosion prone areas or providing habitat for fauna, so a staged approach is necessary;
 - b. Large trees on the park site that are technically defined as environmental weeds must be assessed to determine whether they have other values, such as landscape amenity or heritage values. Valuable trees are to be retained and appropriately integrated in the site development.

SC6.7.3.7 Soils and growing media

1. Soils and growing media are to comply with:
 - a. AS 4419 Soils for landscaping and garden use;
 - b. AS 3743 Potting mixes;
 - c. AS 4454 Composts, soil conditioners and mulches;
 - d. AS 1289 Methods of testing soils for engineering purposes;
 - e. AS 1152 Specification for test sieves.

SC6.7.3.7.1 General requirements

1. It is preferred that soil on site is utilised and if required be blended or conditioned to attain the required specifications and should be tested by an agronomist or laboratory to recommend fertiliser, treatment, gypsum or requirements to get it to the appropriate standard. Soils need to comply with the following specifications:
 - a. friable and free draining;
 - b. good texture and structure for selected use;
 - c. acceptable conductivity and PH levels intended plant species group selected;
 - d. soil should be applied at the following depths, topsoil (turf and grass areas) 100mm, garden soils and planted areas 200mm;
 - e. soil composition must comply with Australian Standard AS 4419 Soils for landscaping and garden use. The soil must consist of the following composition:
 - i. sand 25-85%;
 - ii. silt 0-50%;
 - iii. clay 5 — 25%;

- iv. organic Matter >2%;
 - v. salinity (EC) <500 microsiemens/cm;
 - vi. pH 5.5 to 7.0.
2. Storage of soil for top dressing must consider fire ant control measures outlined by Biosecurity Queensland, be maintained to control weeds and stockpiled where wind dispersion will not cause concerns to neighbouring properties.

SC6.7.3.7.2 Soil quality

1. The quality of the growing medium for plants is of the highest importance for the success and longevity of the vegetation.
2. Local topsoil stripped from the site is favoured as it contains organic matter, beneficial microorganisms and mycorrhizal fungi which support plant life and is to be free from litter, weed propagules, contaminants and rocks larger than 25mm in diameter.
3. Imported topsoil, where the required quantity of local topsoil is unavailable, is to be incorporated and blended with site topsoil to achieve a healthy and active growing medium. Imported topsoil is to be similar to naturally occurring local topsoil and suitable for the establishment and ongoing viability of the selected vegetation, free of weed propagules and contaminants.
4. Imported soils (and garden mulches) are to be obtained from suppliers with Nursery Industry Accreditation Scheme Australia (NIASA), from the Nursery and Garden Industry Queensland (NGIQ), or accreditation from Landscape Queensland.
5. All necessary measures are to be taken to prevent fire ants (or any stages of the fire ant's life cycle) entering the work site. For further information, refer to the Queensland Government Department of Agriculture and Fisheries (DAF).
6. Podium and planter box soils (e.g., roof top gardens) are to consist of a lightweight mix based (to manage any structural limitations) on high quality horticultural products and organic matter (not greater than 30% by mass) that it has; good water holding capacity, a high cation exchange capacity and creates a structural framework that is not subject to decomposition or slumpage.
7. Local and imported topsoil are to be tested and proven to comply with AS 4419 Soils for landscaping and garden use, by a Certified Practising Soil Scientist (CPSS) and/or a soil scientist who is eligible for membership with the Australian Soil Scientist Society (ASSS) with sampling to be carried out in accordance with AS 4419 Soils for landscaping and garden use, at a NATA registered laboratory.
8. A CPSS and/or a soil scientist who is eligible for membership with the ASSS before requesting on maintenance inspection is to provide:
 - a. on maintenance report providing detailed analysis of the sampled material along with recommendations of required ameliorants (refer Table SC6.7-1: On Grade Soil depths and volumes);
 - b. certification that all works have been carried out in accordance with recommendations, with the soils being suitable for their specified use and for the establishment and ongoing viability of the vegetation; and
 - c. certification and photographic evidence of the required soil depths for all planting areas.
9. Table SC6.7-1: On grade soil depths and volumes provides minimum requirements in relation to soil depths and volumes.
10. Table SC6.7-2: Artificial growing media depths and volumes provides minimum requirements in relation to soil depths and volumes.
11. Specification for the landscaping soil mix are as follows:
 - a. approximately 70% sandy loam and 30% composted or mature organic matter;
 - b. friable and not contain any clay;
 - c. pH between 5.5 and 7.0;
 - d. free from contaminants such as the seed of declared weeds, rocks, sticks and salts;
 - e. not contain any chemical fertilisers.

Table SC6.7-1: On grade soil depths and volumes

LOCATION OR ELEMENT	SUBGRADE CULTIVATION DEPTH	AMELIORATED SITE TOPSOIL OR IMPORTED TOPSOIL COMBINED WITH AMELIORATED SITE TOPSOIL DEPTH
Trees	N/A	Tree planting pits are to be excavated to the depth of the rootball and cultivated to a width of 2-3 times the rootball diameter
Palms	N/A	Palm planting pits are to be excavated to twice the width of the rootball and the bottom of the pit is to be cultivated to a depth of 150mm
Mass planted areas	150mm	400mm
Turf areas	100mm	Minimum topsoil depth is to be 100mm
Tube stock	150mm	Minimum friable topsoil depth is to be 200mm

SC6.7.3.7.3 Soil salinity

1. Preparation of salinity-affected sites may include:

- a. adding gypsum to balance the high sodium levels in the soil;
 - b. deep ripping of sodic soil crusts to allow water, air and root penetration;
 - c. adding topsoil to replace soil that has been eroded due to saline conditions;
 - d. raising beds and installing drainage lines to provide areas that are not permanently waterlogged;
 - e. planting while the water table is low or planting trees around boggy areas first may be options on some sites so that planting does not occur in wet soil;
 - f. mulching to decrease evaporation and thus decrease the concentration of salt at the soil surface;
 - g. mulching to decrease the need for irrigation while the plants are establishing;
 - h. mulching to encourage micro-organisms and soil fauna such as worms that break down organic matter to release nutrients into the soil. Increased organic matter also improves the soil's water-holding capacity so that plants have a longer period in which to utilise soil moisture before it drains past the root zone into the groundwater system; and
 - i. adding mulch, fertilisers and soil conditioners to improve the likelihood of vigorous plant growth. Vigorous plants are more likely to overcome salty or boggy conditions and to maximise use of available rainfall and thus decrease leakage to groundwater systems.
2. When adding soil to reshape areas, create garden beds, or sound barriers it is important to ensure that water flow, both lateral and vertical, is not inhibited. A mound that is too steep may shed water faster in lateral flow before the water can infiltrate the root zone.
 3. Vertical water movement might be inhibited if soil with a different permeability is used for mounding or is placed over compacted soil. The new soil should be keyed into the existing surface rather than placed over compacted soil. This will help ensure that roots, nutrients, micro-organisms and water can move from the new soil into the former land surface.
 4. All imported soils should be tested to ensure that high levels of salt are not imported into the site.
 5. A lack of water and a restricted root zone may result in stunting and plant death.
 6. Site preparation should also consider the purpose of the area, as follows:
 - a. what activities are to be conducted in the area?
 - b. will there be much pedestrian traffic?
 - c. are there in-ground cables, drainage or sewer lines that could be affected by vigorous root systems?
 - d. are there overhead powerlines?
 - e. is the area for entertainment and leisure or does it have a specific function such as a roundabout?
 7. The design of the area and the plants chosen should reflect:
 - a. the site's use;
 - b. climate, aspect and soil properties;
 - c. the site's potential role in salinity processes and management.

SC6.7.3.7.4 Growing media

1. Priority is to be given to using existing site soil as imported soil is a limited resource. Existing topsoil is conserved by either not disturbing the soil during construction or by stockpiling it before construction starting. Subsoil is to be cultivated to a minimum depth of 150mm for garden beds and turfed areas unless this will adversely affect the roots of established trees.
2. The minimum topsoil depth is:
 - a. 100mm for non-irrigated turf areas;
 - b. 200mm for irrigated turf areas;
 - c. 400mm for garden beds;
 - d. 1,000mm over an area 1,500mm x 1,500mm for trees in deep-planting areas;
 - e. 400mm or 1.5 times the root-ball depth, whichever is greater, over an area of twice the root-ball diameter for trees supplied in pots or bags.
3. If more soil is required to meet these minimum depths, soil is to meet AS 4419-2003 Soils for landscaping and garden use.
4. The soil quality is sufficient to allow plants to grow effectively. Soil amelioration measures to improve the infiltration of existing soils, the soil's macropore and micropore balance and ensure a stable soil ecosystem, include the following:
 - a. scarifying crusted topsoil layers;
 - b. aerating topsoil layers;
 - c. deep ripping subsoil layers;
 - d. using hand tools only within the tree protection zone of a tree for retention;
 - e. applying gypsum to sodic clay topsoils and subsoils;
 - f. installing a 50mm layer of lucerne hay between the topsoil and mulch layer;
 - g. adding worms to the topsoil;
 - h. applying soil rhizobia in solution to the topsoil;
 - i. inoculating plants with mycorrhizal fungi;
 - j. incorporating soil wetters, crystals and wettable foams.
5. For artificial growing environments, growing media is to be selected to achieve best performance and sustainability of vegetation. Indicative soil depths and volumes for green elements are in Table SC6.7-2: Artificial growing media depths and volumes.

Table SC6.7-2: Artificial growing media depths and volumes

VEGETATION TYPE	GROWING MEDIA OR SUBSTRATE		
	SOIL BASED GROWING MEDIA		INORGANIC LIGHTWEIGHT MATERIAL AND DECOMPOSED ORGANIC MATTER MATRIX
	INTENSIVE GREEN ROOFS, CONTAINERS FOR TRELLIS SYSTEMS, RAKING GARDENS AND TERRACE PLANTERS		GREEN WALLS, EXTENSIVE GREEN ROOF, RAKING GARDENS
	MINIMUM MEDIA DEPTH (MM)	MINIMUM MEDIA VOLUME (L)	
Vines or scrambling species	400	100L for every 1m ² foliage at 100mm of thickness	Systems designed to achieve and maintain suitable organic matter, nutrient and water balance to sustain vegetation
Turf	300	Not applicable	
Sprawling groundcovers	300	50L	
Grasses and small shrubs to 600mm ¹	450	Minimum media depth x canopy projection	
Medium shrubs to 1m ¹	600		
Large shrubs to 3m ¹	600		
Small trees to 5m ¹	800	Minimum surface area of 1.5m x 1.5m or Height (m) x Calliper (mm)/100m ³ , whichever is greater	Not applicable

Note — ¹ Heights are measured at maturity of vegetation.

SC6.7.3.8 Mulch

- Mulch helps to reduce the growth of weeds, keeps soil temperatures more constant and helps to retain soil moisture levels. Mulching is beneficial if it covers the entire area rather than a ring around individual trees. Mulch is to be installed to a depth of 100mm and should be left just clear of the plant stem. Mulches are not suitable for use in areas subject to concentrated water flow unless covered by netting or suitably sized gravel mulch is used.
- In overland flow paths or areas subject to regular inundation, organic mulch must be replaced with a mulch treatment, such as riparian planting over an approved erosion control matting or coarse gravel or stones over an approved erosion control fabric.
- It is desirable that mulches be made and stored on site where suitable material is available.

SC6.7.3.8.1 Types

- Natural forest mulch to be used in 'natural planting areas only, such as screen landscaping or park planting or restoration areas. It should be installed to a minimum 100mm compacted depth, free from rocks, nut grass, and any other invasive weed. Where abundant biomass is present from sprayed grasses and weeds, the sprayed vegetation may be considered a suitable mulch by Council, without the requirement for additional commercial mulch.
- Organic mulch must be provided consistent with AS 4454 Composts, soil conditioners and mulches in the open space in the following situations:
 - moisture retention and weed suppression is required in garden beds and around the base of trees.
 - grass performance is poor, or mowing is impractical (e.g. around the base of mature figs).
 - the space between trees or other structures (e.g. signs) is less than 3m and mowing are impractical.
 - a non-grassed surface is required (e.g. around and under some visitor facilities).
 - habitat rehabilitation is desired and/or grassing is not desired.
- Loose particle mulches must comply with the following requirements:
 - particle size range 5mm to 50mm
 - minimum depth:
 - garden beds, 75mm;
 - restoration areas, 50mm;
 - final mulch grade 25mm below edge treatments;
 - free of weeds, soil, sticks and rocks;

- e. binding qualities to minimise dispersion by the elements or slope;
 - f. durable - minimum 12 months effective longevity;
 - g. remains pervious.
4. The following mulch composition or origins are not acceptable;
 - a. sawdust;
 - b. non-organic material;
 - c. treated or painted timber; and
 - d. noxious or undesirable weeds.
 5. Organic mulch matting is required for loose particle mulches on steep or unstable slopes.
 6. Organic mulch matting must comply with the following requirements:
 - a. Natramat TM, 3mm coir fibre mat with latex bonding, or approved equivalent;
 - b. Biodegradable;
 - c. durable - effective longevity minimum requirement, 12 months (Maintenance period);
 - d. stake to secure effectively;
 - e. overlap edges, layer with the direction of flow to prevent lifting;
 - f. cut holes to locate containerised plant stock; and
 - g. repair accidental cuts by staked patches.
 7. The following mulch matting products are not acceptable:
 - a. non-organic material;
 - b. nylon meshes or wire net binding.

Editor's note—Refer to LCD-3 for typical restoration area mulches, LCD-4 for typical garden bed mulches.

SC6.7.3.8.2 Implementation

1. All garden beds are required to be mulched.
2. Mulch must be sufficiently composted and stored, to not bind and lead to water shedding.
3. Mulch is kept free from the stem or the trunk of a plant to a minimum distance of 100mm radius.
4. Mulch is free of foreign matter including rock, soil, weeds and sticks.
5. Mulch in a garden area and at the base of a tree has a minimum depth of 100mm.

SC6.7.3.9 Turf

1. Turf supplied is to be:
 - a. cultivated lawn turf (A and B grade) is to be supplied by an accredited Turf Accreditation Program (TAP) producer;
 - b. turf is to be of good quality, free from oxalis (*Oxalis* spp.), nut grass (*Cyperus rotundus*), paspalum (*Paspalum* spp.) (unless specified for salt tolerance), and other environmental weed and/or invasive plant species; and
 - c. turf is to be delivered within 24 hours of cutting.
2. Open space areas or park must be grassed or as otherwise specified in the approved landscape design and report drawings.

SC6.7.3.9.1 Preparation

1. Before turfing, all weeds are to be killed by spraying a suitable non-residual aquatic friendly suitable glyphosate-based herbicide. Sprayed areas are to remain undisturbed for two weeks.
2. Topsoil is to be uniformly applied to provide an average thickness of 50mm with a minimum compacted thickness of 25mm at any location and graded to even-running contours, so that no ponding or waterlogging occurs across the surface of the grassed area.
3. Stones and boulders that could become a hazard if thrown by mowing equipment must be removed, or alternatively the hazardous items are covered with at least 100mm of topsoil. Topsoil profiles prepared for turfing or grassing must be free of harmful material e.g. sticks, tree roots, and stones greater than 25mm in diameter. Ensure new areas are married into existing levels and set downs for hard surfaces are specified. Holes and depressions must be filled, and trip hazards rectified during the establishment and maintenance period.
4. Fertiliser should be applied before to laying turf at a minimum rate of 350kg for each hectare, subject to specific site conditions, soil analysis and desired outcomes.
5. Topsoil is to be raked before turf is laid. Turf is to be laid in straight lines with staggered cross joints on the general line of the contour of the slope. The gaps between adjacent sections of turf should not exceed 5mm.
6. The prepared surface is to be watered within 24 hours before to turfing at an application rate of 10mm of water in not less than 1 hour. Watering is to be carried out in such a way as not to cause any scouring or erosion.

SC6.7.3.9.2 Condition

1. The turf is to be supplied as rolls in long lengths of uniform width, not less than 300mm, and be in sound unbroken
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condition.

2. The moisture level in the cut turf should be kept consistent so that it is not saturated or severely dried out when laying. Both situations can cause turf to fall apart during laying.

SC6.7.3.9.3 Installation

1. Turf must be supplied and installed in compliance with the following minimum requirements:
 - a. minimum quality 'A' grade, 85% dominance of winter green couch except where on dispersive or saline soils;
 - b. minimum 25mm turf sod, delivered moist and laid within 24 hours of cutting on farm;
 - c. ensure ground preparation is carried out., with removal of undesired weeds and grasses;
 - d. once turf has been laid, it must be rolled and irrigated;
 - e. if required low spots to be top dressed and levelled after first mowing.
2. Turfed areas must be larger than 10m x 10m. A minimum gap of 3m between trees and/or other structures (e.g. signs) is provided in turfed areas to allow for mowing. Use a grass species that best suits the local conditions and proposed level of use.
3. Stabilising strips of turf must be laid in overland flow paths or areas subject to regular inundation, alongside pathways, and around visitor facilities and sport and recreation facilities.
4. A light top dressing is to be worked into the open joints between the turf and then the turf lightly rolled with one pass of a roller weighing about 80kg on a 1m width of roller.
5. On steep slopes turf may be held in position by softwood pegs or stakes, located at each end of the turf sections.
6. At least 80% grass cover must be achieved before acceptance 'on maintenance'.
7. After watering, a lawn pesticide is to be applied at the rate specified by the supplier and in accordance with the Agricultural Chemicals Distribution Control Act and Agricultural Chemicals Distribution Control Regulations.
8. Watering is the application of 10mm of water to the total area in not less than 1 hour including any natural rainfall. The frequency of watering is to comply with the following requirements in Table SC6.7-3: Watering schedule for turf.

Table SC6.7-3: Watering schedule for turf

PERIODS AFTER TURFING	WATERING
Immediately	Once
Week 1	Once every second day
Weeks 2 to 4	Three times each week
Week 5 until necessary	Twice a week.

9. Acceptance is to be the achievement of an even green colour with a dense continuous sward over the whole area. Turf is to show signs of healthy growth and be free of weeds, stones, sticks and other deleterious material. Maximum deviation from finished ground levels 50mm in any 2m.

SC6.7.3.10 Seeding

1. Seeding must use basic green couch mix and be carried out by:
 - a. reliable broadcast method;
 - b. scarifier or direct drill;
 - c. purpose built hydroseed or mulch mixer and pump.
2. All seeding methods must ensure that the following requirements are met:
 - a. selected seed is viable and not environmentally harmful;
 - b. application rates are adequate to provide full cover.

SC6.7.3.10.1 Preparation

1. Before grass seeding, all weeds are to be killed by spraying a non-residual aquatic friendly suitable glyphosate-based herbicide. Sprayed areas are to remain undisturbed for two weeks.
2. Before grass seeding, the ground surface is to be lightly turned to a depth of 100mm below finished surface levels. All large stones, rubbish and other materials that may hinder germination is to be removed before topsoiling.
3. Topsoil is to be uniformly applied to provide an average thickness of 75mm with a minimum compacted thickness of 40mm at any location and graded to even-running contours, so that no ponding or waterlogging occurs across the surface of the grassed area.

SC6.7.3.10.2 Installation

1. Fertiliser should be applied following seeding at a minimum rate of 350kg for each hectare, subject to specific site conditions, soil analysis and desired outcomes.
2. Seed and fertiliser should be applied at an even rate using a calibrated disc drill seeder followed by a chain and roller.
3. Discs should cut approximately 12mm and create enough friable material for chains to cover the seed.
4. Where one pass fails to develop enough friable material a second pass should be made in a transverse direction.
5. Watering is the application of 10mm of water to the total area in not less than 1 hour including any natural rainfall. The frequency of watering is to comply with the requirements in Table SC6.7-4: Watering schedule for seeding.

Table SC6.7-4: Watering schedule for seeding

PERIODS AFTER SEEDING	WATERING
Immediately	Once
Week 1	Twice a day during hot dry windy periods; or Once a day during cool or overcast periods
Weeks 2	Once a day
Weeks 3 & 4	Once every second day
Week 5 until necessary	Twice a week; or As necessary to ensure 80% minimum strike rate.

6. Acceptance is to be the achievement of a minimum vegetative cover of 80% of both the annual and perennial grass cover over the whole area. Grassed areas are to show signs of healthy growth and be free of weeds, stones, sticks and other deleterious material. Maximum deviation from finished ground levels 50mm in any 2m.
7. Minimum germination and cover requirements are:
 - a. 75% germination after 2 months;
 - b. 80% coverage is to be achieved and maintained for a minimum period of 6 months before acceptance off maintenance;
 - c. method of coverage is even;
 - d. ground preparation is consistent with seeding method;
 - e. soil moisture levels are maintained before and after seeding to promote strong germination and establishment;
 - f. weed competition is eliminated or sufficiently maintained.
8. All traffic to be kept off seeded areas during establishment. Failed seeded areas must be re-sowed promptly to ensure that adequate germination levels are likely to be reached.

SC6.7.3.11 Hydroseeding and Hydromulching

1. Identify reference Australian Standards;
 - a. AS 4454-2003 Composts, soil conditioners and mulches;
 - b. National Seed Quality Standards for Basic and Certified Seed

SC6.7.3.11.1 Preparation

1. Before hydromulching all weeds are to be killed by spraying a non-residual aquatic friendly suitable glyphosate-based herbicide. Sprayed areas are to remain undisturbed for two weeks.
2. Grass species chosen need to suit the local conditions and proposed level of use. Stabilising strips of turf shall be laid in overland flow paths or areas subject to regular inundation, alongside pathways, and around visitor facilities and sport and recreation facilities.
3. Topsoil profiles prepared for grassing shall be free of harmful material e.g., sticks, tree roots and stones greater than 20mm in diameter. Holes and depressions shall be filled, and trip hazards rectified during the establishment and maintenance period.
4. Stones that could become a hazard if thrown by mowing equipment shall be removed, or alternatively the hazardous items are covered with at least 100mm of topsoil.
5. Batter slopes less than 20% are to be lightly cultivated to a depth of 100mm to produce a loose surface and all large stones, rubbish and other materials that may hinder germination are to be removed before topsoiling.
6. Where batters have been stepped, the steps are to be loosely filled with topsoil. Elsewhere, topsoil is to be uniformly applied to provide an average thickness of 75mm with a minimum compacted thickness of 40mm at any location.
7. Dry surfaces are to be watered by a fine spray before the application of the hydromulch.

SC6.7.3.11.2 Installation

1. The slurry mixture of mulch, binder, fertiliser and seed is to be kept in a homogeneously mixed state throughout the

- mulching operation.
2. During preparation of the hydromulch, a liquid form pesticide may be added to the storage tank, to facilitate surface application. Application rates should be in accordance with the manufacturer's instructions.
 3. Other protective treatments (e.g. fibre matting, anionic bitumen emulsion etc) are to be as specified on the approved drawings.
 4. Hydromulch is to not be applied under the following weather conditions:
 - a. when temperature is higher than 35°C;
 - b. when winds exceed 15 km/hr;
 - c. where the surface is too wet; or
 - d. during rain periods or when rain appears imminent.
 5. Watering is the application of 10mm of water to the total area in not less than 1 hour and include any natural rainfall. The frequency of watering is to comply with the requirements in Table SC6.7-5: Watering schedule for hydromulch

Table SC6.7-5: Watering schedule for hydromulch

PERIODS AFTER GRASSING	WATERING
Immediately	Once
Week 1	Twice a day during hot dry windy periods Once a day during cool or overcast periods
Weeks 2	Once a day
Weeks 3 & 4	Once every second day
Week 5 until necessary	Twice a week or as necessary to ensure 80% minimum strike rate.

6. A follow up fertiliser treatment is to be applied to 4 — 6 weeks after germination has occurred. Fertilisation should be a product that provides the following elements:
 - a. Nitrogen (N) 13%;
 - b. Phosphorus (P) 4%;
 - c. Potassium (K) 12%.
7. Acceptance is to be subject to the achievement of a minimum vegetative cover of 80% of both the annual and perennial grass cover over the whole area. Hydromulched areas are to show signs of healthy growth and be free of weeds, stones, sticks and other harmful material.
8. The rate at which the mulch is applied is dependent on slope and is to be consistent with the below Table.

Table SC6.7-6: Hydromulching material and application rates (for each 1,000m²)

SLOPE	< 5%	5% - 10%	10% - 15%	15-20%	> 20%
Pulped Paper	200kg	120kg	120kg	140kg	200kg
Baggage (Wet weight)	200kg	400kg	500kg	700kg	800kg
Cane Fibre (Alternative to baggage)	200kg	200kg	300kg	400kg	500kg
Fertiliser	50kg	50kg	50kg	50kg	50kg
Seed	5kg	5kg	5kg	5kg	5kg
Water	8000L	8000L	10,000L	12,000L	18,000L
Binder: Curasol Enviro tack	5L 3kg	5L 2kg	7.5L 3kg	15L 4kg	30L 5kg
Mulch Thickness	1-2mm	2-3mm	2-4mm	2-4mm	4-6mm

SC6.7.3.12 Irrigation

1. Irrigation systems must be designed to an agreed life, either short term to assist with landscape establishment, or long term for ongoing park maintenance. Systems providing ongoing maintenance will only be accepted in high profile metropolitan parks and sport parks or landmark or signature point parks. The system must follow a Council approved design, manufactured and installed to highest Council and industry standards. Irrigation systems that make use of recycled water or stormwater are preferred. At least one tap must be installed next to or within each landscaped area and

- garden bed that will require periodic watering. All trenches need to be backfilled with sand.
- Where there is reticulated water supply, automatic irrigation systems are to be provided to all garden beds constructed within road reserves, parks and open space as part of the development works. Where specifically required within the development conditions issued by Council, irrigation systems will also be required to be provided to grassed areas within parks and sporting fields. The irrigation systems are to comply with the requirements defined below and AS 3500 Plumbing and drainage (set). Drainage for gardens contained within the road pavement is to link to the established drainage systems and be of sufficient design to cater to the leached water. An impermeable membrane to 900mm depth is to surround the perimeter of gardens to prevent leaching of water into the road subgrade.
 - Reticulated water is to be provided to irrigation systems from a water meter and backflow device consistent with Urban Utilities standards. Payment of costs associated with irrigation water used to establish and maintain the planting during the maintenance period is to be made to Urban Utilities before Council will accept the development Off Maintenance.

SC6.7.3.12.1 Irrigation controllers

- Irrigation controllers must be installed in a metal cabinet that is lockable, easily accessible for maintenance and inspections.
- Irrigation controllers must be connected to a 240V power supply. Approval and associated fees with connection are to be paid by applicant before Council will accept system off maintenance. Minimum standard for irrigation controllers is as follows:
 - controller is required to have an operating voltage of 12 to 24 volts with the ability for full automation and manual settings;
 - has the ability to host dual programming with the ability of a 7-day cycle;
 - provide a pump or master valve circuit that can operate a combination of valves;
 - wiring of controller must be contained in conduits with excess wiring provided in valve boxes for future expansions.
- All documentation relating to the irrigation system must be provided to Lockyer Valley Regional Council before being accepted on maintenance. Documents include:
 - "As Constructed" drawings showing the location of all irrigation components and sizes of connecting pipework;
 - a schedule of all equipment installed including brand names and model numbers;
 - operation manuals for system controllers;
 - warranty documentation applicable to the system;
 - proposed watering program for the irrigation system.

SC6.7.3.12.2 Irrigation rates

- Irrigation rates of the irrigation system should be set to consider different plant types that have been planted as a part of the landscape plans, e.g. native species require less water than exotics. To conserve water, any irrigation system must be operated efficiently.
- When setting the irrigation system, the following apply:
 - apply water at a rate so that it does not pond or create run off;
 - do not apply water when the soil is already adequately moist to sustain plant growth, whether because of rain or other watering;
 - apply water in such a manner so that it does not fall on buildings or hard surfaces and run to waste;
 - do not apply water in windy conditions where the distribution pattern for the irrigation or sprinkler systems will be affected;
 - apply water only to gardens that are sufficiently mulched to reduce evaporation;
 - apply water to only lawns that have been laid on soil underlay with a minimum depth of at least 100.

SC6.7.3.12.3 Irrigation system

- Where permanent irrigation is required to effectively maintain the development landscape, because of species chosen or harshness of the microclimate, an irrigation system is to be installed, tested, and commissioned by an irrigation consultant.
- Irrigation works are to be designed and installed utilising best management practices whilst taking into consideration future maintenance costs to the asset owner and the safety of the asset users.
- All below ground pipework is to be unplasticised Poly-vinyl Chloride (uPVC) unless otherwise approved. All pipes are to be Class 12 minimum with Class 18 fittings.
- All above ground pipe work is to be copper tube (hard drawn) Type D manufactured in accordance with AS 1432 Copper tubes for plumbing, gas fitting and drainage applications.
- If a separate irrigation system within the verge is desired, the developer will be required to pay all installation costs, which include:
 - connection to water supply;
 - installation of 25mm diameter (typical) backflow prevention device;
 - installation of pipework and pop-up sprinklers;

- d. installation of solenoid valves and automatic controller.
6. Where required, temporary irrigation is to provide establishment watering up to a point where the landscape can survive wholly dependent on rainfall.
7. The property owner or applicant is to decommission all temporary irrigation before acceptance of works Off maintenance. All temporary irrigation is to comply with water conservation requirements (water restrictions, demand management and water security strategies etc) and designed in such a way to ensure public safety and limit risk of vandalism (i.e., under surface installation where possible in public areas).

SC6.7.3.12.4 Irrigation pipework

1. All below ground pipework is to be unplasticised Poly-vinyl Chloride (uPVC) unless otherwise approved. All pipes are to be Class 12 minimum with Class 18 fittings.
2. All above ground pipe work is to be copper tube (hard drawn) Type D manufactured in accordance with AS 1432 Copper tubes for plumbing, gas fitting and drainage applications.

SC6.7.3.12.5 Site stormwater harvest capacity

1. The harvesting of stormwater allows the capture and reuse of stormwater for non-potable uses. Stormwater can be captured from carparks, roads, parks, gardens, and footpaths. Capturing and reusing stormwater reduces the volume of contaminated stormwater entering local waterways, providing a benefit to the local environment.
2. The planning, design and implementation of stormwater drainage integrates the two distinct components of stormwater management (i.e., water quantity and water quality). The stormwater drainage system must:
 - a. prevent or minimise adverse social, environmental and flooding impacts on the city's waterways, overflow paths and constructed drainage network;
 - b. ensure that the design of channel works uses natural channel design principles where possible;
 - c. design developed by qualified engineer.
3. Stormwater quality management is to be addressed through a development proposal when looking at capturing site stormwater.
4. When considering capturing site stormwater harvesting, stormwater quality improvement devices must be included in the development proposal.

SC6.7.3.12.6 Stormwater harvesting and storage systems

1. The harvesting of stormwater allows the capture and reuse of stormwater for non-potable uses. This not only provides a valuable water resource, but it also helps with the management of stormwater quality. Capturing and reusing stormwater reduces the volume of contaminated stormwater entering local waterways, reduces the frequency and the magnitude of frequent runoff events.
2. The Water by Design Stormwater Harvesting Guidelines are to be referenced for additional technical guidance. The adoption of any stormwater harvesting off take system must not adversely affect adjacent flood levels.

SC6.7.3.13 Planting

1. Planting complies with:
 - a. AS 4419 Soils for landscaping and garden use;
 - b. AS 3743 Potting Mixes;
 - c. AS 4454 Composts, soil conditioners and mulches;
 - d. AS 4373 Pruning of amenity trees;
 - e. AS 2303 Tree stock for landscape use.
2. A thorough landscape specification is essential in delivering sustainable landscape works.

SC6.7.3.13.1 Planting preparation

1. In preparation and planting, the following is to be undertaken:
 - a. all rubbish, rubble, environmental weeds and invasive plants, grass and debris shall be removed from planting areas before planting;
 - b. all landscape gardens to turf interface areas associated with the turf verge are to be delineated with a durable hard edge able to withstand brush cutters;
 - c. establish a minimum 100mm of composted forest mulch (which is a combination of leaf, timber and bark) to all garden areas immediately after planting, soil laden tub grindings will not be accepted;
 - d. all necessary measures are to be taken to prevent fire ants (or any stages of the fire ants life cycle) entering the work site. For further information, refer to the Queensland Government Department of Agriculture and Fisheries (DAF);
 - e. landscaping shall not obstruct overland flow paths and is to include adequate drainage to minimise ponding. Mulch or

- any floatable material is not located in swales or overland flow paths;
- f. landscaping shall not encroach onto kerb and channel, footpaths, pedestrian or vehicular circulation areas during any stage of growth. Plants are to be positioned with consideration to full height and width potential of the plant at maturity, with no requirement for constant pruning to prevent such encroachments;
- g. landscaping shall not restrict access to services. Refer to appropriate utility service provider for any specific requirements and further guidance;
- h. do not plant during adverse weather conditions. Suspend excavation when the soil is wet and during frost periods;
- i. appropriate plant spacings are to be provided to avoid establishment problems and plant failure due to over embellishment. Plant size at maturity is to be considered to ensure minimal or partial overlap of other plantings. Other matters to be considered should include the species' spread and habit, to minimise undesirable issues. An over embellishment of plants in a small area forces plants to compete for nutrients, whereby they can struggle to establish;
- j. nursery stakes, ties and labels are to be removed after planting. Where appropriate and safe, nursery stakes may be required to remain for a longer period to provide ongoing support. These supports are to be removed by the end of the maintenance period;
- k. plantings are to be setback from paths of travel so as to not interfere with pedestrians;
- l. plantings are to be watered before transportation to the site;
- m. where transporting large trees, the tree/s are to be covered to prevent sun and wind scorch or burn;
- n. during loading and unloading damage in handling is to be avoided.

SC6.7.3.13.2 Planting

1. All plants are to be planted at the as detailed on the approved drawings and unless otherwise specified.
2. Plants are to be arranged to ensure an even and attractive coverage of vegetation across all planting areas and provide:
 - a. visual interest;
 - b. way finding;
 - c. shade;
 - d. screening;
 - e. weed suppression.
3. Planting areas ensure that public safety is not compromised.
4. Planting is to be carried out as soon after delivery to the site as possible. All containers, unless fully biodegradable, are to be removed at the latest point before planting.
5. Root systems and mature height and width of the vegetation are to be considered to reduce the imposition on adjoining pathways, roads, infrastructure or services and structures. Similarly, the choice and planning of shrubs and trees is to be undertaken with care to ensure that sightlines and safety for users of the landscape spaces are not compromised.
6. Backfilling around plants, the soil is to be lightly firmed to ensure intimate contact with the roots, but with large material successive layers of soil will need to be lightly firmed as backfilling proceeds.
7. Ensure the plants are held securely by the soil but not so that moisture penetration of the soil is restricted. After planting, damaged, dead, diseased or crossing branches are to be removed by pruning.
8. Plants should be watered directly after planting before to spreading of mulch. The mulch is to be left clear of the plant stem.
9. To ensure establishment, all trees are to be appropriately staked with hardwood or recycled plastic stake, extending into the ground to a depth of 500mm. Do not allow the stake to penetrate the root ball. Trees are to be loosely supported from each stake by hessian tree tie (refer IPWEA Standard drawing, PSD-101 Street Trees - Street Tree Planting Details - Including Root Barriers).
10. Mulch is to be aged forest and hardwood woodchip, stockpiled for a minimum of 6 weeks, free from rocks, non-biodegradable and toxic material. In paved footpath planters it is to be installed to a depth of 75mm, in tree guards, traffic islands and mulched, mass planted garden beds within parkland and reserves to a depth of 150mm depth.
11. Natural forest mulch to be used in 'natura' planting areas only, such as screen landscaping or park planting or restoration areas. It should be installed to a minimum 150mm compacted depth, free from rocks, nut grass, and any other invasive weed.
12. Tea-tree mulch is prone to combustion and must not be used unless permission is obtained from Council.
13. All plants are to be watered, immediately upon planting, and as required by soil moisture conditions for the first thirteen weeks. The use of slow-release drip irrigation watering is recommended.
14. Weed and grass growth in mulched areas are to be killed by treatment with herbicide in accordance with the manufacturer's instructions at monthly intervals during the construction period and contract maintenance period. Contact of the herbicide with the new plants are to be avoided and any damage repaired, or damaged plant material replaced.
15. Watering is the application of 10mm of water to the total area in not less than 1 hour and include any natural rainfall. The frequency of watering is to comply with the requirements in Table SC6.7-7: Watering schedules for plants (generally).

Table SC6.7-7: Watering schedules for plants (generally)

PERIODS AFTER GRASSING	WATERING
Immediately	Once

Week 1	Twice a day during hot dry windy periods Once a day during cool or overcast periods
Weeks 2	Once a day
Weeks 3 & 4	Once every second day
Week 5 until necessary	Twice a week or as necessary to ensure 80% minimum strike rate.

SC6.7.3.13.3 Acceptance on maintenance

1. Acceptance is to be subject to achieving the following criteria. Plants which do not meet the acceptance criteria are to be replaced. Replacement plants are to be of similar size and quality and of identical species and variety to the plant being replaced.
 - a. Plants are to exhibit signs of healthy growth;
 - b. Plants are to be well formed;
 - c. Plants are to be free from disease or insect pests;
 - d. Plants are to be free of physiological disease symptoms (yellowing, wilting etc);
 - e. Mulch is to be free from weeds, sticks, rubbish and other deleterious material.

SC6.7.3.13.4 Plant selection

1. All plants are to be obtained from a nursery located in an area having a similar climate to the site of the works.
2. Planting design within urbanised areas positively contributes to the amenity of the development and to the diverse subtropical character and ecology. Planting palettes are required to:
 - a. suit the conditions and landscape character of the area and minimise use of potable water for irrigation;
 - b. avoid plants which have high maintenance and irrigation requirements, are short lived or require regular replacement;
 - c. provide shade and shelter to increase user comfort in public and semi-public spaces and provide suitable solar access;
 - d. favour local and “cultivar” native plants with moderate use of suitable non-invasive exotic species. The hierarchy of plant species (in preferred order) is as follows:
 - i. Lockyer Valley natives;
 - ii. Australian natives;
 - iii. non-invasive exotic species;
 - iv. plants not included in the planting index that meet criteria set out in this section.
 - e. be devoid of plants with large thorns or spines, which are poisonous or present a severe allergy risk to the public;
 - f. avoid invasive plants;
 - g. use exotic palms as an emergent rather than dominant landscape feature and use species are right for the location, consistent with their natural character and occurrence;
 - h. provide visual interest through form, texture and variations in seasonal colour;
 - i. provide compatibility with buildings, hard paved areas, overhead and underground services and scale relative to the size and nature of the development and its setting.

SC6.7.3.13.5 Salinity plant selection

1. Some areas will require salt-tolerant plants while others will require plants that can also tolerate very wet conditions.
2. There are techniques to ensure that lawns are not exacerbating salinity problems. For example:
 - a. adjust lawn mowers to their maximum (rather than minimum) height to allow grass to grow longer. Therefore, roots will penetrate deeper into the soil to access water and lawns will require less regular irrigation. An added benefit is that the soil is more protected from the sun so that evaporation, and thus concentration of salts at the soil surface, is limited;
 - b. use a more water-efficient turf. Turf suppliers recommend a few Buffalo varieties as being very water-efficient and drought-tolerant. Couch is often observed growing around the edges of salt scalds and is therefore likely to be salt tolerant;
 - c. install an efficient irrigation system. A timed irrigation system connected to water sensors will ensure that water is applied in an accurate manner and overwatering is prevented. Water sensors will detect soil moisture and turn off the irrigation system once soil moisture reaches the required level. Irrigation systems will remain off during periods of rainfall. Irrigation frequency and duration may also be reduced during winter. The level of moisture required will depend on plant needs, soil type and climate, so the irrigation program must be calibrated for the specific site conditions.

SC6.7.3.13.6 Plant stock size and quality

1. All plant species are to be as detailed on the approved drawings. Council approval is to be obtained to substitute species.
2. All tree stock used within the landscape works is to conform with the stock selection criteria outlined in AS 2303 Tree

- stock for landscape use, with an understorey of shrubs and ground covers within edged and mulched garden beds. Stock shall be healthy, vigorous and not pot bound.
3. The supervising landscape consultant is to submit a Tree Inspection Form (example available from AS 2303 Tree stock for landscape use) to Council before request for on maintenance.
 4. Containerised plant stock must be installed in compliance with the following requirements:
 - a. minor root canopy where required;
 - b. evacuate sufficient size planting holes, backfill with suitable soil, whilst allowing for normal long term root development;
 - c. position plant to ensure upon settlement top of the root ball is level with final grade;
 - d. stake plants as specified or where required — allow for removal of stake before completion of maintenance period;
 - e. fertilise and maintain plants to promote vigorous growth.
 5. Trees for street planting and carparking must confirm with the following specifications:
 - a. minimum container size — 45 litre container;
 - b. minimum single truck clearance — 1m (street and carparking), 1.7m (roundabouts);
 - c. minimum trunk calliper — 20mm;
 - d. minimum overall height — 1.2m;
 - e. minimum canopy — 0.6m (balance and well formed).
 6. Shrubs are to have a minimum container size of 4.5 litre or 200mm container.
 7. Groundcovers are to have a minimum container size of 1.3 litre or 140mm container.
 8. In existing centres and neighbourhoods, all trees are to be advanced stock material, with:
 - a. street trees a minimum stock size of 200L and a minimum height of 3.5m;
 - b. feature trees a minimum stock size of 200L and a minimum height of 5m when planted.
 9. All trees to have a minimum clear trunk of 1.8m measured from the top of the tree grate, porous paving or finished soil level where planted in garden beds or turf, to the lowest branch.
 10. Transplanting ex ground stock must be carried out as follows:
 - a. plant material is authorised for removal under statutory requirements;
 - b. staged root and canopy pruning is carried out to minimise setback;
 - c. specimen may require repeat treatments of rooting hormones to stabilise plants and stimulate regrowth;
 - d. root ball is wrapped and protected to prevent disturbance throughout procedure;
 - e. standard maintenance program is upgraded to accommodate for careful monitoring throughout establishment.
 11. Plants used are to be local, native species, however Council recognises the cultural association of some exotic species in urban areas and may approve their use.

SC6.7.3.13.7 Water sensitive urban design

1. Where water sensitive urban design principles are incorporated into the landscaping design, development is in accordance with the Water Sensitive Urban Design (WSUD) Technical Design Guidelines for South East Queensland Healthy Waterways (Water by Design Guidelines).

SC6.7.3.13.8 Planting schedule and preferred species

1. All Landscaping plans should identify the species of plants to be used, by means of a Planting schedule.
2. A plant schedule should include the following information:
 - a. a graphic code or key (nominated on the landscape plan);
 - b. scientific names of plants are to be in alphabetical order;
 - c. common names of plants;
 - d. height and spread at maturity;
 - e. plant size (including pot or container size);
 - f. quantity of each species to be used.
3. The schedule should be organised and categorised according to the type of planting represented. For example: trees, shrubs, ground covers, grasses etc.
4. The planting schedule should also reflect the preferred plant species identified in the Appendices.
5. The plant species included in Appendices 1 to 5:
 - a. are plant forms that contribute to the landscape character of Lockyer Valley;
 - b. are not exhaustive and should not rule out the use of other plant species that meet the purpose of this planning scheme policy;
 - c. introduced plant species which may be appropriate to the character of localities for landscaping;
 - d. are to be selected by suitably qualified persons to ensure they are appropriate for the specific site conditions and application.
6. The plant species included in Appendix 6: Undesirable plant species:
 - a. are plant species that are undesirable for a singular or number of reasons;
 - b. some undesirable species may be suitable in some circumstances;
 - c. suitably qualified persons should ensure species are suited to the location and type of development;
 - d. are not an exhaustive list.
7. Tiered plantings

- a. tiered plantings should be used where possible to maximise the effectiveness of landscaping. For example, a two-tiered planting should consist, as a minimum, a mixture of small trees and low shrubs. A three-tiered planting should consist of tall trees, medium shrubs, and groundcovers;
- b. the preferred plan species tables are to be used as a guide when establishing tiered plantings;
- c. the requirements and composition of tiers should be site specific.

SC6.7.3.14 Maintenance

1. A maintenance schedule, as part of the Detailed landscape plan and Planting Schedules, should be provided for all works to be dedicated to LVRC.
2. A Maintenance schedule should consider the future use of the land and long-term maintenance of the landscaping by the end user. The maintenance schedule is directly related to landscape and plant establishment works and an integral part of the overall Landscaping plan.
3. Different zone settings may affect the maintenance standards to be applied. The following maintenance standards should be considered for the various planning scheme zones:

Indicative Level of Maintenance	Relevant Zone
Highest level of maintenance	Open space zone; Sport and recreation zone
Higher maintenance	Emerging community zone; Low density residential zone; Low-medium density residential zone; Rural residential zone
Minimal maintenance	Community facilities zone; Local centre zone; Major centre zone; Principal centre zone; Township zone
Low to no maintenance	Industry zone; Special industry zone
No maintenance or keep close to nature for restoration or rehabilitation areas	Conservation zone; Rural zone; Limited development zone

4. The maintenance program addressing softscape and hardscape, is to reinforce the overall philosophy and objectives of the landscape design and is to include accepted horticultural practices and best practices necessary to establish the proposed landscape works in the noted maintenance period. Such information is useful in assisting in the assessment of the proposal and to direct any future management programs.
5. As part of the maintenance schedule, the following elements should be addressed:
 - a. identify the key maintenance tasks;
 - b. define the type and frequency of maintenance required for each task;
 - c. estimate recurrent maintenance tasks and costs.
6. The estimated costs of maintenance will be taken into consideration when bonding landscaping works.
7. The maintenance program is directly related to landscape and plant establishment works and is usually included in the accompanying specification.
8. Maintenance periods:
 - a. maintenance schedules should identify timeframes for the various landscaping stages, including establishment, maintenance, on maintenance and defects;
 - b. off Maintenance period commences on acceptance of final inspection at the end of the specified or approved maintenance period;
 - c. periods are as follows, although these may vary according to the setting:

Table SC6.7-8: Maintenance periods for landscaping

TYPE OF DEVELOPMENT	ESTABLISHMENT PERIOD	MAINTENANCE PERIOD	DEFECTS PERIOD (HARDSCAPING)	DEFECTS PERIOD (SOFTSCAPING)
Major development works (e.g. subdivisions creating than 5 lots, large commercial or industrial, street landscaping; screen landscaping; park works)	3 mths	12 mths	12 mths	12 mths
Minor development works	3 mths	3 mths	3 mths	3 mths
Restoration works	Refer to Planning Scheme Policy SC6.1 Biodiversity			

SC6.7.3.14.1 Water

1. Water used to establish and maintain the grassing is to have a pH of between 5.0 and 8.0, a total soluble salts concentration less than 1,000mg/L and contain no chemicals or compounds toxic to growth.

SC6.7.3.14.2 Damaged, dead and dying plants

1. The developer is responsible for replacing all dead and dying plants that are damaged, dead or dying within the establishment period.

SC6.7.4 Street landscaping works

1. The aim of street tree planting is to provide:
 - a. an attractive streetscape with character and charm. An individual character may be obtained by using a specific tree species for each street;
 - b. shade, and the reduction of heat and glare from the road pavement and assist in cooling during the summer months;
 - c. habitat provision and enhancement occurs by using native flowering trees that provide a source of food and shelter for insects, birds and animals.
2. An avenue of trees of identical species and size planted at regular intervals has far greater visual and aesthetic impact than a mis-matched selection of incompatible trees. To promote continuity in new streetscapes, a single species should be nominated for each street.
3. Where development occurs in an established street, an assessment of the existing trees will assist to determine the most appropriate species for verge planting.

SC6.7.4.1 Road types and location of the trees

Table SC6.7-9: Strategies for street landscape typologies

LAND USE CATEGORY	STRATEGIES
Non-urban	Maintain view lines through appropriate selection of plants; Plant trees to frame views; Ensure new vegetation does not block views of existing features; Locate new roads around significant vegetation; Roads are to be widened in one direction in order to maintain roadside vegetation on a least one side; Maintain wide verges incorporating drainage swales; Maintain flush kerbs for natural drainage; Supplement existing vegetation with informal clusters of street tree planting of native species; Roundabout should incorporate native trees and shrubs; Road shoulders should be grassed to enable slashing; Kerb and channel and nature strips are avoided to reduce costs and maintain non-urban character; Encourage wide verges with grassed or planted swales; Utilise run off from surrounding property to irrigate vegetation; Incorporate footpaths and cycle ways on main routes to centres and community facilities; Utilise existing road side vegetation for shade to pedestrians; Supplement existing vegetation with informal street tree and mass planting of native species; Provide off road recreation trails on rural collector and arterial roads for safety and amenity.
Urban	Street trees are to be incorporated into the road landscape where possible; Where a street contains overhead power lines, shade trees and a footpath are to be located on the opposite side of the street; Encourage the provision of wider verges or medians where possible to allow for street tree planting; Utilise drought tolerant native plants; Utilise low maintenance plants that do not require regular pruning; Discourage the use of high fences adjacent to street so as to optimise surveillance and access from adjacent residential development to the street; In locations where fences are required, mitigate the visual impact through landscape planting treatments; Provide pedestrian permeability at the end of cul-de-sacs with casual surveillance; Maintain native vegetation in new developments where possible; Reinforce existing native vegetation by planting indigenous species; Improve access to community facilities with appropriate streetscape treatment and pedestrian access; Define local identity through gateway tree planting and neighbourhood parks; Provide shaded paths on at least one side of every street for pedestrians; In existing development where wide verges are present, incorporate grassed or planted swales; In new development, incorporate flush kerbs with bollards for water drainage into streetscape bioretention systems.
Industrial	Retain appropriate vegetation in new developments; Incorporate large scale street trees in road verges and kerb build outs; Utilise planted medians; Provide appropriate locations for bus stops with shade and seating; Provide shaded pedestrian and cycle paths integrated with public transport routes;

	<p>Incorporate wide verges for planted swales and detention basin in new development; Incorporate storage for appropriate water reuse; Incorporate localised detention basins in existing development where possible; Utilise flush kerbs and swales to roadside for streetscape bioretention systems</p>
Centres	<p>Reduce car priority and road speed by reducing lane widths and increasing verge widths to allow for tree planting; Combine street tree planting with other street furnishings such as seating and lighting; Utilise street tree species that contribute to the character of the centre; Create a streetscape that highlights the natural and cultural qualities of the local area to establish a strong identity; Use drought tolerant plants; Use low maintenance plants that do not require regular pruning; Incorporate street trees into the street landscape to achieve continuous cover of the tree canopy over the footpath at maturity; Widen verge space and incorporate kerb build outs or medians where possible to allow for street tree planting; Convert existing garden beds into localised detention basins by breaking through kerbs in low points for water drainage into garden beds; Incorporate permeable paving into hard stand areas; Provide for irrigation from tank supply and or passive collection of runoff.</p>

SC6.7.4.2 Design principles

1. The six key principles for landscaping works: Safety, Resilience, Environment, Character, Community and Economics apply to all road types. The principles should be used to guide applicant on the expected standards to be achieved when developing future road reserves, and improving existing road reserves. Promote consistent management and implementation of renewal strategies that are consistent with the guidelines.

SC6.7.4.3 Design specifications and standard drawings

1. Streetscaping must be incorporated into landscaping within the verges or medians of new roads in a subdivision. Detailed working plans of the landscaping must be lodged with the engineering documentation as part of an Operational Works application.
2. Design must satisfy the following criteria:
 - a. planting is in scale with streetscape;
 - b. street trees are not planted within 6m of light poles;
 - c. plants are not placed at access points;
 - d. plants must not obstruct access to services;
 - e. planting has limited species variation;
 - f. earthworks are not carried out within proximity of existing vegetation;
 - g. all street gardens including roundabouts and medians must be provided with an automatic irrigation system;
 - h. subsoil drainage must be provided between all street gardens and the road pavement;
 - i. pedestrian access must be maintained around, and where applicable through, all street planting;
 - j. visibility lines ensure that the minimum stopping distance for vehicular traffic is maintained, assuming the plantings have grown to full maturity.
3. Works must also incorporate:
 - a. stabilisation of unstable slopes with retainer wall treatments and revegetated appropriately;
 - b. stable slopes will be rehabilitated using minimal maintenance grasses and/or revegetation techniques;
 - c. road verges including table drains in rural areas are grassed with a minimum aerial coverage of 80 percent before acceptance off maintenance. The grass coverage must also have been significantly established and maintained for a minimum period of twelve months before acceptance off maintenance. Bank slopes of drains to be no steeper than 1 in 6 where this can be accommodated and where there is insufficient space, no steeper the 1 in 4 (also refer the Queensland Urban Drainage Manual). Turfed areas are to be accessible by industry standard mowers and shaped in such a way as to accommodate these machines;
 - d. acoustic barriers to be provided for all new roads with design traffic greater than 5,000 AADT where the abutting properties are residential and have an average lot area less than 2,000m².
4. Roundabouts and large traffic islands must only include feature landscaping within higher profile roads, refer to IPWEAQ Standard drawings:
 - i. PSD-101 Street Trees - Street Tree Planting Details - Including Root Barrier;
 - ii. PSD-102 Street Trees - Street Tree Planting Details - Wide Median;
 - iii. PSD-103 Street Trees - Street Tree Planting Details - Narrow Median.
5. Typically, full area decorative concrete finishes should be used for smaller and/or lower profile traffic islands, roundabout and traffic calming.

6. Large roundabouts to include a maintenance vehicle set down pad as one of the design features.
7. All roundabouts to have a 1.5m wide decorative concrete surround (to provide improved buffer zone between maintenance workers and traffic).

SC6.7.4.3.1 Edging

1. Edging shall be installed in accordance with the relevant standards at the interface of grassed and mulched landscape areas (excluding individual trees and remnant natural vegetation). A concrete edge shall be constructed around gardens and landscape beds where there is no adjacent wall, pathway and/or pavement area. The concrete edge kerbing shall be constructed in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel, Type ER4.
2. A timber edge can only be installed where the tree and shrub canopy will extend well beyond the mulched edge as plants mature. For example, a timber edge is acceptable around habitat rehabilitation areas, and landscaping that includes a prominent tree canopy (natural areas), but not garden beds.
3. Mulched areas that adjoin grassed areas shall be shaped to allow easy mowing by tractor-drawn mowing equipment. The edging shall be straight, or with long sweeping curves. Corners shall be between 45° and 90°. Acute corners and repetitive short radius (snake-like) bends shall be avoided.

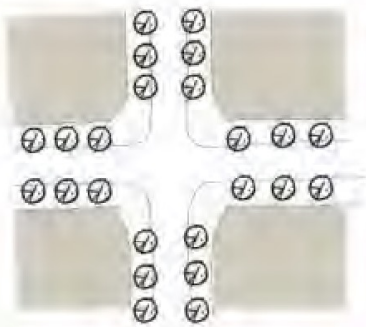
SC6.7.4.3.2 Entry statements

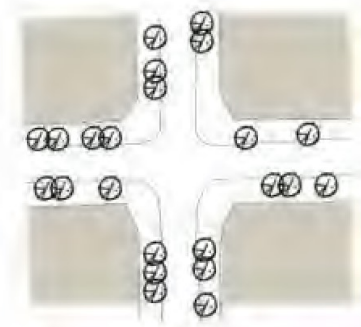
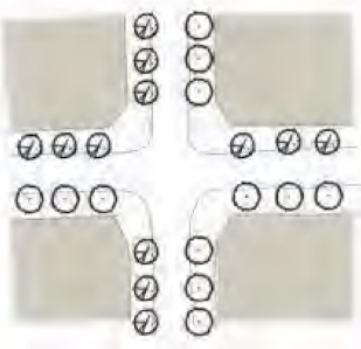
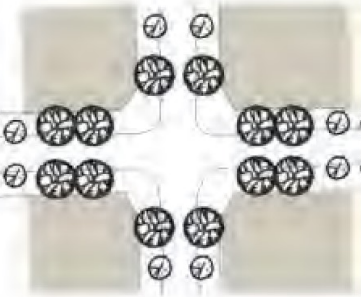
1. Entry statements or signage and the planting associated with these are to be:
 - a. contained within the private land of the developments. Including land that is planned future Council controlled land; or
 - b. on existing or future Council controlled land where there is an established private maintenance agreement and at the finalisation of the development, such planting is removed, and turf established (at no cost to Council) before final handover to Council.
2. Where an entry statement involves structures over 1m high or retaining walls or other works or landscaping, provide detailed design drawings showing all works and services needed for the entry statement. All drawings of all structures, including retaining walls must be certified by an RPEQ competent in structural design of such structures.
3. All entry statements must be designed as low maintenance structures.
4. The Council reserves the right to remove any entry statement without notice once the development has been completed.

SC6.7.4.4 Verge design standards

1. Verges designs are to provide a consistent, functional and attractive streetscapes and:
 - a. provide a high standard of landscape design;
 - b. encourage landscaping appropriate to the local context by introducing a location-based planting approach;
 - c. reduce heat island effect in urban areas;
 - d. provide landscaping that can be effectively maintained;
 - e. minimise conflicts with infrastructure, services and other Council's assets.
2. This section introduces general requirements for offsets and clearances for street tree placement and landscaping. The final placement of trees must consider relevant guidelines from Austroads and DTMR Road landscape manual (where appropriate).
3. Council may consider variation to these requirements if it can be demonstrated that the placement of the tree will not impact on existing infrastructure or compromise the safety of road users and pedestrians.

Table SC6.7-10: Street design configuration

DESIGN	DESCRIPTION	EXAMPLE
Formal	Single species at regular intervals suitable for urban and core setting with large road frontages and uniform street conditions.	 <p>The diagram illustrates a formal street design configuration. It shows a top-down view of a street layout with four rectangular blocks. Trees are represented by circular symbols with a diagonal slash, arranged in a regular grid pattern along the road frontages of each block. The spacing between trees is uniform, and they are planted in a consistent manner across all blocks, demonstrating a formal and regular planting scheme.</p>

<p>Informal</p>	<p>Single or mix of species at irregular intervals. Planting to single verge or both sides of the carriageway dependent on road type. Suitable for urban, transition and rural setting.</p>	
<p>Asymmetrical Planting</p>	<p>Combination of species planted at regular intervals. Suitable for roads with limited space (width or height) due to placement of infrastructure e.g. powerlines.</p>	
<p>Feature Planting</p>	<p>Use of local and/or exotic species to highlight key areas like intersections, roundabouts, estate entries which are highly visual.</p>	

SC6.7.4.4.1 Verges and medians

1. All existing and proposed street trees in verges are to be shown on the landscaping plan.
2. For existing verges less than 1.6m in width, Council is to be contacted during the concept planning stages to discuss suitable species for street trees. Street trees are best suited for verges greater than 1.6m width (refer to IPWEAQ Standard drawings, PSD-101 Street Trees - Street Tree Planting Details - Including Root Barriers). Table SC6.7-11: Minimum width requirements for planting areas outlines the appropriate landscaping treatments.

Table SC6.7-11: Minimum width requirements for planting areas

LOCATION	MINIMUM WIDTH	LANDSCAPE TREATMENT
<p>Street verge planting</p>	<p>Less than 0.6m</p>	<p>Hardscaping</p>
	<p>0.6m—1.2m</p>	<p>Turf or groundcovers</p>
	<p>1.2m—2m</p>	<p>Small to medium trees</p>
	<p>More than 2m</p>	<p>Medium to large trees</p>
<p>Median planting</p>	<p>Less than 0.6m</p>	<p>No landscape treatment. Median to be paved or concrete infilled</p>
	<p>0.6m—1.2m</p>	<p>Turf or groundcovers</p>
	<p>1.2m—2m</p>	<p>Shrubs and small trees Centrally located in the median</p>

	More than 2m	Medium to large trees Centrally located in the median
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3. All verges are to be covered full width with topsoil to a depth of not less than 100mm and be lightly compacted and grassed or turfed.
4. As a minimum all rural verges are to be in a mowable condition, free from rocks and loose stones, and graded to even-running contours. Where higher levels of pedestrian activity the turf should be have an even and smooth surface suitable for walking without risk of trips and falls.
5. Where there is a small area for landscape planting on the verge between the property boundary and a footpath, planting may be accepted as an alternative to turf subject to Council approval.
6. Tree planting within the verge is to be clear of underground services.
7. Understorey planting (small shrubs, ground covers and grasses) shall be typically less than in 600mm high.
8. Understorey planting should consist of mulched planted areas consisting of:
 - a. small shrubs no greater than 2m apart;
 - b. groundcovers no greater than 1m apart.
9. Council will not be held responsible for plant replacement if excavation of underground services in required in a landscaped verge. Maintenance of landscape planting in the verge is the sole responsibility of the adjacent property owner or occupier.
10. Medians suitable for low level landscaping to be minimum 2m wide. The tree canopy width is to match median width or be a maximum of 6m wide whichever is smallest (canopy must not extend beyond median width)
11. Provide a minimum 500mm wide mulch strip from back of kerb for ease of maintenance access Include design guidelines from Street trees guide.
12. Trees under overhead power lines to be maximum height of 4m and must follow Energex Safe Tree Planting Guidelines.

SC6.7.4.4.2 Set out from kerb

1. Street trees are planted 650mm from the back of kerb for verges up to 4.25m wide, and 850mm from the back of kerb verges greater than 4.25m wide in accordance with IPWEAQ Standard drawings:
 - a. RSD-601 Public Utilities - Typical Service Corridors & Alignments;
 - b. RSD-602 Public Utilities - Typical Service Conduit Sections;
 - c. RSD-603 Public Utilities - Optic Fibre Pit.
2. Street tree setback from kerb is greater for industrial streets, to accommodate the prevalence of larger vehicles along the kerbside.
3. The location must accommodate the ultimate size and shape of the tree.
4. Street trees in areas that do not have a kerb are located a minimum of 1.5m from shoulder edge of the road seal.

SC6.7.4.4.3 Planting frequency

1. In the centre zones - one street tree is planted for every 10m along road frontages provided.
2. In other urban areas and rural residential areas - one street tree is planted for every 15m along the frontages of the site.

SC6.7.4.4.4 Planting locations

1. Tree planting is to be consistent with IPWEAQ Standard drawings:
 - a. PSD-101 Street Trees - Street Tree Planting Details - Including Root Barriers;
 - b. PSD-102 Street Trees - Street Tree Planting Details - Wide Median;
 - c. PSD-103 Street Trees - Street Tree Planting Details - Narrow Median;
2. The location and placement of street trees is measured from the tree's base and estimated ultimate trunk size.
3. Table SC6.7-12: Separation distance between street trees and road furniture provides the setbacks that apply to tree placement as a minimum. These dimensions may be varied depending on the speed of the road and other site-specific constraints.

Table SC6.7-12: Separation distance between street trees and road furniture

ROAD ELEMENT	DESCRIPTION	SEPARATION DISTANCE
Intersection	distance from projected line of the intersecting kerb line on approach side	15m
	distance from projected line of the intersecting kerb line on non-approach	7m
Clear zones	NO tree planting within areas identified as clear zones.	0.5m

	Sightlines maximum mature height of vegetation directly on triangle sightlines	
Stormwater inlet pit	distance from nearest edge of pit structure	2m
Paths or garden edges	minimum distance from path or garden edge	0.6m
Traffic light	distance from signal pole	Greater than 10m
Pedestrian crossing	distance from outer edge of crossing on either side	15m
Streetlight	minimum horizontal distance from pole to mature canopy edge	5m
Street signs	horizontal distance from a road sign on approach	10m
	horizontal distance from a road sign on departure	3m
Bus stops	distance from bustops on approach	20m
	distance from bustops on departure	6m
Power lines; pad mounted transformer; fire hydrants; Telecommunication poles or pillars	maximum height of mature planting located under powerlines	4m
High voltage transmission lines	Minimum clearance under transmission lines	Greater than 4m
Tree trunk	vertical clearance from underside of canopy to top of horizontal surface	2.5m
Access crossover	distance from any part of the access crossover	3m
Property service connections (e.g. roof drainage, gas, sewer, water, telecommunications or electricity)	distance from	1.5m

4. Landscaping plantings near intersections, pedestrian facilities and bus stops are to be limited to low plantings (species that do not grow higher than 500mm) to ensure visibility of sight lines of motorists and pedestrians are not restricted.
5. Figures SC6.7-1 to SC6.7-3 graphically represent some of the required clearances for street tree planting along the verge and the median. Clearances must be confirmed for each planting project depending on actual site constraints.
6. Practices that disfigure the shape of the tree must be avoided to ensure it can grow in a healthy and safe condition. The intention of the following layout considerations is to maintain consistency and uniformity across the region these layout considerations apply to all road types regardless of urban setting.
7. Single street trees are planted at a spacing no less than one for every 6m of allotment frontage. Clusters and pairs of trees are at minimum 2m centres.
8. Large-crown feature trees are planted in areas no smaller than 7m x 6m, at minimum 10m spacing.
9. Upright feature trees are planted in areas no smaller than 5m x 5m.

Figure SC6.7-1: Clearance zone along street verge

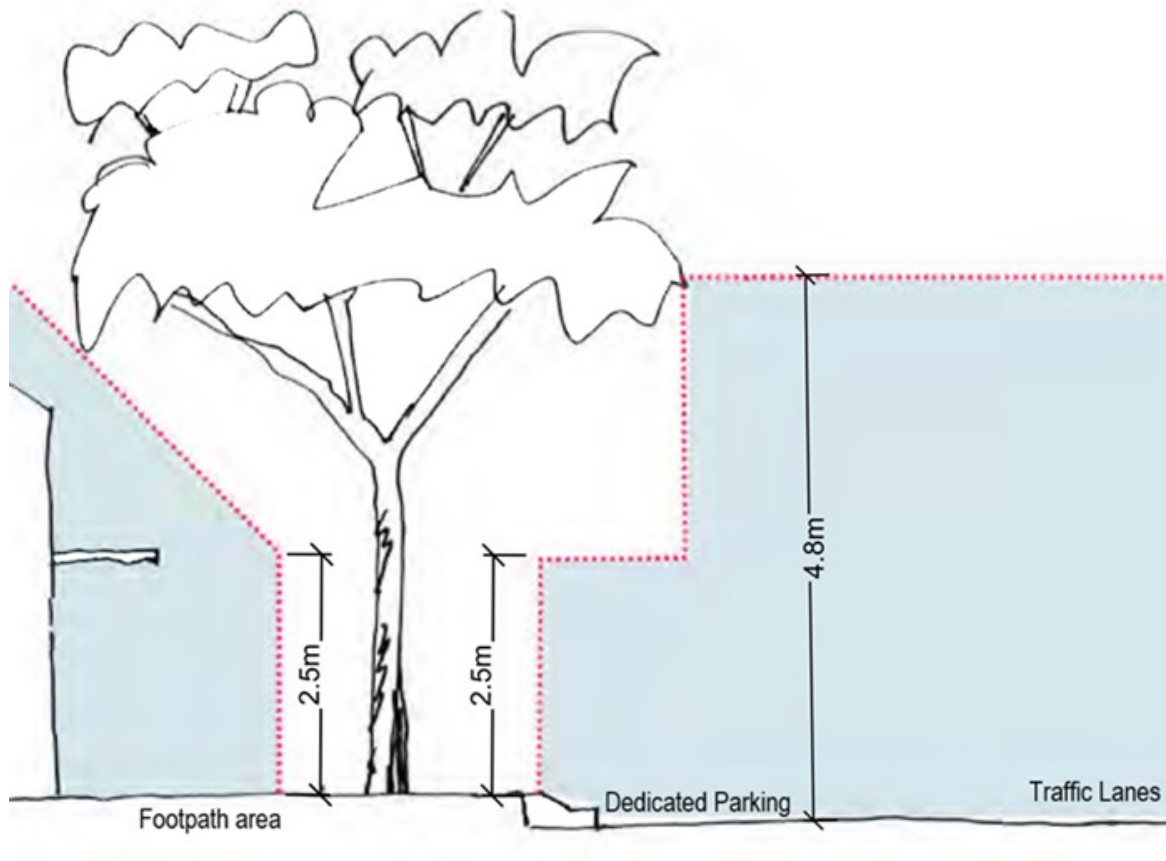


Figure SC6.7-2: Clearance zone along street medians

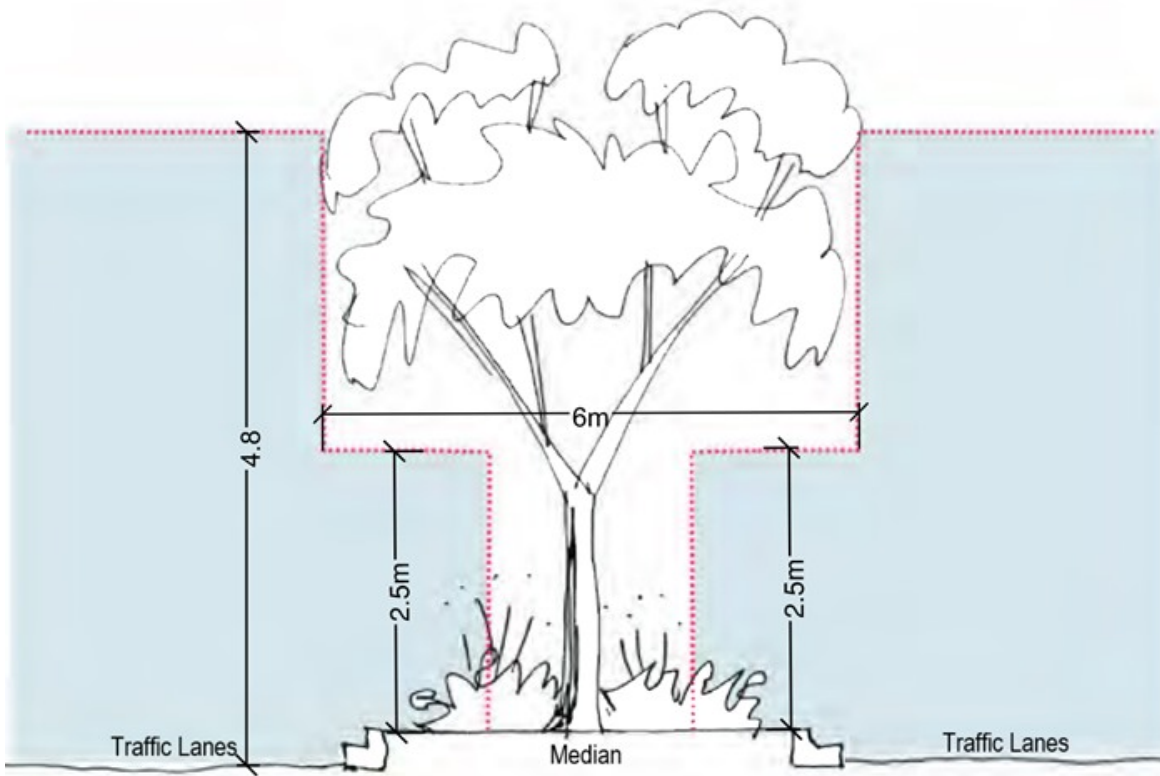
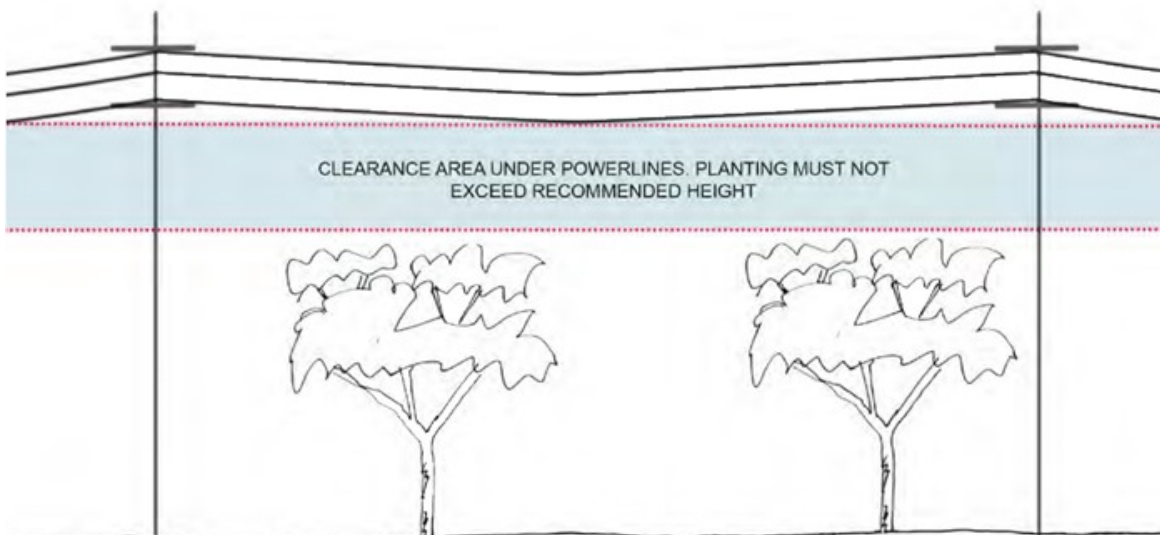


Figure SC6.7-3: Clearance zone under powerlines



SC6.7.4.5 Existing and replacement street trees

1. Existing street trees are to be retained and protected unless removal is approved by Council.
2. Replacement street tree planting is to achieve a no net canopy areas loss.

3. Developers are to work with Council to accommodate any other proposed construction works around existing street trees.

SC6.7.4.6 Species

1. The recommended plant species have been incorporated due to their suitability to the region's soils and microclimates. The list focuses on native species due to their habitat advantages. The selection of plants provided cover a range of applications such as conservation, habitat, urban setting, visibility, frangibility and low maintenance to name a few.
2. Plants not included in the list may be considered upon review by Council for their application, environmental benefits to the area and ensuring they meet the associated road safety requirements. Other characteristics required for appropriate tree selection are aspect, drainage, overhead wires, underground services, setbacks from buildings and hard elements.
3. Determining the space available for planting is essential in the selection of the most suitable species for the road reserve planting.
4. Consideration of the mature height and canopy of the trees is paramount when designing a new road and/or refurbishing an existing road.
5. Tree species to be used generally are listed in Appendix 3: Preferred street tree species. Tree species are to be selected for their suitability to the site conditions (e.g. small trees under power lines, drought resistance, soil suitability).
6. Plant species to be used in specific townships are listed in Appendix 4: Town streetscaping.
7. Plants are to have a consistent growth rate and form in accordance with AS 2303 Tree stock for landscape use.

SC6.7.4.7 Planting

SC6.7.4.7.1 Tree pits

1. All tree planting must be in natural or improved soil profiles containing subsoil layers.
2. Trees must have adequate soil quality and quantity to grow to their optimum within the particular location.
3. The location of existing services should be verified before excavating the tree hole. Consideration must be given to the location of underground services, street lights, and traffic signs.
4. Tree pits should be a minimum of 1m deep with a 1.2m x 1.2m square from the back of the kerb, where there is no companion planting bed is not provided.
5. Where a companion planting bed is to be provided, the excavated area is to be a minimum of 1.2m wide from the back of kerb with a minimum length of 2m but not more than 3m.

Note—Planting on the verge does not contribute to the calculation of deep planting required on private property.

SC6.7.4.7.2 Irrigation

1. Reticulated irrigation is discouraged unless provided for the tree establishment period only and sourced from non-potable water.

SC6.7.4.7.3 Root barriers

1. Root barriers are to be positioned on either side of the street tree where there is a footpath, or the tree is within 2m of services, sewer and infrastructure (refer to IPWEAQ Standard drawing, PSD-101 Street Trees - Street Tree Planting Details - Including Root Barriers).
2. Root barriers are not used as a response to bad species choice or inadequate root zone space.
3. Root barriers deflect roots, and do not work unless the top side of the deflective is above the surface.

SC6.7.4.7.4 Street tree with bioretention

1. Street trees that have bioretention system are required for full-width pavement verges.
2. Street trees that have bioretention system designed and constructed in accordance IPWEAQ Standard drawings:
 - a. DSD-508 Bioretention - Bioretention Street Tree;
 - b. DSD-509 Bioretention - Bioretention Standard Notes.

SC6.7.4.7.5 Tree planting surrounds

1. The streetscape type determines whether trees are to be planted in mulch, garden beds, tree grates, or permeable and porous paving.

SC6.7.4.7.6 Implementation

1. For all streetscape works tree planting other than tree planting for new roads, developers must undertake planting and maintenance.
2. A road reserve landscaping plan for newly constructed roads showing existing and proposed trees, location of streetlights, driveways, services etc., should be submitted and approved (before planting) by Council. The minimum stock size, quality of plants, planting and after care should conform to Council requirements.
3. When the planting is completed, the developer is to notify Council in writing and request an inspection to place the trees on maintenance.
4. To allow for early plan sealing, Council may accept an uncompleted works bond for the supply and planting of street trees for new roads. Prospective purchasers must be provided a landscaping plan that shows the location where new street trees will be planted.
5. Trees damaged or deceased within the maintenance period or the duration of development, whichever is the longer, must be replaced.
6. Preferred street tree species are listed in Appendices 3 and 4.

SC6.7.4.7.7 Pruning and maintenance

1. Pruning is grouped into different categories depending on the growth stage of the tree, the type of pruning, and when it is carried out:
 - a. shaping;
 - b. maintenance;
 - c. restructuring;
 - d. pruning of palm trees.
2. **Shaping:** the tree after planting seeks to encourage proper growth.
3. **Maintenance:** pruning keeps street trees healthy.
4. **Restructuring:** involves a reduction in the size of the crown when branches are diseased or damaged or when they are lopsided or misshapen.
5. **Pruning of palm trees:** is a special maintenance technique. It is limited to removing dry fronds, suckers, inflorescences and fruits, while respecting the natural spherical shape of the crown.

Table SC6.7-13: Pruning and maintenance of street trees

TYPE OF PRUNING	GROWTH STAGE	PURPOSE OF PRUNING	TIME OF PRUNING
Shaping	For 3 years after planting	Lifting and narrowing of crown Cleaning	All year (preferably in the dormant season)
Maintenance	After 4 years	Cleaning and care Thinning Safety	All year (preferably in the dormant season)
Restructuring	Adult trees	Reduction and reshaping of crown	All year (preferably in the dormant season)
Palm trees	For 2 years after planting	Cleaning and care Safety	All year except during the hottest months to avoid palm weevil infestation

SC6.7.5 Screen landscaping

1. The purpose of this section is to:
 - a. provide guidance on the design and construction of screen landscaping under the planning scheme;
 - b. where an applicant proposes an alternate solution, it should demonstrate that the proposed solution effectively achieves the design features of the required screen landscaping type, as specified in Appendix 5: Screen landscaping species;
 - c. provide guidance for the design, construction and ongoing maintenance of screen landscaping to minimise conflicts between agricultural operations and sensitive land uses (e.g. residential uses and urban development);
 - d. inform the design of new residential development adjacent to agricultural land uses in order to limit impact on lawful agricultural operations;
 - e. provide appropriate design considerations and maintenance advice to ensure screen landscaping is effective in mitigating off site impacts adjacent to sensitive land uses;
 - f. support applicants in satisfying the requirements of the planning scheme;
 - g. assist development assessment officers in their assessment of new development applications that require screen landscaping.

Editor's note—Council will consider this policy where a proposal adjoins an existing agricultural activity, and when adjoining land that could foreseeably be used for agriculture, including land identified as ALC Class A and B or within the Rural zone.

SC6.7.5.1 What is a screen landscaping?

1. Screen landscaping is commonly used as part of effective land use planning and conflict management against incompatible land uses. Screen landscaping provide an area of separation between conflicting infrastructure (e.g. state-controlled road), rural or industrial activities and residential activities or sensitive land uses. Screen landscaping is vegetated to form a physical and visual barrier.
2. Infrastructure, rural or industrial activities are sometimes regulated by specific environmental laws and codes. Regulations vary between activities may seek to protect environmental values rather than character or amenity where residential and sensitive land uses may be adjacent. The requirement for screen landscaping on the encroaching land use is sometimes an effective method of mitigating impacts on character or amenity.
3. Infrastructure, rural or industrial activities may generate various off-site impacts such as dust, smoke, ash, noise, smell, light, contaminants, chemical spray drift and irrigation overspray. These off-site impacts may be intermittent, seasonal or continual.
4. Where development for a residential activity or sensitive land use is introduced into an area where Infrastructure, rural or industrial activities exist then the residential activity or sensitive land use should include screen landscaping to mitigate the risk to amenity, health and safety that may arise from established Infrastructure, rural or industrial activities.
5. Screen landscaping is incorporated into the design of the proposed development to limit impacts to the existing activity and future activity.
6. Screen landscaping design, size and suitability will vary depending on the existing activity and impacts it is mitigating. This policy provides design considerations and provisions to ensure a screen landscaping is suitable and effective for its context.
7. Screen landscaping is intended to:
 - a. reduce the visual impact of adjacent development or infrastructure by screening;
 - b. reduce the acoustic impact of the infrastructure using noise attenuation barriers;
 - c. introduce a 'natural' vegetated landscape appearance by replacing open agricultural land with an area of dense planting;
 - d. reinforce the local character by using native tree and shrub species;
 - e. provide additional functions, such as:
 - i. mitigate the dispersal of odour and dust;
 - ii. provide a physical barrier to reduce the impact of pressure waves or explosion;
 - iii. provide shade over adjacent pedestrian and cycleways.

SC6.7.5.2 Tenure and responsibility

1. Once screen landscaping is established, they are to be protected by a defined tenure arrangement and responsibility for ongoing maintenance.
2. The preferred tenure hierarchy of the ownership, management and responsibility of screen landscaping is as follows:
 - a. developer owned (e.g. within a balance parcel);
 - b. owned by the sensitive land use (e.g. within private residential lot);
3. Council trustee or ownership.
4. Screen landscaping should be protected by way of legislative instrument tied to the title (e.g. covenant placed on the title)

- of land and remain the responsibility of the landowner.
- Ongoing maintenance requirements should be imposed by way of development approval conditions and property covenant.
 - Where screen landscaping is proposed within land to be dedicated to Council (i.e. road reserve, open space or drainage corridor) it will be the responsibility of Council.
 - Mounds and buffer landscaping adjacent to rural or industrial activities or infrastructure including state-controlled roads are to comply with the planning scheme requirements or condition by a relevant State Agency. Buffer landscaping is to be 10m wide along the full length of the interface with the infrastructure or road.
 - Screen landscaping is to be designed in accordance with 7.5.1.3 Attributes.
 - The species mix should incorporate a range of plants providing variety in form, colour and texture, to contribute to a natural appearance. The front line of planting should have foliage down to ground level.
 - Buffer mounds are to have a permanent irrigation system installed. Permanent irrigation systems are to be below the surface of the mulch (i.e. a drip-style irrigation) to reduce the chances of vandalism and reduce excess water loss due to runoff or evaporation.
 - Some species used as street or shade trees in the development are to be included in the screen landscaping to create a recognisable character that is reinforced by repetition (refer to Appendix 3: Preferred street tree species and Appendix 4: Town Streetscaping).
 - Use of disciplined plant selection based on themes such as colour, texture, or natural species associations, in addition to site suitability, creates higher quality landscapes than random assortments of nursery stock chosen solely for short notice availability and growth suitability.
 - Local species, which typify and reinforce the region's image, are preferred. Most are hardy, long-lived and will reduce long-term maintenance.
 - The landscaping is to be designed so as not to create a safety risk to people using the adjacent areas (i.e. no thorns, heavy nuts or poisonous fruits or berries).
 - Large shade trees to be planted no higher than a third from the base of mound (i.e. no trees are planted on top of the mound).

SC6.7.5.3 Attributes

- This section outlines the general attributes that need to be considered when designing and implementing a screen landscaping, including screen landscaping height, width, density and length.

Figure SC6.7-4: Buffer height of screen landscaping



Figure SC6.7-5: Buffer density of screen landscaping

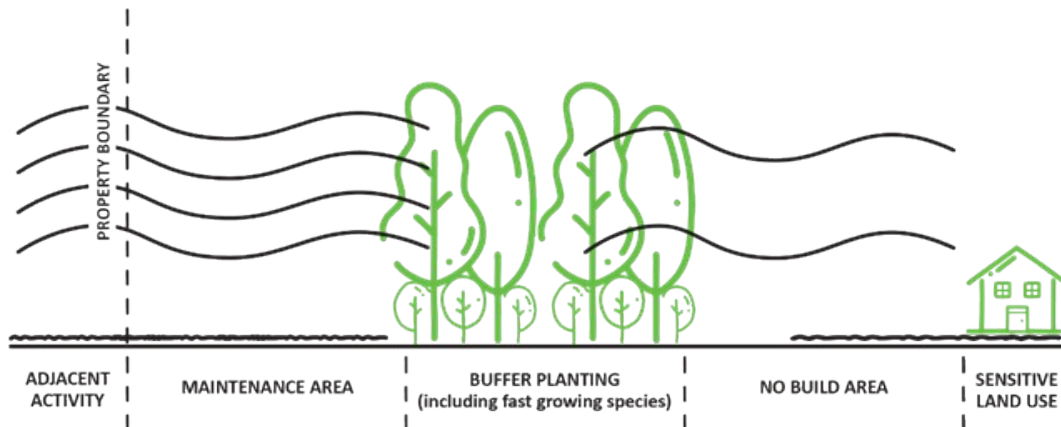
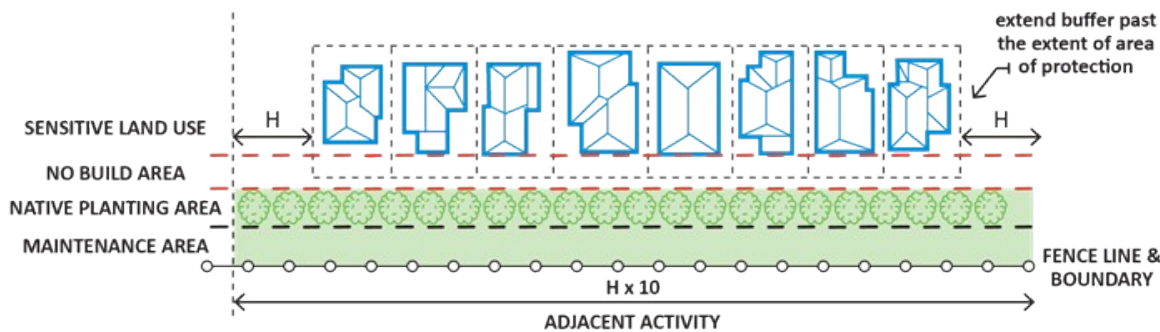


Figure SC6.7-6: Buffer length of screen landscaping



2. Screen landscaping design is influenced by the existing operations that can generate off site impacts on adjacent land. Adjacent activity refers to the land use and activity that is occurring adjacent to the encroaching sensitive land uses. This may include infrastructure, rural or industrial activities etc.
3. Various rural and industrial activities have divergent off-site impacts that need to be considered when designing screen landscaping that are suitable and effective.
4. The tree mix is to include species used in adjacent road reserves or as street or shade trees within the development are to be included in the screening or buffer landscape to create a recognisable character that is reinforced by repetition.
5. Local species is to be dominant character of the species mix to reinforce the regions image.
6. The landscaping is to be designed so as not to create a safety risk to people using the adjacent areas (i.e. no thorns, heavy nuts or poisonous fruits or berries).
7. An irrigation system is to be installed and utilised until the full establishment. Irrigation system are to be below the surface of the mulch (i.e. a drip-style irrigation) to reduce the chances of vandalism and reduces excess water loss due to runoff or evaporation.
8. Maintenance area refers to the strip of turf and/or low grasses that is directly abutting the adjacent activity and allows access to the boundary fencing and screen landscaping for maintenance. This area also provides appropriate separation from the adjacent activity (infrastructure, rural or industrial activities) and assists in managing potential fire hazards.
9. No build area refers to the area between the screen landscaping and the sensitive land use (development) which is to remain free of infrastructure and any built structures above or below ground.

SC6.7.5.4 Types

1. Selecting the most appropriate and effective screen landscaping type depends on the stage of development, land use, and type of infrastructure, rural or industrial activities that is occurring on the adjacent land. Screen landscaping fall into two main categories: Static or Transitional screen landscaping.

2. A static screen landscaping is:
 - a. located as a permanent screen landscaping between infrastructure, rural or industrial activities, and an urban or rural residential area;
 - b. multi-layered with staggered rows of trees and shrubs to provide protection from the rural or industrial activity and increase the visual amenity and aesthetic of the screen landscaping;
 - c. comprised of various species of trees and shrubs. Planting should be established at a density relative to the adjacent use or activity.
3. A transitional screen landscaping is:
 - a. located on a transitional development front rather than a defined a peri-urban edge;
 - b. used to provide interim screen landscaping and separation between a staged urban or rural residential development and an existing rural or industrial activity;
 - c. to protect existing rural until the land is developed for urban uses;
 - d. temporary and requires vegetation to be established quickly to provide effective protection to the sensitive land use from the adjacent rural or industrial activity;
 - e. comprised of fast-growing species to establish a visual screen and physical barrier to mitigate against amenity impacts and airborne particulates from the rural or industrial activity.

Table SC6.7-14: Screen landscaping types

SCREEN TYPE	APPLICABLE CONTEXT	DESIGN FEATURES	MINIMUM HEIGHT	MINIMUM WIDTH	MINIMUM LENGTH
Type 1	Adjacent to cropping including forestry (i.e. horticultural) and rural activities	Achieve a lower density of planting within the tree and shrub zone Achieve two staggered rows of planting to lessen competition between planting	Designed to achieve a minimum height of 8m to 10m	5m	To achieve mitigation of receptor
Type 2	Adjacent to cropping (i.e. orchards) and other dust or odour generating activities	Achieve a higher density of planting within the tree and shrub zone Achieve three staggered rows of planting to increase competition between planting	Designed to achieve a minimum height of 10m to 12m	10m	To achieve mitigation of receptor
Type 3	Adjacent to infrastructure and Industrial activities Adjacent to special industries	Use fast-growing plant species to establish a visual screen Achieve a higher density of planting within the tree and shrub zone Achieve three staggered rows of planting to increase competition between plantings No requirement for additional planting but is accepted when static	Designed to achieve a minimum height of 8m to 10m	10m	To achieve mitigation of receptor
Type 4	Adjacent to sensitive land uses or non-industrial zoned lot or rail corridor or State controlled road.	Achieve a lower density of planting within the tree and shrub zone Achieve two staggered rows of planting to lessen competition between planting	Designed to achieve a minimum height of 10m	10m	A minimum of 50% along boundary where site borders
Other elements					
Maintenance area	All screens and buffers	turf and/or low grasses to achieve access for maintenance requirements and resilience following		10m	

		maintenance operations.		
Native planting area		consisting of 3 staggered rows of planting		10m

Note—A landowner may amend the characteristics of screen landscaping type if the adjacent rural or industrial activity changes or new practices and operational off-site impacts occur. The screen landscaping may evolve its design to provide more effective mitigation. For example, a screen landscaping may be established to mitigate off site impacts from cropping and have a lower plant density. If the rural or industrial activity changes from cropping to orchards, the screen landscaping density may be increased to provide more effective protection.

A landowner may remove the fast-growing screen landscaping if it causes nuisance (e.g. noise or vermin) only when the native vegetation component of the screen landscaping is fully established (i.e. height and density). The fast-growing screen landscaping must be replaced with an additional row of native vegetation to ensure the width of the vegetated area of the screen landscaping is retained.

SC6.7.5.5 Recommended plant species

1. The plant species of a screen landscaping is related to the type of infrastructure, rural or industrial activities, so that the impacts can be effectively mitigated.
2. Using native species within a screen landscaping is advised as these perform better in the local conditions and require less maintenance. Effective screen landscaping growth resulting from the use of native species can also result in less pest and disease attack within these screen landscaping due to their local adaptation.
3. Species used for screen landscaping must be able to achieve branching from their base through the full height of the plant to achieve the visual screen requirements.
4. Plant species with insignificant flowers and fruits are preferred as they attract less amounts of birds, bats, or other wildlife that may in turn feed on, or adversely affect the adjacent crop.
5. A mixture of species is recommended to be planted within screen landscaping to provide a variety of plant shapes and increase screen landscaping aesthetic. Varied plant shapes also reduce the likelihood of gaps within the screen landscaping which mitigates infiltration of particulate matter.
6. Screen landscaping is to be established in accordance with the recommended plant species shown in (refer to Appendix 5: Screen landscaping plant species).
7. Other plant species from Appendices 1 to 4 should also be considered where the location is appropriate (e.g. saline soils).

SC6.7.5.6 Establishment

1. Screen landscaping is required to be planted in accordance with the below any other approvals are granted or endorsement of a plan of subdivision is completed.
2. Fast growing screen species should be established first and in two staggered rows 10m from the property boundary of the infrastructure, rural or industrial activities and achieve a uniform screen.
3. Tree and shrub planting would be installed as tube stock to promote maximum potential growth and establishment to allow the appropriate density to be achieved for the screen landscaping classification.
4. Lower density planting should establish two staggered rows of trees, with shrubs and groundcover planting.
5. Higher density treatment requires three rows of staggered tree planting. Layered tree planting is to be inter-planted with shrubs.
6. Groundcovers should be established on the outer edge to assist in the containment of weeds and other contaminants that may encroach into the planted area.
7. Pioneer tree species are to be established in conjunction with the tree planting to achieve plant densities in less time. Over time, planting of additional trees and shrubs may be required to replace these pioneer species.

SC6.7.5.7 Maintenance

1. The establishment of screen landscaping planting, like any other cover crop, requires watering, fertilising and weeding. Following establishment, maintenance is required to all screen landscaping types for them to remain effective. Screen landscaping should be appropriately designed and constructed to avoid time consuming and costly maintenance requirements, whilst achieving their maximum desired effect of mitigating land use conflicts. Screen landscaping maintenance includes:
 2. Maintaining the required screen landscaping characteristics such as height, width, length, and density of each screen landscaping type is required to ensure the effectiveness of the screen landscaping is maintained.
 3. Screen landscaping requires pruning and thinning on an annual basis to maintain a 50% density so that their effectiveness is maximised.
 4. Screen landscaping is required to be watered during dry periods to maintain good screen landscaping growth.
 5. Mulch levels are to be maintained to reduce weed growth and retain moisture.
 6. Fertilising before the growing season will assist in maintaining the health and vigour of the screen landscaping.

7. Screen landscaping requires maintenance and management in terms of litter build up, noxious weed and pest control. Screen landscaping should remain weed free to prevent the build-up of weed species that can cause infestation of infrastructure, rural or industrial activities or operations areas as well as other neighbouring land uses.
8. Appropriate access strips are provisioned for on either side of the screen landscaping to allow for maintenance activities to be carried out.
9. Ongoing maintenance such as replanting may be required over time to maintain screen landscaping characteristics.

SC6.7.5.8 Establishment and maintenance periods (Screen Landscaping)

1. The developer is responsible for the establishment of the screen landscaping.
2. The establishment and maintenance periods for a screen landscaping is 2 to 5 years.
3. The developer must arrange annual inspections to be undertaken by Council officers to ensure ongoing establishment and maintenance requirements are being carried out.
4. After initial planting, the screen landscaping is to be on-maintenance for a minimum period of 2 years. During this time, the screen landscaping must be maintained to ensure it is establishing well, actively growing, kept fertilised, provided with mulch, watered and weeded as necessary.
5. Annual monitoring reports and maintenance logbooks should be submitted to Council, including photos of both sides of the screen landscaping.
6. Council will undertake an inspection at the end of the 2-year establishment period.
7. Before the screen landscaping is accepted On-Maintenance:
 - a. a minimum of 40% permeability has been achieved by the screen landscaping;
 - b. permeability measurements will be taken at heights of 2m and 4m;
 - c. weediness of screen landscaping is no more than 10%.
8. Once Council has confirmed the screen landscaping has been properly established, the screen landscaping can be accepted On-Maintenance.
9. Before the screen landscaping is accepted Off-Maintenance:
 - a. a minimum 50% permeability has been achieved by the screen landscaping. Permeability measurements will be taken at heights of 2m and 4m;
 - b. weediness of screen landscaping is no more than 1%;
 - c. any dead, dying or underperforming plants are replaced.
10. In the instance where the screen landscaping does not satisfy requirements the maintenance period will be extended by a timeframe agreed that is suitable to bring the screen landscaping to standard.

SC6.7.6 Restoration areas

1. Ecological Restoration Plans and documentation is to be prepared in accordance with the Planning Scheme Policy SC6.1 Biodiversity. The designer is to have consulted with Council before commencement of project planning to ascertain whether there are any site-specific limitations such as easements, special plant species, soil stabilisation, and timing for the project.
2. Restoration specifications are to include both weed management and maintenance is carried out by the developer to acceptable standard while restoration areas establish.
3. The outcome of restoration works is to return degraded natural areas to a representative and self-sustaining condition. At all stages works are to be undertaken in a manner that conserves and retains all endemic vegetation.
4. Works to restore habitat are to be of a high quality, replicating topography and structure of the natural environment or regional ecosystems and ecological linkages and be undertaken by suitably qualified, locally experienced bush regeneration contractors. Landform, habitat and plant species of local native origin are established where available, by methods to maximise environmental outcomes and minimise ongoing maintenance requirements.
5. Self-sustaining ecosystems are created through successional planting and regeneration methods that include pioneer species to stabilise the site, whilst allowing longer term species to establish.
6. Understorey shrubs and vines native to the regional ecosystem are to be used in high density edge plantings to effectively seal rehabilitation areas (including waterway or waterbody edges) against degradation and weed infestation.

SC6.7.6.1 Types

SC6.7.6.1.1 Corridor restoration

1. Trees species for vegetation corridors and linkages are to be selected according to the local vegetation Regional Ecosystem vegetation communities and the primary target fauna species for which the linkage is provided. Where appropriate vegetation corridors are to connect up existing remnants and/or follow vegetated waterways. Where possible, vegetation corridors are to avoid crossing over major roads or other infrastructure barriers such as built-up areas.

SC6.7.6.1.2 Riparian restoration

1. Riparian restoration is the restoration of healthy functioning waterways by providing shade to help prevent algal blooms and invasion of exotic species, providing bank stabilisation reducing sedimentation and damage to infrastructure and crops and by providing filtration by the reinstatement of the local riparian forest system.
2. Suitable local plant species that are specially adapted to cope with flood periods and increased water flow rates are to be used in riparian restoration plantings. Site preparation and planting of riparian restoration projects in waterways which flood annually are to be timed appropriately. Most on-ground works are to be delayed till the likelihood of flood events has passed.

SC6.7.6.1.3 Wetland restoration

1. Fully functioning restored wetland systems assist with improving water quality reaching the drinking water treatment plant for the Greater Brisbane region by capturing excess sediment and nutrients. Water quality is also improved by reinstating appropriate aquatic and terrestrial vegetation that assist in sediment filtration and provide a suitable habitat for aquatic and terrestrial fauna.
2. It is important that both the terrestrial and aquatic vegetation components of the wetland community are thoroughly investigated in the project planning stage to determine the most appropriate species to plant and the most suitable method of plant establishment.
3. Where restoration involves a large amount of weed eradication, determine the source of the weed seed during project planning stage to ensure project success and supply a long-term management plan to address the weed issue on site.
4. Ensure that aquatic flora is planted in the most appropriate location and in the right depth of water. Emergent plants stabilise wetland banks and help with nutrient and sediment stripping from the water. Submerged plants trap suspended sediment and assist with stripping nutrients from the water. Investigate the wetland hydrology before planting to ensure that aquatic flora is planted in the most appropriate place (e.g. floating aquatic plants such as Nymphaea do not grow well in fast flowing water).

SC6.7.6.1.4 Roadside restoration

1. The aim of roadside restoration is to reinstate appropriate native vegetation on roadsides to create linkages following major road works where the remnant vegetation in the immediate vicinity has been fragmented. Adequate retention and reinstatement of vegetation in roadside areas and waterways adjacent to roads assists with maintaining wildlife corridors,

stability of batters, providing vegetation linkages and aids with the protection of remnant vegetation and waterways by filtering roadside pollutant run-off and noise effects.

2. The planting is to be selected so as not to create a safety risk to road users.

SC6.7.6.2 Design

SC6.7.6.2.1 Existing vegetation

1. Remnant natural vegetation must be protected during the planning, design and construction of the in accordance with AS 4970 Protection of trees on development sites. Weed control is required to comply with relevant State legislation and Council Local Laws.
2. Regulated vegetation as defined under the *Vegetation Management Act 1999*, koala habitat areas as defined under the *Nature Conservation Act 1992*, are protected by the planning scheme and other areas of ecological significance must be protected during the planning, design and construction of the open space or park in accordance with relevant State and Local legislation and AS 4970 Protection of trees on development sites.
3. Control of prohibited and restricted biosecurity matter weeds is required to comply with the *Biosecurity Act 2014* and other relevant State legislation and Council legislation.
4. Restoration required to achieve vegetation cover on steep and bare areas of the site as well as restoring and enhancing the ecological and habitat values of the site.
5. Other native vegetation (other than weeds) may be removed where approved by the conditions of a development permit and/or the approved Landscape Plans or Vegetation Management Plan and:
 - a. where open activity areas are required;
 - b. to create useable park activity spaces;
 - c. where vegetation within or close to activity spaces, active recreation nodes, or pathways presents a public safety hazard, Council will approve the pruning and dead wooding of hazardous trees in accordance with AS 4373: Pruning of amenity trees. Where the visibility of the park from surrounding streets needs to be improved.
6. All vegetation clearing is to be conducted in accordance with the conditions of approval and approved documents.

Editor's note—Clearing for firebreaks and fire management lines must be undertaken in accordance with the vegetation clearing exemptions under the *Vegetation Management Act 1999* and the *Planning Act 2016*

(<https://www.qld.gov.au/environment/land/management/vegetation/clearing-approvals>) and may be subject to:

1. an accepted vegetation clearing code; and
2. require notification to the relevant regulating authority.

SC6.7.6.2.2 Riparian restoration

1. Riparian restoration works within riparian zone and/or waterway or wetland buffer areas should achieve the following:
 - a. to the greatest extent possible, existing locally native vegetation is retained and protected across all zones within the riparian corridor. If vegetation removal is required, vegetation replacement (where possible) and restoration works should be undertaken elsewhere in the corridor area;
 - b. all restricted weeds and environmental weeds are controlled in a planned and staged process which protects bank stability and existing locally native vegetation and habitat values;
 - c. support the growth, development, germination and reproduction of native plants through sensitive weed control that considers bank stability, habitat values and water quality;
 - d. locally native vegetation, including trees, shrubs and groundcovers are planted and established across the extent of the riparian corridor to achieve the desired vegetation structure and composition;
 - e. in-stream habitat elements such as logs, snags, overhangs and vegetation are retained wherever possible;
 - f. where infrastructure is located within, or crosses a waterway area or wetland buffer, it is designed and constructed to maintain and enhance terrestrial and aquatic fauna movement;
 - g. natural hydrology (flow frequency, volumes and duration) is retained to support healthy and resilient riparian vegetation.

SC6.7.6.3 Implementation

SC6.7.6.3.1 Planting

1. All plantings are to be carried out at an appropriate time of year when the likelihood of rainfall is greatest and when the threat to planting success is at a minimum. This will be limiting to plantings outside of season which may leave the site exposed to erosion whilst waiting for in season. Any out of season plantings will need a watering strategy suitable to conditions. Details such as average rainfall and months with the most reliable amount of rainfall is to be identified for each individual site during the project planning.
2. Developers or contractors are to allow sufficient lead-in times when planning projects to ensure that suitable plant stock can be sourced (it takes 12-18 months to produce stock from seed given different fruiting periods) for stock integrity.
3. In some instances, natural areas will be capable of naturally regenerating without the requirement for additional planting. In

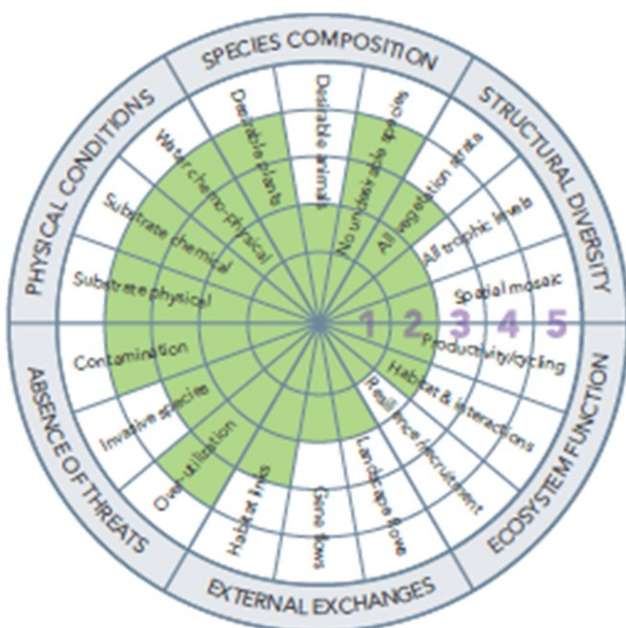
these instances, specifications to ensure the ability for natural succession to occur are to be included with a restoration plan.

4. Grassed interface between natural areas and public open space is to be cut using a side arm slasher and weed regrowth blanket sprayed with a non-residual aquatic friendly specified glyphosate preparation. Such areas are to be subject to 3 herbicide treatments to limit weed competition post planting. All dead material is to remain on site to provide a soil cover.
5. Plants are to be supplied in a minimum forestry tube or similar.
6. Species are to be local to the project area and stock is to be from seed sourced from an appropriate provenance wherever possible.
7. Plants are to be centred at a minimum 1.5m spacings to ensure acceptance for off-maintenance inspection.
8. Fertiliser is to be incorporated at planting depth (e.g. 1 x agritab).
9. Trees are to be secured by staking as required.
10. Plants are to be watered directly after planting before to the spreading of mulch. A minimum of 10L of water should be given to each tree immediately after planting. If planting coincides with natural rainfall, then the need for ongoing watering is alleviated.

SC6.7.6.3.2 Maintenance and Monitoring Requirements

1. Ongoing monitoring and maintenance will be required to ensure the restorations continue to meet the performance outcomes and indicators. The frequency of this monitoring and maintenance will be higher during the initial 1-2 years to ensure successful establishment of the vegetation.
2. Figure SC6.1-3: Maintenance for restoration works of Planning Scheme Policy SC6.1 Biodiversity provides the expected standards of maintenance and monitoring for restoration works.
3. Maintenance activities are likely to include:
 - a. Watering: While additional irrigation may be required for vegetation on exposed banks and during extended dry periods, typical watering regimes for planted vegetation are:
 - i. once a week — for the first 4 weeks;
 - ii. once a fortnight — for 4 to 12 weeks;
 - iii. once a month — for 3 to 6 months;
 - b. Weeding: Refer to sections SC6.7.3.2.2 Weed eradication and SC6.7.3.2.3 Weed control;
 - c. Monitoring is undertaken during the maintenance period. For environmental offsets monitoring is ideally undertaken for 10 years after restoration. This can include samples being taken every two to three years for canopy cover, survival, species present and presence of seedlings will help to monitor success of the restoration works;
 - d. Progress can also be evaluated using the 'recovery wheel' (see Figure SC6.7-7: Example of completed 'Recovery wheel'). The recovery wheel enables an assessment of how the project is achieving its ecosystem goals over time, with the aim of achieving a five-star rating for all attributes in a restored ecosystem (SERA 2021). Interactive templates for this monitoring and evaluation tool (i.e. form and recovery wheel) are available on the SERA website (<https://seraaustralasia.com/wheel/>) or via an app store.

Figure SC6.7-7: Example of completed 'Recovery wheel'



Source: SERA, 2021

SC6.7.6.3.3 Maintenance period

1. A specified maintenance period of a minimum 2 years is required for restoration planting or until the canopy closes or Council approves an alternative maintenance duration.

SC6.7.7 Parks and open space

1. This section outlines the following for new parks and improving existing parks:
 - a. design and construction standards;
 - b. advice about satisfying assessment benchmarks in the planning scheme;
 - c. the information that the Council may request to be supplied for a development application.
2. Where a development proposes to undertake any work within an existing or proposed park a landscaping plan is to be prepared for Council.
3. The plan is to outline all works that are to be carried out at the site such as:
 - a. design statement and concept;
 - b. landscaping plans consistent with the section SC6.7.2 to SC6.7.6;
 - c. dark infrastructure, facilities and embellishments consistent with section 6.7.7.7 Park Type and remaining sections of this policy.
4. Parks are planned, designed and constructed in accordance with the following standards:
 - a. Planning and design standards:
 - i. Water by Design (2014) *Bioretention Technical Design Guidelines*;
 - ii. Water by Design (2017) *Wetland Technical Design Guidelines*;
 - iii. International Erosion Control Association (2008) *Best Practice Erosion and Sedimentation Control*;
 - iv. Queensland Government (2021) *Crime Prevention through Environmental Design — Guidelines for Queensland*;
 - v. Institute of Public Works Engineering Australia (2020) *Street Design Manual: Walkable Neighbourhoods*;
 - vi. Austroads (2021) *Guide to Road Design Part 6A — Paths for Walking and Cycling*,
 - vii. Queensland Government (2003) *Open Space for Recreation and Sport — Planning Principles and Implementation Notes for Local Notes*;
 - viii. National Heart Foundation of Australia (2004) *Healthy by Design — A Planners' Guide to Environments for Active Living*;
 - ix. Western Australia Government (2016) *Sport Dimensions for Playing Areas*;
 - b. Referred Australian Standards;
 - c. IPWEAQ Standard drawings, Parks suite.

SC6.7.7.1 Design

1. Access, location and connectivity:
 - a. the accessibility standards are to be in accordance with acceptable maximum distances from new developments, catchments and the expected geographical distribution rate across the region;
 - b. parks are to be located in a central, prominent, highly visible and accessible location in the catchment it services;
 - c. pathway connections are to be shared use, accommodate varying levels of mobility and provide an internal loop that connects activity nodes within the parklands. Lighting is to be provided on trunk pathways;
 - d. adjacent land uses are to complement the park and provide a physical and visual interface such as direct residential dwelling frontage access;
 - e. signage is to be provided in key locations to promote legibility of the space and enhance wayfinding within the locality;
 - f. district and regional recreation parks are to be serviced by public transport and where possible should have dedicated public transport stops, as well as adequate off-road parking.
2. Physical design:
 - a. parks are to have a regular and efficient shape that can accommodate the required functions;
 - b. parks are consistent with the desired standards of service in the Part 4 LGIP and Schedule 3 to accommodate provision of infrastructure and embellishments. Natural or constrained areas may have undulating terrain to provide relief in the landscape (Table 4.4-7: Maximum desired grade provides the acceptable gradients for specific parks and community facilities).
3. Character, cultural and natural design elements:
 - a. significant natural and cultural features are to be retained and promoted in park design when conducive to setting and function, particularly where required by legislation such as those governed by Cultural heritage provisions;
 - b. public art is encouraged and provided in civic or community areas, gateway spaces or in play space as interactive play. Public art should be durable and resistant to vandalism;
 - c. interpretive signage is provided when cultural and environmental features are present;
 - d. WSUD elements may be included in the landscaping so that it does not interfere with the functionality of the park and or be at the expense of recreation activities;
 - e. key viewpoints are retained and promoted. Views into and external to the park are important in maintaining and promoting sense of place.
4. Safety and security:
 - a. CPTED principles are used to guide the design and location of infrastructure;
 - b. playgrounds are to be located at least 10m from private dwellings and 20m from external roads;
 - c. bollards, slip rails, vegetation and other measures are to be used to deter unauthorised vehicle access in parks.

These should be able to be removed for the purposes of Emergency vehicles egress or Council maintenance purposes;

- d. landscaping is used to delineate recreational activities, activity nodes, private and public spaces and allow surveillance;
 - e. vegetation features do not block views to and from the main activity areas and play equipment.
5. User comfort:
- a. public amenities, where consistent with the park classification, are provided and located close to key locations which are easily accessible;
 - b. passive recreation nodes are provided in areas which allow for sitting and nature appreciation;
 - c. kiosks, restaurants, community facilities, sporting facilities and cafes may be utilised in regional and destination recreation parks to activate the space or Sport Open Space to support club activities;
 - d. shade and shelter are provided to maximise user comfort including adequate cover of pathways, play spaces and formal seating areas.

SC6.7.7.2 Park types

1. The park function and type referred to in this section relates to the components of the open space network described in Part 4 - Local Government Infrastructure Plan (LGIP) and associated Schedule 3, within the Planning Scheme.

SC6.7.7.2.1 Recreational Parks

1. Established for a range of structured and unstructured activities, community recreation, cultural activities or wellbeing uses. Includes landscaped parklands, playgrounds, passive spaces and community gardens.
2. Regional parks have very high levels of visitation. Some parks may experience very high levels of visitation for short periods of time such as for an event or over a holiday season while others tend to have a more consistent level of visitation over the year, though there may well be variations during the week. Regional parks are provided where the opportunity arises—they may not be distributed equitably across the region. They have unique values that differentiate them from other types of recreation park. They are usually associated with attractive natural landscapes or historic, or unique man-made features that make them very popular with residents and visitors. They may also be developed to preserve Indigenous heritage. The level of embellishment needs to be able to support the high loads so there is often a higher level of hard surfacing, signage, barrier controls and similar. Regional parks generally require significant car parking and be capable of supporting public transport access.
3. District parks offer a variety of activities sufficient to keep visitors entertained for several hours. Typically these parks will offer higher order play experiences for toddlers through to teenagers and may include picnic facilities, barbecues, shelters, and public amenities to allow for extended family and group visits. District Parks may accommodate events such as car rallies, markets, musical events and film nights.
4. Local parks are the most common park type. Local parks are usually accessed by walking or cycling and appeal to the people living within that walk or cycle catchment. The park area is smaller than Regional and District parks. Local parks are often located within a residential setting. Embellishment will be focussed on a theme such as youth play, natural area play, community gardening, exotic trees or quiet contemplation to add variety across the park type. Some parks may have relatively little embellishment while others are highly embellished.
5. Civic and memorial: Civic and memorial spaces are used for organised community events, rallies, performances and similar that attracts a significant crowd. As the use is often very intense there are often higher levels of hard surfacing. Some civic and memorial parks have a high recreation function.
6. Linear parks and linkages include areas of connected or continuous green space that are elongated in shape and form links between key destinations within the open and civic space network. These parks may have multiple purposes which may include contributing to the conservation of habitat and scenic areas, facilitate walking and cycling corridors, serving floodway and drainage functions, and protecting water quality.

SC6.7.7.2.2 Sport Parks

1. Sport Parks primarily cater for a variety of formal sporting activities through the provision of a range of training and competition infrastructure. These parks include facilities for undertaking competitive, organised activities, ancillary infrastructure to support sporting activities, and/or free, unrestricted access to the public at times when formal sport is not being undertaken. Sport parks are to be multi-use and promote the shared use of facilities between a number of clubs and sporting codes. Typical infrastructure includes irrigated sports surfaces, hard courts, indoor sports centres, lighting, clubhouses, public toilets, change rooms, storage rooms or areas, shade, spectator seating, drink fountains, litter bins, internal road network and parking facilities and signage. Sports parks are broken into two categories District and Regional.
2. Other sport parks are either specialised in nature (requiring specific infrastructure to make them usable) or are private sports facilities that may not be publicly accessible. Other sport parks are broken into three categories: Specialised, Indoor and aquatic, Private.

SC6.7.7.3 Open space management statement

1. An open space management statement (“the statement”) is required where land is to be provided as conservation reserve, open space or for sport and recreation purposes. The statement outlines management for proposed open space areas during construction and maintenance phases of the development. The statement should include:
 - a. proposed area to be dedicated as open space, including contours and other topographical information;
 - b. remnant vegetation and fauna including essential habitats and wildlife corridors;
 - c. water quality management, including any swales, detention basins, dams, or lakes;
 - d. erosion and sediment control management;
 - e. bushfire hazard management;
 - f. proposed level and length of maintenance periods;
 - g. other issues, such as access and linkages have been identified during the design stage or in the site analysis.
2. For construction phase of development, the statement should include:
 - a. delineation of proposed public open space areas;
 - b. protection measures for vegetation to be retained or relocated;
 - c. location and details of all proposed on-site sediment and erosion control methods;
 - d. methods and details of disposal of vegetation approved for removal;
 - e. details for protection or translocation of any fauna on site (where appropriate);
 - f. temporary fire hazard mitigation measures e.g. fire trails, water storage facilities (only where appropriate — information can be drawn from any Bushfire Management Plan undertaken for the whole site);
 - g. details of methods for maintaining appropriate water quality (if appropriate);
 - h. location and details of storage of materials and storage compound for machinery on site;
 - i. location and details of temporary access for vehicles and site construction personnel;
 - j. access or protection to any infrastructure services by others;
 - k. location and details of any enclosures including boundary fences;
 - l. methods of control of a restricted matter (i.e. environmental pests and weeds);
 - m. maintenance periods;
 - n. other issues as previously identified in the site analysis and design process.
3. The statement should also include how the quality of the spaces will be maintained during on and off maintenance, including:
 - a. standard and quality of grassed areas;
 - b. cleaning of any silt deposits;
 - c. standard of any planting areas including retained vegetation areas, rehabilitation areas and garden areas;
 - d. condition of any permanent infrastructure such as irrigation, onsite sediment and erosion control devices, hard surfacing, detention basins;
 - e. condition of any park facilities or play equipment;
 - f. rubbish and site debris removal;
 - g. standard to be achieved about restricted matters (i.e. environmental pests and weeds);
 - h. standard of fire hazard mitigation measures (fire trails and water storage facilities).
4. The statement should also include how ongoing management or maintenance for Open Space Areas should be undertaken, including:
 - a. identification of the purpose of the open space area including objectives for future use;
 - b. details of each proposed open space area;
 - c. maintenance for the landscaping, conservation area and protection of any significant sites;
 - d. future management and maintenance regimes for protection of significant vegetation areas, ecological systems, waterways, and fauna;
 - e. management of bushfire hazard (if appropriate);
 - f. tree management procedures;
 - g. future management and maintenance regimes for sediment and erosion control devices, and irrigation;
 - h. future need and management of infrastructure including sport, recreation, and public facilities;
 - i. maintenance of built form and hard surfacing;
 - j. management and control of a restricted matter (i.e. environmental pests and weeds);
 - k. management of rubbish;
 - l. indicative costs.

SC6.7.7.4 Crime prevention through environmental design

1. Park designs are to incorporate the principles of crime prevention through environmental design, in particular:
 - a. dense stands of vegetation should be confined to park peripheries;
 - b. dense vegetation is not located alongside paths and play equipment;
 - c. vegetation does not block casual surveillance of picnic and play areas from adjacent or nearby residences;
 - d. landscaping does not restrict sightlines and opportunities for natural surveillance within and of a site;
 - e. all new plants around centres of activity should be single clean trunked trees to minimum of 1.8m or more in height with shrubs being 500mm or less in height;
 - f. lighting is required:

- i. along pedestrian and cycleways;
 - ii. with park facilities such as toilets and picnic shelters;
 - iii. safety in large parks or areas of vegetation within a development may be enhanced by planting trees in thin strips which maximises the number of trees planted but which also restricts the ability of offenders to hide within a mass of vegetation.
2. Landscaping is used to:
 - a. discourage graffiti on walls (e.g. retaining walls and acoustic barrier fences);
 - b. break up large areas of hard landscaping, (e.g. car parks);
 - c. add visual interest and structure to extensive open areas;
 - d. create new spaces, nodes or buffers within the open space;
 - e. provide screening along site boundaries;
 - f. enhance areas of retained vegetation.
3. Plants are selected to match the intended level of park maintenance and to reinforce the design with strong planting structure. Maintain visibility and the opportunity for surveillance along paths, and near facilities such as toilets, playgrounds and recreation nodes. Incorporate CPTED principles in the park landscape planning.
4. Gardens and hedges requiring regular maintenance must only be provided in high profile locations such as landmark or signature points, and parks with cultural heritage components or formal design themes (e.g. monuments, urban common parks).
5. Temporary ornate landscaping used as part of sales and marketing strategy, will not be approved within open spaces or parks.

SC6.7.7.5 Embellishments for all parks

1. All infrastructure construction works, including use of hard and soft landscape materials and quality of workmanship, comply with applicable Australian Standards and the Building Code of Australia.
2. Infrastructure materials are:
 - a. resistant to vandalism (i.e. robust, with replicable components and tamper-proof fittings);
 - b. easy to clean;
 - c. reflect a strong visual aesthetic;
 - d. discouraging of graffiti (e.g. using resistant materials, textured surfaces, dark colours and patterns, and associated screening vegetation where appropriate).
3. Park furniture should reflect the intended function of the park and compliment any distinguishing features present e.g. seating situated to maximise a view scape. Some preferred features of furniture include:
 - a. park benches located under a natural or built shade structure to allow day long use. If the shade is built, it should have an impervious roof e.g. Colorbond to provide shelter during rain;
 - b. well drained ground and hard surfacing below any structure. Surface material could be pavers, coloured or exposed aggregate concrete etc.;
 - c. shade structures should maximise protection from the sun during the hours of 10am to 3pm;
4. Council is to be contacted to provide the specifications for the preferred refuse bins and whether refuse bins are required.
5. All park embellishments are required to be approved by Council before installation.
6. While contextual design is to be responsive to the qualities that are unique to that landscape, some specific design considerations will be common to all projects. These include:
 - a. Distinctiveness: materials and elements reflect the desired image or theme of an area or the LVRC standard palette. Distinct materials assist people to 'read' and navigate by reinforcing urban structures, common patterns, rhythms and themes of the site;
 - b. Long term availability: ensuring the materials will be readily available over the long term;
 - c. Equivalence: determining design criteria for acceptable substitutions if the preferred item is not available;
 - d. Durability: assessing the durability of an item or material and how this bears on life cycle costs. It is to be made from materials that will last and can be suitably protected from exterior elements, such as UV exposure. Furniture items are to come with a minimum 5 year warranty on materials and workmanship;
 - e. Maintenance: Infrastructure items are designed, constructed and located to minimise vandalism (including graffiti) and in areas that are easy to maintain. Concrete base aprons are to be included to separate from contaminants and provide egress for maintenance;
 - f. Safety and Public Liability: assessing fall heights, soft fall, trip hazards etc. Infrastructure items, such as shelters, are to have building approval and be certified by a RPEQ Certified Structural Engineer;
 - g. Considerate of the environment: Infrastructure items are not located within the critical root zone of tree preservation area of habitat trees.
7. Where possible, natural features may be used, e.g. mounding for seating, trees or natural rock for bollards to simulate park furniture.
8. Open and civic space furniture (including seats, bins, tables, drink fountains, bike racks etc.) is to be selected or designed and located in accordance with:
 - a. AS 1428.1 Design for access and mobility — General requirements for access — New building work;
 - b. AS 1428.2 Design for access and mobility — Enhanced and additional requirements — Buildings and facilities;
 - c. Austroads Guide to Road Design Part 6A: Paths for Walking and Cycling.

SC6.7.7.6 Park preparation works

1. Consideration should be given to relevant sections under SC6.7.3 All landscaping works including but not limited:
 - a. Site stability;
 - b. Site drainage;
 - c. Existing vegetation;
 - d. Soils and growing media.

SC6.7.7.6.1 Site clearing

1. All rubbish and debris, including builder rubble, redundant services, footings, fences and declared weeds, are removed from the site.
2. Disused items such as wells or septic tanks are removed or filled.

SC6.7.7.6.2 Earthworks

1. Earthworks are undertaken to create functional spaces, stabilise the landform of the site, improve drainage and make the space safe and accessible for public use.
2. Batters, mounds, artificial embankments or retaining walls for activity and recreation spaces do not encroach into park activity spaces.

Note—Batters and earth-retaining structures must conform to the requirements set out in Schedule 1 of the Building Regulation 2021.

SC6.7.7.6.3 Grass

1. All parks are to be covered with topsoil to a depth of not less than 40mm and be lightly compacted and grassed in accordance with Council's minimum standards and specifications.
2. To guarantee a high standard of maintenance all parks are to be in a mowable condition, free from rocks and loose stones, and graded to even-running contours.
3. Grass should be established within the proposed park as quickly as possible in order to avoid erosion and sedimentation to the local waterways and prevent the establishment of weeds in accordance with section SC6.7.3 All landscaping works.
4. Grassing of ovals and sporting fields shall be based on Council's approved site-specific standards and specifications covering site preparation, drainage, topsoiling, fertiliser.

SC6.7.7.6.4 Mounding

1. Mounding may be used within the park design to provide topographical interest, to emphasise views, to help screen adjacent properties or eyesores, or as part of the internal design. The mounds should not exceed a gradient of 16% (1H in 6V) to reduce erosion and allow mowing. Planting of trees and shrubs over the mound will further emphasise height and shape.
2. Care should be given to ensuring that the mound does not restrict visibility into and out of the park thus threatening the safety of users or provide unwanted visibility into private properties.
3. Landscape mounding is to be in accordance with standard drawings unless otherwise approved.

SC6.7.7.7 Park landscaping

SC6.7.7.7.1 Edging

1. Edging must be installed in accordance with the relevant standards at the interface of grassed and mulched landscape areas (excluding individual trees and remnant natural vegetation). A concrete edge must be constructed around gardens and landscape beds where there is no adjacent wall, pathway and/or pavement area. The concrete edge kerbing must be constructed in accordance with IPWEAQ Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel, Type ER2.
2. A timber edge is only acceptable around habitat rehabilitation areas, and landscaping that includes a prominent tree canopy (urban forests), but not garden beds.
3. Mulched areas that adjoin grassed areas must be shaped to allow easy mowing by tractor-drawn mowing equipment. The edging must be straight, or with long sweeping curves. Corners must be between 45° and 90°. Acute corners and repetitive short radius (snake-like) bends must be avoided. A sloping border or border edge 175mm x 90mm.
4. Playground concrete edging must be minimum of 175mm x 250mm.

SC6.7.7.2 Garden beds

1. The maximum grade for a garden bed is 1 in 3.
2. The finished grade of the edge to the garden bed is flush with all abutting hard finished and grass surfaces.
3. The minimum depth of soil for a garden bed is 300mm.
4. The finished surface level of a garden bed adjacent to a building or other structure is 125mm below the weepholes in the building or the structure.

SC6.7.7.3 Tree planting

1. Parks provide a range of recreation opportunities and there is scope to utilise planting design to help achieve this objective, options include:
 - a. shade trees evenly planted throughout the site to maximise protection from the sun;
 - b. island or corridor planting to concentrate trees for easy maintenance and encourage bird life for pleasure viewing;
 - c. grouped planting will also provide shade adjacent to open space to allow unencumbered active play areas;
 - d. lines of tree planting to define edges of informal kick-about areas.
2. Root barriers are to be installed for large shade trees that have the potential to disrupt services, play equipment embellishments and lawn (refer to standard drawings).
3. A minimum 75% of the proposed tree planting should be endemic, and species should be selected on their adaptability to site conditions, and their value to local fauna. Where the proposed park adjoins an area of established native vegetation, an extension of this habitat into the park should be implemented by using compatible species. The designer should also be encouraged to use rare and endangered plant species, or species proven to have excellent bird, butterfly and insect attracting qualities.
4. To promote the unique landscape characteristics of the region exotic flowering trees and non-native palms should only be used as features or emphasis, where necessary.
5. Trees for parks must be selected to provide visual interest through seasonal colour or form. Where possible, select tree species that cannot be used in street or private garden planting, because of size, spreading habit or root invasion potential.
6. Existing mature trees must be integrated into the park design and planting plan.
7. For amenity planting, groups or avenues of trees of a single species or a combination of two or three species must be used, rather than scattered planting of multiple species. Where a park has a landscape, character derived from existing vegetation, similar tree species must be planted to add to the character.
8. Canopy trees must be planted to provide future shade in car parks and near playgrounds, seats, and active recreation nodes such as basketball and netball facilities. As a minimum, shade trees must be incorporated every sixth car park bay.

SC6.7.7.4 Species selection

1. Tree species selection is critical in achieving a quality outcome for the planting scheme in a park. Attention must be paid to the following criteria when selecting tree species for a site:
 - a. soil type and structure;
 - b. aspect;
 - c. local and preferred park character;
 - d. natural or cultural heritage values on or next to the site;
 - e. maintenance regime;
 - f. safety — avoid trees that shed limbs.
2. Preferred species are listed within the Appendices 1 to 5 which are suitable for use within the Lockyer Valley Region.
3. There are several attributes that must be evaluated when selecting trees for open spaces and parks. The following have the potential to pose risks or cause damage to property if trees are planted in the wrong location:
 - a. toxicity;
 - b. fruits and seeds;
 - c. thorns;
 - d. limb shedding;
 - e. invasive roots.
4. Undesirable plant species are listed in Appendix 6.
5. Specimen trees planted within mown areas and car parks, and near paths and recreation facilities, must be of single trunk form and with lower branches that can be trimmed as the tree grows. This is to:
 - a. facilitate access by mowing equipment;
 - b. accommodate vehicle and pedestrian sight lines;
 - c. maintain opportunities for passive surveillance.
6. The selection of trees must also reflect the purpose or function required to provide shade with the required maintenance character, select species that provides a shade canopy without creating potential hazards such as excessive limb falls. Adequate space must be provided around trees to avoid damage by tree roots to pavements and facilities.
7. Hydraulic constraints must be considered in the selection of suitable species and spacing of trees in areas subject to

flooding, such as land near waterways. Trees of single trunk form are preferred in these areas.

SC6.7.7.7.5 Irrigation

1. All irrigation systems (temporary and permanent) connected to reticulated water supply is to be metered and installed in accordance with Urban Utilities' specifications. The installation of water meters, backflow prevention devices and isolation valves are mandatory in all irrigation systems and are to be installed by a licensed plumber (refer to AS/NZS.3500 Plumbing and drainage, Part 1.2 Water Supply — Acceptable Solutions).
2. An irrigation plan prepared by an irrigation consultant, is to be submitted to Council for approval together with the landscaping plans.
3. The design of watering systems is to ensure an efficient and economical application of water. Such systems are to be designed to use low water application and run only during Urban Utilities' nominated times. During periods of water restrictions, the developer may need to obtain an exemption permit to irrigate outside the restricted hours.
4. The irrigation system is to use the following components and be installed in accordance with Urban Utilities' specifications.
 - a. a backflow prevention unit, installed to the requirements of AS/NZS.3500 Plumbing and drainage (set);
 - b. 20mm, 25mm, 32mm or 40mm diameter PVC pipework (as required) to garden bed areas, laid in a ring around the periphery of each garden bed;
 - c. pop-up sprinklers to periphery of garden beds. Fixed shrub heads to centre of islands only;
 - d. automatically operated controller in PVC box laid flush with finished ground level.
5. All irrigation pipework installed under roadways is to be laid in minimum 100mm diameter uPVC Class 9 conduit.
6. The water connection and installation of the irrigation system is to be carried out by an approved contractor at the developer's cost. The maintenance period for irrigation works is to be until acceptance off maintenance. Thereafter all maintenance and watering will be the responsibility of the Council.
7. The installation of an irrigation system on Council property, other than buffer mounds, traffic islands and roundabouts, e.g. verges, will not be permitted unless:
 - a. the system is separate from the development and all pipework is located adjacent to the kerb and channel; or
 - b. the verge is irrigated from sprinklers that fall within the development property boundaries.
8. Water lines are not to cross other underground services located within the verge.
9. If a separate irrigation system within the verge is desired, the developer will be required to pay all installation costs, which include:
 - a. tapping into main;
 - b. installation of 25mm diameter (typical) backflow prevention device;
 - c. installation of pipework and pop-up sprinklers;
 - d. installation of solenoid valves and automatic controller.
10. Where required, temporary irrigation is to provide establishment watering up to a point where the landscape can survive wholly dependent on rainfall. The property owner is to decommission all temporary irrigation before acceptance off maintenance. All temporary irrigation is to comply with water conservation requirements (water restrictions, demand management and water security strategies, etc) and designed in such a way to ensure public safety and limit risk of vandalism (i.e. under surface installation where possible in public areas).
11. Application is to be made to Urban Utilities for connection of irrigation systems to the water main for all landscaping of Council assets. All works are to be carried out at the developer's cost.
12. The developer is responsible for the payment of all water used during construction, testing, establishment and maintenance of the irrigation system and landscape works until acceptance of off maintenance.

SC6.7.7.7.6 Excavation

1. Do not excavate by machine within 500mm of existing underground services.
2. The standard width of trench for pipes is 150mm.
3. Unless noted otherwise on the approved drawings or directed by Council, all pipe work is to be installed with a minimum cover of 350mm.

SC6.7.7.7.7 Laying of pipes

1. All pipe work is to be bedded in clean fill sand with a minimum cover of 50mm all round.
2. Special precautions are to be taken to exclude dirt, sand, grit and gravel from entering pipelines.
3. The open ends of pipes are to be plugged at the end of the day's work to prevent entry of water or mud.

SC6.7.7.7.8 Controllers

1. Irrigation systems for Council landscaped areas are to be controlled by electrically operated solid state controller.
 2. The automatic control is to be capable of operating as a stand-alone controller with integral 240 VAC power source, multi start times, multi-independent programs, 'Cycle and Soak' capability, and have provision for sensor input or override. Installation is to be strictly to manufacturer's instructions, and in a location as directed by Council. Internal automatic
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control will provide unattended operation of the irrigation system.

3. Internal installation is to include connection to the 240V AC outlet. All wiring is to be via PVC conduit sweep bends. The 24 AC control wire is to be connected from the controller to the 24 AC solenoid valves, with access from external points to be via conduit through sleeves and/or penetrations.

SC6.7.7.7.9 Filtration

1. All irrigation systems are to be fitted with an approved flow strainer installed in a secure enclosure.

SC6.7.7.7.10 Valves

1. Electrically actuated solenoid valves are to have flow control, manual bleed screw, 24 VAC solenoid, Buna N diaphragm, and be constructed of PVC and stainless steel. They are to be suitable for direct burial and have 150 psi maximum working pressure. They are to be pressure regulating solenoid valves.
2. Isolation valves are to be of bronze construction and of the BSP screwed gate type. They are to be installed on the supply side at every solenoid valve to enable isolating.
3. Protective valve boxes are to be provided for each solenoid valve. They are to be constructed of green high-density polyethylene, be 450 x 300 x 300mm in dimension, and have a lockable lid with the word 'Irrigation' clearly marked on it.
4. The wiring from the solenoid to the controller is to be laid in conduit and be of 250V grade and be installed to approved standards. The wiring is to be located with all pipework.
5. All solenoid valves are to be connected to a controller by 1.5mm² solid core wire or decoder wire and to have 7 insulated cores within a common plastic protective shield. It is to be similar in all respects to RIS multi-core electrical control wire and be continuous between valve and controller, and valve to valve. An added 1m length of cable is to be provided at each wire termination. Cable is to be sized for voltage drop not exceeding 4 volts over total route length.
6. Solenoid valves are required to be fitted with a ball valve upstream of each valve, as approved by Council.
7. Where required installation of the air valve is to be off the top of pipe positioned with a 30-degree angle off from the horizontal.

SC6.7.7.7.11 Backflow prevention devices

1. All Council landscaped areas, which require irrigation systems, are to have a backflow prevention device installed. This device should comprise of a stand constructed fully from hard drawn copper pipe (Type D) and should have an inline strainer both before and after the backflow preventer. This should comply with AS/NZS 2845.1 Water supply - Backflow prevention devices, Part 1: Materials, design and performance requirements.

SC6.7.7.7.12 Performance test

1. On completion of the installation the system is to be tested in the presence of an authorised Council officer.
2. The system is to be operated to demonstrate that all components function as required by the design.
3. The developer is responsible for making all necessary alterations to the system so that the performance is in accordance with the design specifications.

SC6.7.7.7.13 Backfilling of trenches

1. Trenches are to be backfilled with the excavated material. If the excavated material is considered unsuitable for backfilling by Council, it is to be removed from the site and replaced with clean approved backfill material.
2. All trenches so backfilled is to be compacted and lightly raked to ensure that surface levels correspond and match adjacent surface levels, are free draining and free from mounds or depressions. All rocks or evidence or excavated subgrade is to be raked up and removed.

SC6.7.7.7.14 Maintenance

1. Landscaping is to be designed with simple maintenance requirements to achieve a better long-term result. Species are to be matched to the growing conditions of the specific planting site to reduce future maintenance requirements.
2. Landscape maintenance is an integral component of landscape development and sustainable long-term maintenance outcomes are to be integrated into the landscape design. This applies to both the vegetative landscape and built structures. It is important to consider Council's maintenance capacity and programs when designing areas to be handed over to Council.
3. Before a landscape asset is handed over to Council, a sustainable maintenance regime (programmed and budgeted) is to be developed and implemented. The landscape is to be complete and as described within the approved development plans, free of damage and vandalism, established, self-sustaining and in a state that requires an acceptable level of ongoing maintenance to maintain a high-quality landscape.

4. Desirable characteristics of a low maintenance landscape design are:
 - a. plant species that will retain their health, vigour and form without regular pruning;
 - b. plant species that are resistant to pest, disease and fungal attack;
 - c. plant species that will suit the specific conditions of the subject planting site;
 - d. plant species that require minimal formative pruning or hedging;
 - e. the use of canopy species that will form a long-term vegetation framework;
 - f. the careful preparation of garden beds, to ensure good soil health for plant growth;
 - g. mass planting of garden beds with only two or three species that ensures a simpler watering program, with plants achieving a similar growth rate and an even cover of greenery;
 - h. the use of weed free mulch planting areas to retain water and suppress environmental weeds and invasive plants;
 - i. the provision of sufficient space and room to manoeuvre ride on mowers, with the use of smooth flowing lines to allow machinery to manoeuvre around assets;
 - j. the use of appropriate garden edging to minimise the need for spraying or edging and for ease of mowing;
 - k. robust furniture, that withstands heavy use and vandalism.
 - l. easily replaceable furniture items and elements;
 - m. use of appropriate sealants and anti-graffiti coatings to enable easy washing;
 - n. accessibility and safe access for maintenance, especially along roadways;
 - o. appropriate selection of plants with consideration of the appropriate size, form and density for the space, ensuring the plants are able to grow and mature without becoming overcrowded;
 - p. planting that quickly creates a full canopy cover and/or groundcover to ensure effective establishment and reduce maintenance; and
 - q. endemic native vegetation species should be used where appropriate, and where adjacent or connecting to natural bushland.
5. Council officers will inspect the works as required and as requested by the developer for the purpose of on maintenance and off maintenance milestones.

SC6.7.7.8 Park access

SC6.7.7.8.1 Vehicle access

1. One or more controlled maintenance (service) vehicle access points shall be provided at strategic locations along the road frontages or internal roads and car parks of a park.
2. An entrance barrier, such as removable bollards, lock rail or gate in accordance with section SC6.7.7.10 Fencing, bollards and lock rails, is installed at each user or maintenance vehicle driveway into the park.
3. External access is to consist of a 3.5 m wide reinforced concrete driveway (refer to IPWEAQ Standard drawing, RSD-102 Vehicle Crossing - Heavy Duty Vehicle Crossing) provided between the road and the park boundary, formed for occasional access by an industrial refuse collection vehicle, a medium rigid vehicle with trailer, and emergency vehicle.
4. Alternative all-weather access materials may be used in certain situations, for example in a bushland setting.
5. If the maintenance access point is located on a major road or any road with a speed environment of over 50km/h:
 - a. a setback or queuing area is provided between the road and the entrance barrier that is sufficient to allow an industrial refuse collection vehicle or a medium rigid vehicle with trailer to park next to the barrier without obstructing traffic flow; or
 - b. the access facility is located on a minor road with a speed limit of 50km/h or less.
6. The layout of the park allows maintenance and emergency vehicles to access all park facilities, activity nodes and service infrastructure.

SC6.7.7.8.2 Internal roads

1. Roads may be required in a District or Regional park to provide vehicular access to park activity nodes.
2. Road and parking design and layout:
 - a. do not impact on the park's useable space or its landscape values;
 - b. are kept to the edges of parks to minimise the impacts on park users and open-space character.
3. Internal roads that extend into the park to specific facilities or to create a sense of arrival may be approved, provided they do not compromise park values.
4. Subject to the anticipated level of use by large vehicles such as tourist buses, a reduced pavement width and a reduction in design speed is preferred in parkland, by eliminating the allowance for parking lanes where appropriate and using speed control treatments.
5. Unless specified otherwise by Council, a 5.5m-wide pavement designed and constructed to the standard of a neighbourhood road (minimum traffic loading of 1.5 x 105 ESA) is provided.
6. Internal park roads have a concrete edge or kerb consistent with the IPWEA Standard drawing, RSD-200 Kerb & Channel - Profiles and Dimensions - Including Edge Restraints, Median & Channel, Mountable kerb type ER2.
7. Kerb and channel is only required where run-off from the road pavement could erode the road shoulders or could compromise maintenance operations or values and use of the adjacent parkland.

8. Vehicle barriers are provided beside the road to prevent vehicles driving across the park consistent with section SC6.7.7.10 Fencing, bollards and lock rails.

SC6.7.7.8.3 Internal circulation

1. The park layout should be designed to ensure that internal circulation or movement within the park is:
 - a. safe;
 - b. unencumbered;
 - c. highly visible internally and externally;
 - d. linked to external cycle and pedestrian networks.
2. Design features including access points, street frontages, carparks, pedestrian paths, bike paths, park equipment and lighting should be considered.
3. Design of paths, carparking and access points should consider the needs of people with mobility challenges. Pathways are to be in accordance with Planning Scheme Policy 6 Infrastructure design, section SC6.6.5 Streets and roads and comply with accessibility standards.

SC6.7.7.8.4 Car parking

1. Parking bays for people with disabilities are provided at a ratio of 1 disability space for every 20 car parking spaces and comply with AS 1428 Design for access and mobility (set).
2. Concrete kerbing or edging to car parks is consistent with section SC6.7.7.8.2 Internal roads.
3. Wheel stops are specified where there is no kerb and channel adjacent to car park bays or a mountable kerb is provided.
4. Wheel stops are to be located a maximum of 600mm from the front edge of the mountable kerb.
5. Precast concrete wheel stops are to be 150mm x 75mm x 2m long.
6. The fall of the car parking surface is to fall towards the kerb and grassed areas.
7. Water sensitive urban design features are incorporated in compliance with section SC6.7.7.7 Park landscaping.

SC6.7.7.8.5 Primary public access point

1. At least one public pedestrian access point is provided along each road frontage of a park and is designed and located so that the access point:
 - a. is separate from vehicular access points;
 - b. is a minimum of 6m from an adjacent residential boundary;
 - c. complies with AS 1428 Design for access and mobility (set);
 - d. meets desired lines of travel into the park from adjacent facilities (including pedestrian road crossing points, active transport paths, transport nodes and community facilities);
 - e. is clear of areas of ponding, inundation or overland flow;
 - f. provides for visibility and safety, using crime prevention through environmental design principles.

SC6.7.7.8.6 Pathways and paved areas

1. Internal access for maintenance and emergency vehicles shall be planned and located in accordance with the following principles:
 - a. provide for vehicular access to park facilities and areas requiring regular cleaning and ongoing maintenance (toilets, playgrounds, rubbish bins, barbeques, mown areas etc). Wherever possible, a 3.5m wide all-weather access shall be provided to these facilities and areas. The access would normally follow grassed areas and internal tracks, but a formed track (preferably with a permeable surface) may be required through wet areas.
 - b. provide maintenance access to service other infrastructure, such as utilities, manholes and stormwater quality improvement devices.
 - c. where possible separate maintenance access from recreational pathways, such as bikeways Highly visible internally and externally
 - d. linked to external cycle and pedestrian networks.
 - e. ensure bridges and culverts are designed for maintenance vehicles.
 - f. emergency vehicle access shall be provided to high use activity spaces in a park.
 - g. pathways to comply with AS 1428.1 Design for access and mobility.
2. A continuous path of travel is provided from a toilet facility to source of demand consistent with AS 1428 Design for access and mobility - General requirements for access - New building work.
3. External lighting, for public toilets open at night-time, is provided to:
 - a. the main path of travel to the public toilet, usually a pathway to the public toilet from a primary access point to a park, a carpark or a road;
 - b. the area surrounding the public toilet

SC6.7.7.8.7 Active transport network (pedestrian and cycle paths)

1. Concrete pathways should be provided to amenities from the public area, car park area or nearest road. Pathways to comply with AS 1428 Design for access and mobility Part 1: General requirements for access—New building work.
2. All hard surfacing areas are to comply with:
 - a. general pedestrian pathways and circulation zones connecting all key park or space amenities and embellishments such as carparking, amenities buildings, seated viewing points, formal playground spaces, BBQ or picnic settings:
 - i. AS 1428 Design for access and mobility (suite) where park terrain, permits;
 - ii. AS 4586 Slip Resistance classification of new pedestrian surface materials;
 - b. shared or dedicated cycle paths:
 - i. Austroads Guide to Road Design Part 6A — Paths for Walking and Cycling;
 - ii. IPWEA Standard drawings, Active transport suite.
3. All hard surfaces are to have falls that prevent ponding and areas external to building envelopes are to be designed to provide appropriate stormwater management away from built structures to a suitable collection point.
4. The selection and design of new hard surfacing shall also consider the following:
 - a. hard surfacing capable of supporting the volume and weight of expected traffic;
 - b. durability, such as the rate of wear and tear and susceptibility to discolouration;
 - c. maintenance costs and long-term maintenance requirements;
 - d. resistance to heaving by tree roots, requiring additional reinforcing, deformable cushioning, retaining walls, bridge beaming or flexible paving surfaces such as rubber epoxy compounds;
 - e. porous pavements to be mandatory when hard surfacing is required around existing trees to be retained. In high intensity urban areas, where trees are installed in hard surface areas, the use of porous pavement over gap-graded sub-grades is mandatory;
 - f. for pedestrians, wheelchair users and people with mobility constraints, a surface that is comfortable and functional;
 - g. paved areas for units restrained by a hard edge, preferably concrete and laid on a structural concrete subbase;
 - h. where pavements are required adjacent to existing trees include tree protection measures reduce potential impacts (refer to AS 4970 Protection of trees on development sites).

SC6.7.7.8.8 Bikeways

1. Bicycle paths are provided in parks where a shared path is provided.
2. Where there is no specific requirement identified by Council, any proposal to construct a bicycle path, separated path or shared path in a park is carefully assessed to determine whether a pedestrian path or local access path could provide a satisfactory alternative, particularly where a wide pavement could compromise other park values (such as biodiversity, landscape amenity and park visitor safety).
3. Bicycle paths, shared paths and separated paths in parks incorporate threshold treatments, signage and textured surface materials where appropriate, to warn cyclists and pedestrians of intersections and other hazards consistent with Planning Scheme Policy 6 Infrastructure design.
4. Shared paths in parks provide for disability access, as specified in AS 1428 Design for access and mobility (set).
5. Bikeway construction is to be in accordance with IPWEAQ Standard drawings:
 - a. PCD-301 Bikeways - Standard Entrance Control;
 - b. PCD-302 Bikeways - Featured Entrance Control;
 - c. PCD-303 Bikeways - Slowdown Control - Reverse Curve;
 - d. PCD-304 Bikeways - Entrance Control - Offset Chicane;
 - e. PCD-401 Bikeways - Rest Rail Detail.

SC6.7.7.8.9 Bicycle parking

1. Bicycle parking is located adjacent to the bikeway network and relative to key attractors or facilities.
2. Bicycle parking facilities in parks are designed, located and constructed to comply with Austroads Guide to Traffic Engineering Practice Part 14 — Bicycles and AS 2890.3 Parking facilities - Bicycle parking facilities.
3. Bicycle racks are pavement mounted rail in compliance with AS 2890.3 Parking facilities - Bicycle parking facilities.
4. The number of bicycle racks or parking in parks is:
 - a. Regional park — greater than 12 bicycle spaces;
 - b. District park — minimum 12 bicycle spaces;
 - c. Local park — not required.

SC6.7.7.8.10 Boardwalks and pedestrian bridges

1. Boardwalks and bridges may be provided in a park to provide pedestrian and cyclist access to park activity areas and other key park features and non-motorised commuter access through a park.
2. All boardwalks and pedestrian bridges, including quality of workmanship, comply with AS 2156 Walking tracks, Part 1 Classification and signage for rating 3 or 4 tracks.

SC6.7.7.9 Fencing and barriers

1. Fencing and barriers shall be provided along road frontages of a park, to prevent illegal vehicle access and provide protection from potential hazards.
2. Safety fencing may also be required in association with infrastructure such as some playgrounds. The type of fence or barrier to be provided in a park shall be consistent with the park type, its significance and any potential hazard the fence or barrier is restricting access to.
3. All fences and barriers shall be square and true to line. Fence rails and the tops of bollards are to follow the slope of the land, without dips and bumps. Bollards are preferred at tight corners along the road frontage boundaries.
4. Hydraulic constraints shall be considered in the design and placement of a fence below the flood regulation line or across an overland flow path.
5. The following requirements will apply to fencing:
 - a. the fencing shall not hinder general maintenance, otherwise the fencing shall incorporate vehicular access gates, or the fencing panels are designed for easy removal. Pedestrian gates shall be provided along road frontages;
 - b. a concrete (extruded or cast in situ) mowing strip must be provided under all fences (including acoustic barriers) which interface with lawn and landscaped areas. A minimum 140mm wide x 100mm deep strip, flush with the surrounding ground, will need to be installed under timber fences or walls or galvanised steel fences. Mowing strips are not required under masonry or concrete fences or walls as the footings are usually sufficient for this purpose.
6. Construction to be in accordance with IPWEAQ Standard drawings:
 - a. FBD-102 Fencing - Chain Wire Security Fencing to be used unless higher security or hazard prevention required.
 - b. FBD-105 Fencing - Tubular Steel Fence With & Without Chain Wire, Type 1A 1100 high for general settings for management in children setting or Type 1B 1350mm high;
 - c. FBD-105 Fencing - Tubular Steel Fence With & Without Chain Wire, Type 2 1100 high tubular, to be used for:
 - i. management of hazards;
 - ii. maintenance operations; or
 - iii. where in areas of overland flow constraints.
 - d. GFBD-106 Fencing - Welded Mesh Fencing And Control Fence, where interfacing with higher risk hazards such as roads with design speed greater than 60km/hr.
7. In flood-prone locations beside creeks where vehicle barriers are required, bollards comply with IPWEA Standard drawing, FBD-103 Fencing - Log Barrier & Alternative Hardwood Timber Bollard.

SC6.7.7.10 Fencing, bollards and lock rails

1. Vehicles should be prevented from driving into parks, drainage reserves and public open spaces by the provision of barriers along the road frontages. These may be barriers, bollards or natural features such as existing vegetation or newly planted and staked trees. Access for maintenance vehicles is to be provided through a lockable gate, lock rail or removable bollard in accordance with IPWEAQ Standard drawings:
 - a. FBD-104 Fencing - Locking Rail Types 1, 2, & 3;
 - b. FBD-108 Fencing - Entrance Barrier - Single Swing Gate;
 - c. FBD-109 Fencing - Entrance Barrier - Double Swing Gate.
2. Definition of the park side boundaries should be indicated by installing barrier fencing or bollards at approximately 1.5m centres, down each side. These should be offset from the surveyed boundary by 100mm to allow future erection of private fencing without having to remove Council's markers. Definition of the park boundary is intended to deter encroachment onto the park by adjacent private properties and to define the park limits.
3. Barriers and bollards are to be in accordance with IPWEAQ Standard drawing, FBD-103 Fencing - Log Barrier & Alternative Hardwood Timber Bollard, unless otherwise approved.
4. Bollards are to be installed when a mountable kerb is installed. Bollards are often not required if a barrier kerb is installed and there are sufficient natural features deterring access.
5. Screen landscaping may be planted along the boundaries of neighbouring private properties, subject to CPTED assessments.

SC6.7.7.11 Signage and wayfinding

1. Signage (park name and interpretive) in parks forms part of the overall design intent. An approved park name sign is required for land identification and location. Park signage may also inform and/or entertain users of the open space.
2. Walking track markers in natural area parks comply with AS 2156.1 Walking tracks - Classification and signage. The use of pictographic signage and any other measures that contribute to access and inclusion principles.
3. Traffic signs for internal circulation roads are provided as per the Manual of uniform traffic control devices (Department of Transport and Main Roads).
4. If the park has any historic, cultural or natural value the provision of interpretive signage will provide further interest to local users. Interpretive signs are to add value and educational information, where appropriate.
5. All interior and exterior signage is to comply with AS 1428.1: Design for access and mobility and:

- a. ensure the height of letters in signs shall be not less than that given in AS 1428.2 Design for access and mobility — Enhanced and additional requirements — Buildings and facilities, Table 2;
 - b. key wayfinding (directional and information) signs include brail.
6. The design of signage is to:
 - a. be coordinated;
 - b. be legible;
 - c. promote safe and appropriate use of the park;
 - d. provide directional information between important destinations.
 7. Signage must be practical, easy to maintain and maintain effective communication whilst minimising visual clutter.
 8. Signs, sign poles, stands or bases are constructed from high durability materials that require minimal ongoing maintenance.
 9. Where multiple signs are required in the same location, the signs are to be collocated on one structure where possible.
 10. All signs in parks are to be designed in consultation with Council and include Council's logo.
 11. Advertising signage is not permitted in parks.

SC6.7.7.12 Utilities

SC6.7.7.12.1 Electricity

1. An electricity supply pillar is provided on at least 1 park frontage, with a switchbox and supply to the electrical facilities in the park.
2. If required, a lockable general purpose outlet is provided and located outside of any switchbox.
3. The capacity of the electrical supply is sufficient to meet the power demands for the electrical facilities in the park (i.e. regional parks have provision for 3 phase power).
4. The type and number of electrical facilities are determined by the park type and as shown on the approved detailed landscape plan.
5. The electricity connections are located, designed and constructed to minimise impacts on existing landform, structures, use areas and vegetation.
6. Electrical infrastructure, in particular switchboards, is located to achieve the most realistic immunity from flooding.

SC6.7.7.12.2 Sewer

1. Where reticulated sewerage connection is available, sewerage connections are:
 - a. provided at the park boundary if public toilets or buildings are required;
 - b. located at the closest point to the proposed development site in the park;
 - c. denoted by permanent markers.
2. Where reticulated sewerage connection is not available, an appropriate disposal system will be determined in accordance with the Plumbing and Drainage Act.

SC6.7.7.12.3 Water supply

1. Where a reticulated water supply or pressurised potable water is available, a 25mm water service connection is provided at the park boundary with a water meter.
2. At least 1 vandal-proof maintenance tap is provided within the park. Maintenance taps are provided in a park to facilitate cleaning and maintenance of infrastructure, turf and landscaping. In absence of an irrigation system, 1 maintenance tap on a 20mm vandal-proof standpipe should be provided for each 2,000m² of park.
3. Taps include a 20mm Council vandal-proof hose tap fitting.
4. Taps are located near the edge of the landscaping, turf or infrastructure and are to be maintained.
5. A tap does not pose a trip hazard or interfere with maintenance activities such as grass mowing.
6. Maintenance taps are attached to drinking fountains where appropriate.
7. A least 1 drinking water tap is located within 20m of a playground or other recreation facility.
8. Water supply connections and taps are located, designed and constructed to minimise impacts on existing landform and vegetation.
9. This section is to be read in conjunction with Urban Utilities' standards for water supply and connection.

SC6.7.7.13 Lighting

1. Lighting systems are to influence the vitality and appearance of a place at night and enable legibility of space, lessen the risk of night-time accidents, and discourage crime and vandalism. Design and delivery for lighting in open and civic spaces is to:
 - a. be designed to minimise impact on existing and adjacent premises whilst maximising user safety and vitality of a place;

- b. complement and enhance the elements within a space and be incorporated into the overall design, rather than an add-on. Creative lighting is only to be used in high profile public areas;
- c. lighting within pedestrian areas is to comply with:
 - i. AS/NZS 1158.3.1 Lighting for Roads and public spaces;
 - ii. AS 4282 Control of the obtrusive effects of outdoor lighting;
- d. consist of light fittings that are to be appropriate for use in public spaces such as shatter proof and cool to touch glass, durable materials such as stainless steel and brass, suitability for in ground or exterior locations and impact resistance;
- e. achieve a 20-year installation design life on all materials;
- f. be located, where possible, to minimise the risk of damage, either on a pole out of harm's way, fixed into the ground or wall, fitted into a recess, or placed on the underside of furniture;
- g. whilst ensuring public safety is not compromised, measures to minimise or mitigate adverse impacts of artificial lighting on wildlife should be pursued in ecologically sensitive areas;
- h. before commencement of construction, an Operational Works development approval is to be obtained for all electrical works.

SC6.7.7.14 Playgrounds

- 1. Play equipment complies with:
 - a. AS 4485.0 Playground equipment and surfacing - Part 0: Development, installation, inspection, maintenance and operation;
 - b. AS 4685.1 Playground equipment and surfacing - Part 1: General safety requirements and test methods;
 - c. AS 4685.2 Playground equipment and surfacing - Part 2: Additional safety requirements and test methods for swings;
 - d. AS 4685.3 Playground equipment and surfacing - Part 3: Additional safety requirements and test methods for slides;
 - e. AS 4685.4 Playground equipment and surfacing - Part 4: Additional safety requirements and test methods for cableways;
 - f. AS 4685.5 Playground equipment and surfacing - Part 5: Additional safety requirements and test methods for carousels;
 - g. AS 4685.6 Playground equipment and surfacing - Part 6: Additional safety requirements and test methods for rocking equipment;
 - h. AS 4422 Playground surfacing - Specifications, requirements and test methods;
 - i. AS 2555 Supervised adventure playgrounds, Guide to establishment and administration.

SC6.7.7.14.1 Surfacing

- 1. Playgrounds are to have rubberised or synthetic soft fall under play equipment where displacement of soft fall mulches is likely to occur. Soft fall depth must comply with AS 4422 Playground surfacing—Specifications, requirements and test methods. Consideration is to be given regarding fall zone sofffall displacement under swings, fire poles and exit run-out for slides, Spica and rotating elements, carousels or spinning discs etc.
- 2. A soft fall area:
 - a. has a minimum 250mm depth soft fall sand bed complying with AS 4422 Playground surfacing - Specifications, requirements and test methods above the subgrade;
 - b. provides for free drainage from the sub-grade and no ponding to the sub-grade;
 - c. is excavated to the levels shown on approved drawings.
- 3. The soft fall area is connected to the stormwater drainage.
- 4. If the soft fall area cannot be connected to the stormwater drainage:
 - a. the outlets of the sub-soil drainage pipes are to be provided at a minimum of 3m from the play equipment pad;
 - b. if the premises have sufficient fall to divert the flow, the flow is diverted via a turfed spoon drain, the profile of which is mowable, to the lowest point on the premises;
 - c. if the premises do not have sufficient fall to divert the flow, the drainage pipe is to be discharged into a rubble pit of 1m³ water holding capacity for every 5m² of sofffall area. The pit is to be a minimum of 300mm below the sub-grade of the play equipment pad.
- 5. Select and locate shade trees so that tree roots do not compromise the sofffall or create trip hazards in the fall zone at mature size.
- 6. Tree selection and planting ensures tree roots do not interfere with sofffall or create trip hazards in the fall zone when they reach maturity.

SC6.7.7.14.2 Playground design

- 1. Playground design is to respond to the local landscape character, demographics, demands and identity, through the choice of infrastructure and colour schemes. It is also to consider the function and role the playground and parklands plays in the overall network. Playgrounds are to be safe, fun, interesting, accessible and clearly visible from the main areas of the open space.

2. Playgrounds and associated structures should be consolidated within a single node to allow for adequate adult supervision of children and to help reduce future maintenance costs. Larger parks may have several playground nodes as required.
3. The following requirements apply to playground design and delivery:
 - a. playgrounds are to provide adequate seating adjoining the playground under shade for supervision of play. The playground is to also have 1 bin adjacent to the playground;
 - b. slides are installed facing south to reduce the effect of direct sunlight onto the slide surface unless otherwise shaded. Swings are to be installed facing north or south unless otherwise shaded;
 - c. playgrounds are to have adequate separation from areas of higher hazard such as carriageways, car park areas, bikeways and water bodies. Landform, planting or fences may be used to provide separation from areas of higher hazard;
 - d. playground equipment is to comply with:
 - i. Workplace Health and Safety Standards;
 - ii. AS 4685 Playground equipment and surfacing;
 - A. Part 0 Development, installation, inspection, maintenance and operation;
 - B. Part 1 General safety requirements and test methods;
 - C. Part 2 Additional safety requirements and test methods for swings;
 - D. Part 3 Additional safety requirements and test methods for slides;
 - E. Part 4 Additional safety requirements and test methods for cableways;
 - F. Part 5 Additional specific safety requirements and test methods for carousels;
 - G. Part 6 Additional safety requirements and test methods for rocking equipment;
 - iii. AS 4422 Playground surfacing—Specifications, requirements and test methods;
 - iv. all other relevant statutory requirements, guidelines and standards;
 - e. playgrounds are to contain adequate subsurface and surface drainage to avoid water ponding or nuisance;
 - f. if geofabric is installed, the matting must be secured with small cable ties or some other approved measures on all joints and around elements to ensure that the matting does not rise to the surface and create a trip hazard and ongoing maintenance issue;
 - g. the assembly of all playground equipment using nuts and bolts are to have thread lock applied so that bolts do not work their way loose and cause maintenance issues and damage to equipment;
 - h. playgrounds are to be surrounded with an edge treatment and have a minimum fall zone consistent with:
 - i. AS 4685 Playground equipment and surfacing (set);
 - ii. AS 4422 Playground surfacing—Specifications, requirements and test methods;
 - i. concrete edging shall be 200mm deep and 150mm wide with rolled edges.
4. Playground equipment is designed, constructed and installed according to the manufacturer's specifications and is compliant with Australian Standards. Certification is to be provided by a certified playground audit or before on maintenance.
5. The developer is to hand over maintenance instructions, parts and service manuals and manufacturers' guarantees for the playground equipment or any other documents to Council before acceptance on maintenance.
6. The developer is to provide to Council any construction or maintenance tools supplied with the purchase of the playground equipment before acceptance of the works off-maintenance.

SC6.7.7.15 Facilities and embellishments

SC6.7.7.15.1 Artwork

1. Artworks are located in a publicly visible location, such as the building facade or on publicly accessible sites such as a building forecourt.
2. If artwork is a freestanding structure positioned in the verge, it:
 - a. does not impede sightlines to unsignalled intersections, pedestrian crossings, traffic signals and bus stops;
 - b. is setback a minimum of 750mm from the nominal face of kerb;
 - c. maintains the building shoreline where in the City Centre;
 - d. does not impede clear access to all above ground and sub-surface services in the verge.
3. Artwork is to be designed to withstand contact with an appropriate number of people, climbing, pushing or pulling at the structures.
4. Artwork is designed to:
 - a. ensure safety for members of the public from all age groups in all weather conditions;
 - b. contain no protrusions which might cause injury if accidentally collided with;
 - c. avoid entrapment of any part of a person (e.g. fingers);
 - d. be resistant to vandalism;
 - e. have low ongoing maintenance liability.
5. Artwork has a minimum design life of 25 years.
6. A detailed maintenance document, incorporating as-constructed drawings, installation method, cleaning and re-finishing schedule as well as a list of key contacts such as fabricator, artist and supplier is provided with the artwork.

SC6.7.7.15.2 Barbeques

1. Barbeques are located as part of a picnic node in compliance with section 7.7.15.4 Picnic nodes and in on elevated part of the site to provide flood immunity.
2. Barbeques are designed to have:
 - a. stainless steel surfaces and cabinet with a vandal resistant finish;
 - b. low maintenance — easy to clean food grade finish;
 - c. lockable door with fat collection tray with waste bags supplied inside cabinet;
 - d. bolted down to relevant engineered concrete surface in accordance with appropriate standards.
3. Barbeques wiring and electrical services are to be completed by licensed electrician.
4. Circulation areas around barbeques are consistent with AS 1428.1 Design for access and mobility - General requirements for access.

SC6.7.7.15.3 Drinking fountains and bubblers

1. Drinking fountains or bubblers are provided:
 - a. along district and regional pathway and bikeway networks;
 - b. near playgrounds and active recreation nodes.
2. A dog drinking bowl is added where dogs are walked, and in dog off leash areas where visitor use is high, but not near playgrounds or other active recreation nodes.
3. Stormwater connections are not located adjacent to drinking fountains. A soak-away trench is to be provided to the base of each tap to prevent ponding and waterlogging.

SC6.7.7.15.4 Picnic nodes

1. Picnic nodes are located in attractive, shady and accessible locations in District and Regional, parks, and typically incorporate:
 - a. a shelter;
 - b. picnic setting;
 - c. barbecue;
 - d. refuse bin;
 - e. tap and drinking fountain.
2. Picnic nodes in parks:
 - a. are located at focal points or adjoining features or places of special interest in a park, but not where they will detract from that feature;
 - b. in natural area parks and are located in accordance with the approved natural area management plan;
 - c. complement and enhance other recreation opportunities in a park;
 - d. are sited in conjunction with playgrounds and other activity spaces with access to facilities such as bicycle paths;
 - e. subject to the terrain of the site and have continuous accessible paths of travel from car parks or adjoining roads and park facilities;
 - f. have all-weather access for regular cleaning and maintenance;
 - g. use alternative technologies where appropriate (e.g. solar energy where mains power is not readily available, or rainwater harvesting).
3. The type of picnic node provided in a park is consistent with the park type and its significance, established during the park design.
4. The standards for provision of furniture in picnic nodes are listed in Part 4 Local Government Infrastructure Plan.

SC6.7.7.15.5 Rubbish bins

1. Bins provided in parks are located:
 - a. near a road;
 - b. at pedestrian entry points;
 - c. near BBQ areas, seats and tables;
 - d. adjacent to walking trails and dog off leash areas;
 - e. close to access point where they can be readily serviced without the need to drive the refuse collection truck across the park.
2. Bins are to be:
 - a. 240L in all cases (potential twin as general waste and recycle);
 - b. housed in a fireproof wheelie bin enclosure;
 - c. placed on a concrete apron slab;
 - d. approved by Council before installation has occurred.

SC6.7.7.15.6 Seats

1. Seats are located:
 - a. in areas with interesting outlooks;
 - b. where they can obtain maximum shade;
2. Seats are located close to:
 - a. a playground or active recreation node;
 - b. around sporting fields;
 - c. at viewpoints;
 - d. at resting points setback from and along pathways;
 - e. near top and bottom of any significant ramping;
 - f. spaced no greater than 60m spacings.
3. Seats are to be constructed with the following:
 - a. aluminium or timber. If seats are aluminium, they are required to be light in colour to reduce the potential for heat reflection and seats being hot. Timber seats are required to have at least 3 coats of sealer such as Ultradeck or Tanner coat or the equivalent before installation;
 - b. anti-vandal fixtures.

SC6.7.7.15.7 Shelters and gazebos

1. If shelters are required in parks, they are sited as part of a picnic node, playground node or other activity node.
2. Gazebos may be provided in attractive park settings for weddings and group functions.
3. Shelters and gazebos incorporate picnic settings or seating depending upon their function in the park.
4. Structures are to be an integral part of the open space landscape providing local identity and unique space for community and visitor gatherings.
5. Built structures, including shelters, are required to be:
 - a. consistent with the relevant local plan code and relevant building, engineering and electrical standards;
 - b. appropriately located within the landscape, being complementary to the immediate landscape and urban design;
 - c. constructed with impervious roofs that maximise rain and sun protection, where intended to provide shelter and for harvesting of rainwater where appropriate;
 - d. orientated to maximise shelter from sun, rain and wind;
 - e. of construction that requires minimal maintenance and be fit for purpose, durable and safe.
6. Shelters and gazebos for park facilities are required to be fit for purpose, durable, robust and safe and installed in locations for equal access locations. Shelter and gazebos are required to be:
 - a. manufactured to engineer's specifications, Australian Standards and National Construction Code and be installed in accordance with all certification requirements mentioned further below;
 - b. roofing to be Colorbond with light colour preferred to assist with heat reflection;
 - c. fixing and fasteners to be correct class for roofing type in accordance with SS316;
 - d. post anchors or stirrups if must be engineered in accordance with the relevant Australian standards;
 - e. concrete and slab to be installed in accordance with structural engineering requirements for shelter with slabs extending pass the shelter roof by a minimum of 500mm and allow sufficient cross fall to ensure water does not pool on slab;
 - f. if necessary due to the location of the shelter shade slats to be installed to assist with sun protection. Material of slats can consist of aluminium, steel or timber.

SC6.7.7.15.8 Public toilets

1. Public toilets buildings are only provided in parks after an objective assessment of potential demand and, where applicable, consideration of the availability of conveniently located alternative non-Council facilities. Anticipated demand is categorised as follows:
 - a. High-level: High and consistent level of everyday toilet use by park visitors, throughout week;
 - b. Peak-period: Lower overall level of use, with a peak at weekends or during park functions, sporting events, etc.;
 - c. Low-level: Low or sporadic public use;
 - d. Group: Use is primarily associated with the activities of a single club, group, tenant or lessee. Lessees will usually provide a toilet within a clubhouse or other community building for group use.
2. Based on demand, there is a requirement for toilets in many Regional parks, and to a lesser extent in District and Sport parks, where high-level or peak-period demand exists.
3. Toilets are not provided in Local parks, landscape amenity and linear corridor parks.
4. The type of a public toilet building provided in a park shall be consistent with the park type and its significance, established during the park design and development assessment process and any unique park characteristics, such as natural values.
5. All relevant certification, as constructed drawings, operation manuals and manufacturers' guarantee and warranties are to be provided prior to acceptance of on-maintenance.
6. Public toilets are to comply with Building and Plumbing legislation and regulations, including, but not limited to:

- a. Disability Discrimination Act (Cth);
- b. National Construction Code (NCC);
- c. Building Code of Australia;
- d. Queensland Plumbing and Wastewater Code.

SC6.7.7.15.9 Location of public toilets

1. Public toilet buildings are located:
 - a. near adjacent pedestrian paths, roads and facilities, with entrances facing onto most active space;
 - b. in an area highly visible from most directions;
 - c. in an area where there are activity generators (e.g. picnic facilities);
 - d. so that vegetation around the building is an appropriate type and size;
 - e. so that the buildings are responsive to Crime Prevention Through Environmental Design principles.

SC6.7.7.15.10 Design standards for public toilets

1. Unisex toilet facilities are desirable for areas identified for low use.
2. Gender-specific toilet facilities are desirable for areas of high use.
3. If 1 cubicle is provided, it is a unisex toilet.
4. If more than 1 cubicle is provided, a minimum of 1 cubicle is designed to be disability accessible.
5. No screened lobby or any type of enclosed communal lobby is provided to public toilets.
6. Solid, fully enclosed buildings with a single common access is not appropriate.
7. Cubicles are self-contained including a handbasin and open directly onto public space.
8. If a cubicle is not large enough to accommodate handbasins (e.g. for ambulant facilities), the cubicle opens directly onto public space and handbasins are located outside in the public space.
9. If a handbasin is located outside a cubicle, it is not screened.
10. Provision of a translucent lightweight screened approach or handbasin lobby with continuous gaps to ground level is appropriate to ensure maximum visibility.
11. Direct entry to cubicle configuration ensures:
 - a. entry into a cubicle is to be through cubicle door only;
 - b. the vertical design plane is assessed to eliminate wherever possible 'steps' or 'ladders' that could aid access and provide the opportunity for people to climb.
12. A permeable screen is incorporated between the top of all internal and external cubicle walls and doors and the underside of the roof to assist with ventilation.
13. Walls are solid and durable.
14. Door closers incorporated into hinges or pivots are provided with a gap (75mm—300mm) to the underside of cubicle doors.
15. Roofing of a cubicle that opens directly onto a public space has generous overhang or a veranda.
16. All building finishes are robust, impact-resistant, weather-resistant, flood-resistant, easily cleaned, graffiti-resistant and comply with relevant Australian Standards.
17. The floor of a public toilet:
 - a. is of a mid-to-dark colour to hide dirt and grime;
 - b. is easy to repair and maintain (e.g. broom-finished concrete);
 - c. is a resilient, hard surface conforming to the required Australian Standard;
 - d. is slip resistant;
 - e. slopes down to a drain to avoid the accumulation of water inside.
18. Exterior and interior finishes and treatments are treated to minimise graffiti and vandalism.
19. If brick or concrete, interior and exterior walls are rendered and painted or treated with an anti-graffiti coating.
20. Exterior walls have a dark base colour.
21. Multi-coloured murals that are consistent with the surroundings, or treatments that vary the materials, colours and surfaces, are used to disrupt smooth, blank continuous surfaces on exterior walls.
22. Internal door faces have a protective anti-graffiti coating or stainless steel finish.
23. External finishes do not generate obtrusive glare and reflection for surroundings.
24. If a public toilet facility is to be used at night, internal and external lighting is provided.
25. Skylights are used where possible for natural light.
26. The minimum illumination level inside each toilet cubicle meets the relevant Australian Standards.

SC6.7.7.15.11 Fixtures and fittings

1. Handbasins are of stainless steel with vandal-resistant fixings and stainless steel or chromed brass drainage pipes.
2. Porcelain fixtures are not used.
3. If the risk of vandalism is high, stainless steel toilet pans are provided with an integrated seat and vandal-resistant fixings.
4. If the risk of vandalism is low, separate toilet seats (PVC or porcelain) can be used.

5. All pipework including drainage pipes under handbasins are concealed within a stainless steel enclosure with vandal-proof fixings that is able to be accessed for maintenance.
6. Supply and drainage pipework is concealed in ducts where possible.
7. Urinals are not installed.
8. Tapware is robust and vandal proof, fitted with spring shut-off valve function to regulate water consumption.
9. Tapware replacements are readily available from major manufacturers.
10. All plumbing fixtures and fittings are selected, installed and managed with water conservation as a priority.
11. Exposed cisterns are avoided.
12. Door hardware:
 - a. is robust and vandal proof;
 - b. replacements are readily available from major manufacturers;
 - c. identifies when a toilet cubicle is in use.
13. Clothing hooks are not provided in ambulant toilets.
14. Mirrors, if provided, are stainless steel unless specifically requested otherwise.
15. Toilet roll holders are robust and secure.
16. Handbasins with flat surrounds also serve as shelves and shelves are not provided.
17. If the risk of vandalism is low, and paper towel dispensers are not provided, a sensor-activated hand dryer can be installed.
18. If the risk of vandalism is low, a storeroom to allow ease of access for servicing of toilets as well as the ability to store materials is provided. The room will require adequate ventilation and be secured by a lockable door.
19. Internal and external light fittings are energy efficient, high mounted and vandal resistant.
20. LED lighting for safety and security is provided with a PE cell on and off timer system for energy efficiency.

SC6.7.7.15.12 Signage

1. Directional signage considers use by people with vision impairments in accordance with Disability Standards (Access to Premises - Building), Part D4 - which includes the use of braille characters on all signs.
2. The designation (gender use and mix) is clearly signed in language and symbol.

SC6.7.7.15.13 Accessible toilets

1. A minimum of one cubicle is provide as disability accessible public toilet is provided and designed in accordance with AS 1428.1 Design for access and mobility — General requirements for access - New building work and includes:
 - a. a handbasin inside the cubicles;
 - b. a soap dispenser that is surface mounted stainless steel;
 - c. grab rails secured to the structural frame or solid block work.

SC6.7.7.15.14 General standards

1. The layout of public toilet includes the following:
 - a. installation of unisex cubicles with direct access to a common area with one or more hand basins;
 - b. hand basins and fixtures to be stainless steel with anti-vandal fixtures;
 - c. soap dispensers to are to be surface mounted stainless steel, with soap being dispensed by pressing of a button and comply with AS 1428 Design for access and mobility Part 1: General requirements for access—New building work;
 - d. the toilet is required to have a minimum of one cubicle that is person with disability compliance;
 - e. toilet pans are to be stainless steel wall faced type with concealed pipework;
 - f. in certain locations, a baby change table may be required as a part of the public toilet facility;
 - g. service corridor or storeroom to allow ease of access for servicing of toilets as well as the ability to store materials if necessary. The room will require adequate ventilation and be secured by a lockable door;
 - h. all interior and exterior signage is to comply with AS 1428 Design for access and mobility Part 1: General requirements for access—New building work, and to identify the facilities available within and outside the building;
 - i. provide internal and external vandal resistant LED lighting for safety and security. Light fixtures to be connected to a PE cell on and off timer system for energy efficiency

SC6.7.7.16 Recreation and sporting facilities

SC6.7.7.16.1 Ball sports facilities

1. The type of facility provided for ball sports in a park shall be consistent with the park type and its significance, established during the park design and development assessment process and any unique park characteristics.
2. Facilities for ball sports in parks (e.g. basketball and netball courts, tennis courts, rebound walls, cricket practice nets, boules courts, grassed fields, ovals, cricket pitches) are designed, located and constructed in accordance with standard

sporting field dimensions and the following general requirements:

- a. ensure the facility complements and enhances other recreation opportunities in a park or open space. All facilities shall be set apart to allow ball sports to take place without intrusion and conflicts with adjoining activities;
- b. ensure the facility is readily maintainable and approved by Council;
- c. ensure the facility is setback from surrounding properties with screening and landscaping as appropriate. Consultation with neighbours and Council is required if the facility is proposed near existing or future residences. Small local parks are usually unsuitable for facilities for ball sports;
- d. keyways or goal circles (combined basketball and netball ring or a facility with minimum court area) are not acceptable due to risks associated with these facilities;
- e. maximise opportunities for casual surveillance of courts and rebound walls from surrounding streets and/or other sites of regular people presence;
- f. provide half courts and tennis rebound walls within cycling distance (approximately 2—5km of most residences);
- g. tennis courts and boules courts (bocce) are not usually provided outside leased areas in parks. An exception is where a community group or agency can undertake minor court maintenance, care for equipment such as nets, and supervise court bookings;
- h. cricket practice nets shall be located to minimise potential hazards caused by mishit cricket balls. Practice nets shall not be located along road frontages, to minimise potential hazards and to maintain the visual appeal of the park;
- i. bench seats, drinking fountains and tree planting for shade are provided in conjunction with facilities for ball sports.

SC6.7.7.16.2 Dog off leash areas

1. District and Regional recreation parks are the preferred location for dog off-leash areas.
2. The location of dog off-leash areas in parks is determined by Council and noted in Council's local laws.
3. Dog off-leash areas:
 - a. complement and enhance other recreation opportunities in a park;
 - b. do not cause nuisance to adjacent properties;
 - c. are easily maintainable by Council;
 - d. where created within a larger area of open space, must be clearly defined within a fence consistent with section SC6.7.7.9 Fencing and barriers;
 - e. are clearly signed at every entry point to the off-leash area using standard Council signage;
 - f. are hospitable for people and dogs, with an open area of useable space, shade, seating and drinking water for people and dogs;
 - g. use tree planting to supplement shade over time;
 - h. do not have hazards such as holes, depressions, irregular or stony surfaces, constantly wet areas or any other feature which may contribute to an injury, or a more suitable area is chosen;
 - i. have access points located so that a conflict will not arise between users accessing the off-leash area or users of other park facilities;
 - j. provide at least 1 bin for dog faeces consistent with section SC6.7.7.15.5 Rubbish Bins;
 - k. provide at least 1 anti-vandal tap, fountain and drinking bowl;
 - l. are an appropriate size for the intended use and anticipated demand.

SC6.7.7.16.3 Fitness equipment

1. Fitness equipment is located in District and Regional recreation parks.
2. Fitness equipment may be installed along pathways in parks and around activity spaces.
3. Fitness equipment is setback a minimum distance of 2.5m from bikeways and pathways to provide circulation space.
4. Fitness equipment can contain fixed equipment as well as dynamic equipment activated by body weight.
5. Fitness equipment is location out of and away flood prone area.
6. General considerations of fitness equipment include:
 - a. provide options for full body workouts, these options to include cardiovascular and resistance training;
 - b. designed to be ergonomically correct;
 - c. fitness equipment to be stainless steel, aluminium and HDPE or poly panels, with components and parts to be repairable and sourced;
 - d. site locations to consider passive surveillance to assist with anti-social behaviour at fitness equipment
7. Installation and ongoing maintenance of fitness equipment is to be consistent with the following:
 - a. static designed exercise stations installed to manufacturer's specifications. All equipment is to meet safety standards and fall zone requirements of:
 - i. AS 4685 Playground equipment safety and surfacing;
 - ii. AS 4422 Playground surfacing - Specifications, requirements test method;
 - iii. AS 16630 Permanently installed outdoor fitness equipment — safety requirements and test methods;
 - b. trowel finished rubberised surfacing to meet:
 - i. AS 4422 Playground surfacing - Specifications, requirements and test method;
 - ii. AS 4685 Playground equipment safety and fall heights over a compacted base with adequate drainage installation under exercise stations;

- c. erection of a park activity entry sign adjacent to the exercise equipment before the acceptance of the works on maintenance in accordance with
 - i. AS 4685 Playground equipment safety;
 - ii. AS 16630 Permanently installed outdoor fitness equipment — safety requirements and test methods;
 - d. certification from the fitness equipment manufacture that all equipment has been installed to their specifications and in accordance with:
 - i. AS 4685 Playground equipment safety (set);
 - ii. AS 4422 Playground surfacing - Specifications, requirements and test methods.
8. Vandal proof signage is provided for fitness equipment to explain how it is used.
 9. All relevant certification, as constructed drawings, operation manuals and manufacturers' guarantee and warranties are to be provided at practical completion.

SC6.7.7.16.4 Skateboarding and BMX

1. Skateboarding facilities will be developed in accordance with Council.
2. Skateboard and BMX facilities cater for a wide ability range, from novice to experienced skaters and cyclists seeking the highest degree of challenge that is possible in an open public setting.
Design and construction of skateparks is to be consistent with the following:
 - a. AS 14974 Skateparks — safety requirements and test methods. Specifies safety requirements and requirements for testing and marking, information supplied by the manufacturer, information for users, as well as for inspection and maintenance to protect users and third parties (e.g. spectators) from hazards, as far as possible, when using a skatepark as intended, or as can be expected;
 - b. AS 1170.1 Structural design actions — Permanent, imposed and other actions. For permanent, imposed, static liquid pressure, ground water, rainwater ponding and earth pressure actions to be used in the limit state design of structures and parts of structures;
 - c. AS 1170.2 Structural design actions — Wind actions. Procedures for determining wind speeds and actions to be used in the design of structures;
 - d. AS 1170.4 Structural design actions — Earthquake actions in Australia. Procedures for determining earthquake actions and detailing requirements for structures and components to be used in the design of structures;
 - e. AS 1379 Specification and supply of concrete. Sets out minimum requirements for materials, plant and equipment used in the supply of concrete and the testing of concrete;
 - f. AS 3600 Concrete structures. Provides nationally accepted rules for the design and detailing of concrete structures, members and footings;
 - g. AS 3661 Slip resistance of pedestrian surfaces — Guide to the reduction of slip hazards. Guidance on the selection, installation, care and maintenance of flooring and other surfaces in domestic, public and commercial areas for the purpose of reducing the slip hazard to pedestrians, including people with disabilities;
 - h. AS 4586 Slip resistance classifications of new pedestrian surface materials. Testing of new products and floors.

SC6.7.7.17 Water bodies, water quality management and stormwater infrastructure

1. Water quality management and stormwater infrastructure is located away from park activity areas unless specifically designed for recreation use.
2. Water quality management and stormwater infrastructure does not impede the recreation function of a park, and where possible complement and enhance recreation opportunities and the park landscape.
3. Council is unlikely to accept a lake as part of a park contribution. A lake is defined as a large body of open water with the primary function of providing visual or recreational amenity. This definition does not apply where stormwater treatment is proposed to be a significant function of the lake.
4. Detailed information on the requirements relating to water bodies, detention basins and water quality management structures are to meet are provided in Planning Scheme Policy 6 Infrastructure design.

SC6.7 Appendix 1: Preferred landscaping species

1. The following tables are a guide to species of trees, shrubs and ground covers that generally perform well and require minimal maintenance in roadside landscaping.
2. These lists are deliberately not comprehensive as final species choices should be based on professional site condition analysis and advice from a suitably qualified landscape architect or horticulturist.

SC6.7.8 Tree, shrubs and ground covers

SCIENTIFIC NAME	COMMON NAME	LOCATION
Palms		
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm	All areas
<i>Livistona australis</i>	Cabbage-tree palm	All areas
<i>Livistona decora</i>	Ribbon palm	All areas
Large trees greater than 12m		
<i>Acacia blakei</i>	Wollomombi Wattle	Rural and Rural Residential areas
<i>Acacia disparrima</i>	Hickory	Rural and Rural Residential areas
<i>Acacia harpophylla</i>	Brigalow	Rural and Rural Residential areas
<i>Agathis robusta</i>	Queensland Kauri	Rural and Rural Residential areas
<i>Alphitonia excelsa</i>	Soap tree	Rural and Rural Residential areas
<i>Angophora leiocarpa</i>	Smooth Barked Apple	Rural and Rural Residential areas
<i>Brachychiton discolor</i>	Lacebark tree	Rural and Rural Residential areas
<i>Brachychiton rupestris</i>	Narrow-leaved bottle tree	Rural and Rural Residential areas
<i>Buckinghamia celsissima</i>	Ivory curl	Rural and Rural Residential areas
<i>Casuarina cristata</i>	Belah	Rural and Rural Residential areas
<i>Eucalyptus crebra</i>	Narrow-leaved ironbark	Rural and Rural Residential areas
<i>Eucalyptus microcorys</i>	Tallowwood	Rural and Rural Residential areas
<i>Eucalyptus propinqua</i>	Grey gum	Rural and Rural Residential areas
<i>Eucalyptus saligna</i>	Sydney blue gum	Rural and Rural Residential areas
<i>Eucalyptus siderophloia</i>	Northern grey ironbark	Rural and Rural Residential areas
<i>Eucalyptus tereticornis</i>	Forest red gum	Rural and Rural Residential areas
<i>Flindersia australis</i>	Crow's Ash	Rural and Rural Residential areas
<i>Flindersia collina</i>	Leopard wood	Rural and Rural Residential areas
<i>Flindersia xanthoxyla</i>	Yellow Wood	Rural and Rural Residential areas
<i>Grevillea robusta</i>	Silky oak	Rural and Rural Residential areas
<i>Lophostemon confertus</i>	Brush box	Rural and Rural Residential areas
<i>Brachychiton acerifolius</i>	Flame Tree	All areas
<i>Syzygium australe</i>	Lilly-pilly or Scrub cherry	Rural and Rural Residential areas
<i>Syzygium crebrinerve</i>	Rose satinash	Rural and Rural Residential areas
<i>Xanthostemon chrysanthus</i>	Golden Penda	All areas
Medium trees 7-12m		
<i>Abrophyllum ornans</i>	Native Hydrangea	All areas
<i>Allocasuarina torulosa</i>	Forest oak	All areas

<i>Backhousia citriodora</i>	Lemon-scented myrtle	All areas
<i>Brachychiton populneus</i>	Kurrajong	All areas
<i>Buckinghamia celsissima</i>	Ivory Curl Tree	All areas
<i>Bursaria incana</i>	Prickly pine	All areas
<i>Callistemon salignus</i>	White Bottle Brush	All areas
<i>Cassia tomentella</i>	Velvet scrub cassia	All areas
<i>Cupaniopsis anacardioides</i>	Tuckeroo	All areas
<i>Cupaniopsis parvifolia</i>	Small-leaved tuckeroo	All areas
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	All areas
<i>Grevillea baileyana</i>	White Oak	All areas
<i>Grevillea banksii</i>	Banks Grevillea	All areas
<i>Glochidion ferdinandii</i>	Cheese tree	All areas
<i>Hakea Lorea</i>	Gnarled Corkbark	All areas
<i>Harpullia pendula</i>	Tulipwood	All areas
<i>Hymenosporum flavum</i>	Native frangipani	All areas
<i>Toona ciliata</i>	Red cedar	All areas
<i>Waterhousea floribunda</i>	Weeping lilli pilli	All areas
<i>Lophostemon confertus</i>	Brush Box	All areas
<i>Lophostemon suaveolens</i>	Swamp Box	All areas
<i>Melaleuca leucadendra</i>	Weeping Paperbark	All areas
<i>Melaleuca quinquenervia</i>	Broad Leaved Paperbark	All areas
<i>Stenocarpus sinuatus</i>	Firewheel Tree	Rural and Rural Residential areas
<i>Syzygium luehmannii</i>	Small Leaved Lilly Pilly	Rural and Rural Residential areas
<i>Tristaniopsis laurina</i>	Water Gum	All areas
Small trees 5m-7m		
<i>Acacia concurrens</i>	Black wattle	All areas
<i>Acacia granitica</i>	Granite wattle	All areas
<i>Alectryon subdentatus</i>	Hairy birds-eye	All areas
<i>Babingtonia sp.</i>	Twiggy Babingtonia	All areas
<i>Backhousia citriodora</i>	Lemon Scented Myrtle	All areas
<i>Backhousia myrtifolia</i>	Grey myrtle	All areas
<i>Banksia integrifolia</i>	Coastal banksia	All areas
<i>Banksia robur</i>	Swamp banksia	All areas
<i>Brachychiton bidwillii</i>	Little Kurrajong	All areas
<i>Bursaria incana</i>	Prickly pine	All areas
<i>Cordyline petiolaris</i>	Broad-leaved palm-lily	All areas
<i>Cordyline rubra</i>	Small palm-lily	All areas
<i>Eremophila sp.</i>	Emu bushes	All areas
<i>Eucalyptus 'Summer Beauty'</i>	Pink Flowering Gum	All areas
<i>Eucalyptus 'Summer Red'</i>	Red Flowering Gum	All areas
<i>Hibiscus splendens</i>	Splendid hibiscus	All areas

<i>Hibiscus tiliaceus rubra</i>	Bronze Cottonwood	All areas
<i>Hymenosporum flavum</i>	Native Frangipani	All areas
<i>Lagerstroemia indica</i>	Crepe Myrtle	All areas
<i>Melaleuca salignus</i>	Weeping bottlebrush	All areas
<i>Notelaea lloydii</i>	Lloyd's native olive	All areas
<i>Pavetta australiensis</i>	Butterfly bush	All areas
Small trees or shrubs 2-5m		
<i>Acacia amblygona</i>	Fan wattle	All areas
<i>Acacia complanata</i>	Flat-stemmed wattle	All areas
<i>Acacia falcata</i>	Hickory wattle	All areas
<i>Acacia fimbriata</i>	Brisbane wattle	All areas
<i>Acacia myrtifolia</i>	Mrytle acacia	All areas
<i>Acacia neriifolia</i>	Nerine-leaved wattle	All areas
<i>Alectryon coriaceus</i>	Beach birds-eye	All areas
<i>Aotus ericoides</i>	Common Aotus	All areas
<i>Aotus lanigera</i>	Hairy Aotus	All areas
<i>Banksia oblongifolia</i>	Dwarf Banksia	All areas
<i>Boronia rosmarinifolia</i>	Splendid boronia	All areas
<i>Commersonia bartramia</i>	Brown kurrajong	All areas
<i>Dodonaea megazyga</i>	Showy hop bush	All areas
<i>Dodonaea triangularis</i>	Ducksfoot hop bush	All areas
<i>Dodonaea viscosa subsp. Cuneata</i>	Sticky hop bush	All areas
<i>Dodonaea viscosa subsp. Viscosa</i>	Sticky hop bush	All areas
<i>Hovea acutifolia</i>	Purple pea-bush	All areas
<i>Indigofera brevidens</i>	Pink pea bush	All areas
<i>Indigofera australis</i>	Forest indigo or Austral indigo	All areas
<i>Jacksonia scoparia</i>	Dogwood	All areas
<i>Leptospermum liversidgei</i>	Olive tea-tree	All areas
<i>Myoporum acuminatum</i>	Boobialla	All areas
<i>Olearia elliptica</i>	Scrub daisy	All areas
<i>Senna coronilloides</i>	Brigalow senna	All areas
<i>Syzygium fancisii</i>	Giant water gum	All areas
Groundcovers or climbers		
<i>Ajuga australis</i>	Australian bugle	All areas
<i>Austromyrtus dulcis</i>	Midyim Berry	All areas
<i>Austrostipa ramossima</i>	Stout Bamboo grass	All areas
<i>Bacopa monnieri</i>	Bacopa	All areas
<i>Banksia oblongifolia</i>	Dwarf Banksia	All areas
<i>Baekkea frutescens</i>	Weeping Baecka	All areas
<i>Bouganvillea sp.</i>	Pink Donya	All areas
<i>Bouganvillea sp.</i>	White Donya	All areas

<i>Bougainvillea sp.</i>	Penelope (white)	All areas
<i>Brachyscome multifida var. multifida</i>	Cut-leaved daisy	All areas
<i>Brunonia australis</i>	Blue Pincushion	All areas
<i>Bulbine bulbosa</i>	Native leek	All areas
<i>Burchardia umbellata</i>	Milkmaids	All areas
<i>Chrysocephalum apiculatum</i>	Yellow buttons	All areas
<i>Cleistochloa subjuncea</i>	A grass	All areas
<i>Crinum angustifolium</i>	Field lily	All areas
<i>Crinum pedunculatum</i>	Brisbane River lily	All areas
<i>Cymbopogon refractus</i>	Barbed-wire grass	All areas
<i>Daviesia mimosoides</i>	Golden Pea	All areas
<i>Dianella brevipedunculata</i>	Tall fix-lily	All areas
<i>Grevillea Scarlet Sprite</i>	Grevillea	All areas
<i>Grevillea juniperina Molonglo</i>	Grevillea	All areas
<i>Grevillea juniperina Red</i>	Grevillea	All areas
<i>Grevillea Poorinda Royal mantle</i>	Grevillea	All areas
<i>Hardenbergia violacea</i>	Native sarsparilla	All areas
<i>Hemerocallis cultivars</i>	Day Lily	All areas
<i>Imperata cylindrica</i>	Blady grass	All areas
<i>Myoporum ellipticum</i>	Coastal Myoporum	All areas
<i>Myoporum acuminatum 'prostrate'</i>	Creeping water bush	All areas
<i>Pandorea jasminoides</i>	Trumpet Creeper	All areas
<i>Paspalidium spp.</i>	Panicgrass	All areas
<i>Sarga leiocladum</i>	Wild sorghum	All areas
<i>Scaevola aemula</i>	Fairy Fan-flower	All areas
<i>Tetradlea thymifolia</i>	Thyme Pink-bells	All areas
<i>Themeda triandra</i>	Kangaroo grass	All areas
<i>Tulbaghia violacea</i>	Society Garlic	All areas
<i>Viola banksii</i>	Banks violet	All areas
<i>Westringia sp.</i>	Rosemary	All areas
<i>Zieria cytisoides</i>	Downy zieria	All areas

SC6.7.9 Wetland or aquatic species

SCIENTIFIC NAME	COMMON NAME
<i>Alternanthera denticulata</i>	Lesser joy weed
<i>Azolla filiculoides</i>	Pacific azolla
<i>Azolla pinnata</i>	Ferny azolla
<i>Baumea articulata</i>	Joint twig rush
<i>Baumea juncea</i>	Bare twig rush
<i>Baumea rubiginosa</i>	Soft twig rush
<i>Bolboschoenus caldwellii</i>	Jointed rush

<i>Brasensia schreberi</i>	Water shield
<i>Callistomon viminalis</i>	Weeping bottlebrush
<i>Carex appressa</i>	Tall sedge
<i>Carex brunnea</i>	Greater brown sedge
<i>Carex fascicularis</i>	Tassel sedge
<i>Carex gaudichaudiana</i>	Tufted sedge
<i>Carex inversa</i>	Knob sedge
<i>Carex lophocarpa</i>	Sedge
<i>Ceratophyllum demertum</i>	Hornwort
<i>Chara sp.</i>	Stonewort
<i>Cycnogeton procerum</i>	Water ribbons
<i>Cynodon dactylon</i>	Green couch
<i>Cyperus bifax</i>	Western nut grass
<i>Cyperus difformis</i>	Rice sedge
<i>Cyperus exaltatus</i>	Tall flat sedge or giant sedge
<i>Cyperus flaccidus</i>	Sedge
<i>Cyperus gunnii</i>	Sedge
<i>Cyperus haspan</i>	Sedge
<i>Cyperus leiocaulon</i>	Sedge
<i>Cyperus lucidus</i>	Sedge
<i>Cyperus mirus</i>	Sedge
<i>Cyperus odoratus</i>	Sedge
<i>Cyperus polystachyos</i>	Bunchy sedge
<i>Cyperus sanguilentus</i>	Sedge
<i>Cyperus squarrosus</i>	Bearded flat sedge
<i>Damasonium minus</i>	Starfruit
<i>Eclipta prostrata</i>	White eclipta
<i>Eleocharis cylindrostachys</i>	Spike rush
<i>Eleocharis dietrichiana</i>	Spike rush
<i>Eleocharis dulcis</i>	Chinese water chestnut
<i>Eleocharis equisetina</i>	Spike rush
<i>Eleocharis philippinensis</i>	Spike rush
<i>Eleocharis plana</i>	Ribbed spike rush
<i>Eleocharis sphacelata</i>	Tall spike rush
<i>Eleocharis spp.</i>	Spike-rush
<i>Eragrostis brownie</i>	Browns love grass
<i>Eryngium vesiculosum</i>	Prostrate blue devil
<i>Eucalyptus tereticornis</i>	Qld blue gum
<i>Fimbristylis aestivalis</i>	Summer fimbry
<i>Fimbristylis depauperate</i>	Sedge
<i>Fimbristylis dichotoma</i>	Common finger rush

<i>Fimbristylis ferruginea</i>	Rusty sedge
<i>Fimbristylis velata</i>	Finger rush
<i>Fincinia nodosa</i>	Knobby club-rush
<i>Fuirena incrassate</i>	Umbrella sedge
<i>Gahnia aspera</i>	Saw sedge
<i>Gahnia sieberiana</i>	Red-fruited saw sedge
<i>Halosarcia halocnemoides</i>	Samphire
<i>Hydrilla verticillata</i>	Water thyme
<i>Juncus aridicola</i>	Tussock rush
<i>Juncus continuus</i>	Rush
<i>Juncus polyanthemus</i>	Rush
<i>Juncus subsecundus</i>	Rush
<i>Juncus usitatus</i>	Common rush
<i>Leersia hexandra</i>	Swamp ricegrass
<i>Lemma sp.</i>	Duck weed
<i>Lepironia articulata</i>	Rush
<i>Lomandra confertifolia</i>	Little mat-rush
<i>Lomandra hystrix</i>	Green mat-rush
<i>Lomandra longifolia</i>	Spiny-head mat-rush
<i>Ludwegia octovalvis</i>	Willow primrose
<i>Marsilea drummondii</i>	Common nardoo
<i>Marsilea mutica</i>	Nardoo
<i>Melaleuca bracteata</i>	Black tea-tree
<i>Melaleuca irbyana</i>	Swamp tea tree
<i>Melaleuca linariifolia</i>	Snow in summer
<i>Melaleuca quinquenervia</i>	Broadleaf paperbark
<i>Melaleuca sieberi</i>	Small leaved tea tree
<i>Monochoria cyanea</i>	Swamp hyacinth
<i>Myriophyllum errucosum</i>	Watermilfoil
<i>Myriophyllum sp.</i>	Watermilfoil
<i>Myriophyllum striatum</i>	Watermilfoil
<i>Najas tenuifolia</i>	Water nymph
<i>Nitella sp.</i>	Stonewort
<i>Nymphaea gigantea</i>	Giant waterlily
<i>Nymphaea sp.</i>	Waterlily
<i>Nymphaea violacea</i>	Native waterlily
<i>Nymphoides indica</i>	Water snowflake
<i>Ottelia ovalifolia</i>	Swamp lily
<i>Paspalum distichum</i>	Water couch
<i>Persicaria attenuata</i>	White Smart plant
<i>Persicaria decipiens</i>	Pink Smart plant

<i>Persicaria hydropiper</i>	Water pepper
<i>Persicaria lapathifolia</i>	Pale knotplant
<i>Persicaria orientalis</i>	Princes feather
<i>Persicaria prostrata</i>	Creeping smart plant
<i>Persicaria spp.</i>	Knotweed
<i>Persicaria subsessilis</i>	Hairy Smart plant
<i>Philydrum lanuginosum</i>	Frogsmouth
<i>Phragmites australis</i>	Common reed
<i>Phyla nodiflora</i>	Lippia
<i>Potamogeton crispus</i>	Curly pond plant
<i>Potamogeton javnicus</i>	Pond plant
<i>Potamogeton ochreatus</i>	Blunt pond plant
<i>Potamogeton tricarinatus</i>	Floating pond plant
<i>Ruppia maritima</i>	Sea tassel
<i>Salicornia quinqueflora</i>	Samphire
<i>Schoenoplectus mucronatus</i>	Three cornered club rush
<i>Schoenoplectus spp.</i>	Rush
<i>Schoenoplectus tabernaemontani</i>	Club rush
<i>Schoenoplectus validus</i>	River club rush
<i>Spirodela sp.</i>	Duck weed
<i>Triglochin procerum</i>	Water ribbons
<i>Typha sp.</i>	Cumbungi
<i>Utricularia gibba</i>	Yellow bladderwort
<i>Vallisneria nana</i>	Ribbon plant

SC6.7 Appendix 2: Salinity tolerant species

BOTANICAL NAME	COMMON NAME	SALT TOLERANCE	COMMENTS
Aquatic			
<i>Bolboschoenus fluviatilis</i>	Marsh Clubrush		
<i>Phragmites australis</i>	Common reed		
<i>Typha orientalis</i>	<i>Bull rush</i>		
Semi aquatic			
<i>Altermanthera denticulata</i>	Lesser joyweed		
<i>Bolboschoenus caldwellii</i>	A rush		
<i>Carex appressa</i>	Tall sedge		
<i>Eleocharis cylindrostachys</i>	Boeckeler		
<i>Eleocharis dietrichiana</i>			
<i>Eleocharis gracilis</i>	Slender spike rush		
<i>Goodenia paniculata</i>	Swamp goodenia		
<i>Juncus kraussii</i>	Sea rush		
<i>Juncus usitatus</i>	Common rush		
<i>Paspalum distichum</i>	Salt-water Couch		Grass that tolerates severely saline soils
<i>Sporobolus virginicus</i>	Sand Couch, Salt-grass	Extremely saline ¹	Grass that tolerates severely saline soils
Herbs and Grasses			
<i>Brunoniella australis</i>	Blue trumpet		
<i>Centella asiatica</i>	Gotu kola		
<i>Commelina cyanea</i>	Scurvy weed		
<i>Cynodon dactylon</i>	Common Couch	Highly saline ²	Grass for highly saline soils
<i>Danthonia spp.</i>	Wallaby grass		
<i>Einadia hastata</i>	Berry saltbush		
<i>Lomandra longifolia</i>	Mat rush	Extremely Saline ²	
<i>Paspalum distichum</i>	Salt-water couch	Extremely Saline ²	
<i>Sporobolus virginicus</i>	Marine couch	Extremely Saline ²	
<i>Stenotaphrum secundatum</i>	Buffalo grass		
<i>Themeda australis</i>	Kangaroo grass		
Trees and Shrubs			
<i>Acacia salicina</i>	Native wattle		Suitability for saline discharge sites
<i>Acacia stenophylla</i>	Shoestring acacia		Suitability for saline discharge sites
<i>Atriplex spp</i>	Saltbush		Suitability for saline discharge sites
<i>Allocasuarina torulosa</i>	Forest she-oak		
<i>Allocasuarina inophloia</i>	Woolly barked she-oak		

<i>Allocasuarina littoralis</i>	Black she-oak	Slightly saline ¹	Drier areas (i.e. adjacent to drainage channel)
<i>Allocasuarina torulosa</i>	Forest oak	Slightly saline ¹	Drier sites
<i>Angophora floribunda</i>	Rough-barked Apple		
<i>Angophora subvelutina</i>	Broad-leaved Apple		
<i>Atriplex semibaccata</i>	Half-berried salt bush	Extremely Saline ¹	This species may be an indicator of saline soils.
<i>Atriplex cinerea</i>	Gray Saltbush	Extremely Saline ¹	Not a native to the area
<i>Baeckea virgata</i>	Twiggy Heath Myrtle		
<i>Bursaria spinosa</i>	Blackthorn		This plant is very tough and vandal proof (Spiky)
<i>Callistemon montanus</i>	Mountain Bottlebrush		Suitability for saline discharge sites
<i>Callistemon phoeniceus</i>	Bottlebrush		Suitability for saline discharge sites
<i>Callistemon rigidus</i>	Stiff bottlebrush		Suitability for saline discharge sites
<i>Casuarina cristata</i>	Belah		Suitability for saline discharge sites
<i>Casuarina cunninghamiana</i>	River she-oak	High ²	Adjacent to drainage channel, including banks if possible. <i>C. glauca</i> is more salt tolerant than <i>C cunninghamiana</i> .
<i>Casuarina equisetifolia var incana</i>	Coastal she-oak	Very Saline ¹ Moderate ²	Suitability for saline discharge sites
<i>Casuarina glauca</i>	Swamp she-oak	Extremely saline ¹ Very High ²	Suitability for saline discharge sites
<i>Chenopodium auricomum</i>	Queensland bluebush		
<i>Corymbia maculata</i>	Spotted Gum	Slightly saline ¹ High ²	
<i>Eucalyptus amplifolia</i>	Cabbage Gum		
<i>Eucalyptus argophloia</i>	Queensland western white gum		Suitability for saline discharge sites
<i>Eucalyptus bosistoana</i>	Coast Grey Box		
<i>Eucalyptus brassiana</i>	Cape York red gum		
<i>Eucalyptus camaldulensis</i>	River red gum		Suitability for saline discharge sites
<i>Eucalyptus curtisii</i>	Plunkett mallee		Suitability for saline discharge sites
<i>Eucalyptus elata</i>	River peppermint, River white gum	Slightly saline ¹	
<i>Eucalyptus longicornis</i>	Red morrel		Suitability for saline discharge sites
<i>Eucalyptus microtheca</i>	Coolibah		Suitability for saline discharge sites
<i>Eucalyptus moluccana</i>	Grey box	Moderate Saline ¹ High ²	Suitability for saline discharge sites
<i>Eucalyptus sideroxylon</i>	Red Ironbark	Slightly saline ¹ High [2]	Suitability for saline discharge sites

<i>Eucalyptus tereticornis</i>	Forest Red Gum	Moderate saline ¹ High ²	Suitability for saline discharge sites
<i>Leucopogon virgatus</i>	Common beard-heath		
<i>Leptospermum polygalifolium</i>	Yellow tea tree		Suitability for saline discharge sites
<i>Melaleuca armillaris</i>	Bracelet honey myrtle	Moderate saline ¹ Moderate ²	
<i>Melaleuca bracteata</i>	Black tea tree		Suitability for saline discharge sites
<i>Melaleuca decora</i>	White feather honeymyrtle		
<i>Melaleuca decussata</i>	Cross-leaf honey-myrtle		Suitability for saline discharge sites
<i>Melaleuca ericifolia</i>	Swamp paperbark	Moderate saline ¹	Very wet sites or moist slopes — clumping or suckering species
<i>Melaleuca leucadendra</i>	Weeping paperbark		Suitability for saline discharge sites
<i>Melaleuca linariifolia</i>	Snow-in-summer	Moderate saline ¹ Moderate ²	Suitability for saline discharge sites
<i>Melaleuca nodosa</i>	Ball honey myrtle	Moderate ²	These plants will add variety as well as being able to tolerate some level of soil salinity.
<i>Melaleuca quinquenervia</i>	Broad-leafed paperbark	Moderate saline ¹ Moderate ²	Small to medium tree that should tolerate some salt and will add to species diversity.
<i>Melaleuca styphelioides</i>	Prickly-leaved paperbark	Moderate saline ¹	
<i>Melaleuca thymifolia</i>	Thyme honey-myrtle		Suitability for saline discharge sites
<i>Melia azedarach</i>	Chinaberry or White cedar		Suitability for saline discharge sites
<i>Myoporum acuminatum</i>	Beach boobialla		
<i>Myoporum ellipticum</i>	Coastal boobialla		
<i>Myoporum montanum</i>	Water bush		
<i>Myoporum parviflorum</i>	Creeping boobialla		
<i>Senna coronilloides</i>	Brigalow senna		
<i>Syzygium forte spp. forte</i>	White apple		Suitability for saline discharge sites

Note—

¹ Refer to Western Australian Government's Salinity tolerance of plants for agriculture and revegetation http://www.agric.wa.gov.au/environment/salinity/measurement/Plant_salt_tolerance.htm where the following have been defined:

- a. Extremely Saline - Ece > 16 dS/m;
- b. Very Saline - Ece 8-16 dS/m;
- c. Moderate Saline - Ece 4-8 dS/m;
- d. Slightly Saline - Ece 2-4 dS/m.

² Refer to the Salinity Management Handbook Department of Natural Resources Queensland (1997).

SC6.7 Appendix 3: Preferred street tree species

SPECIES	COMMON NAME	SUITABILITY			
		VERGE PLANTING	ROUND-A-BOUT	MEDIAN PLANTING	UNDER POWER LINES
<i>Allocasuarina littoralis</i>	Black sheoak		✓	✓	
<i>Allocasuarina torulosa</i>	Forest oak		✓	✓	
<i>Backhousia citriodora</i>	Lemon Scented Ironwood	✓			
<i>Banksia integrifolia</i>	Coastal banksia		✓	✓	
<i>Barklya syringifolia</i>	Crown of gold		✓	✓	
<i>Brachychiton acerifolius</i>	Illawarra flame tree	✓	✓	✓	✓
<i>Backhousia citriodora</i>	Lemon scented myrtle	✓			✓
<i>Backhousia myrtifolia</i>	Cinnamon myrtle	✓			
<i>Buckinghamia celsissima</i>	Ivory curl flower	✓	✓	✓	✓
<i>Callistemon salignus</i>	Willow bottlebrush	✓			✓
<i>Callistemon viminalis</i>	Weeping bottlebrush	✓			✓
<i>Casuarina cunninghamina</i>	River she-oak		✓	✓	
<i>Casuarina glauca</i>	Swamp oak		✓	✓	
<i>Cupaniopsis anacardiodes</i>	Tuckeroo	✓			✓
<i>Elaeocarpus reticulatis</i>	Blueberry ash		✓	✓	
<i>Elaeocarpus grandis</i>	Blue quandong	✓			
<i>Flindersia australis</i>	Crows ash	✓	✓		
<i>Grevillea baileyana</i>	White Oak	✓			
<i>Grevillea banksii</i>	Banks Grevillea	✓			✓
<i>Grevillea robusta</i>	Silky oak		✓	✓	
<i>Glochidion ferdinandii</i>	Cheese tree	✓			
<i>Harpullia pendula</i>	Tulipwood	✓	✓		
<i>Lagerstroemia indica</i>	Crape myrtle	✓			✓
<i>Lepiderema pulchella</i>	Fine-leaved tuckeroo	✓			✓
<i>Lophostemon confertus</i>	Brush box	✓	✓		
<i>Lophostemon suaveolens</i>	Swamp box	✓			
<i>Melaleuca leucadendra</i>	Weeping Paperbark	✓			
<i>Melaleuca quinquenervia</i>	Broad Leaved Paperbark	✓			
<i>Melicope elleryana</i>	Pink doughwood	✓			
<i>Neolitsea dealbata</i>	White bolly gum	✓			
<i>Notelaea longifolia</i>	Long-leaved mock olive	✓			
<i>Podocarpus elatus</i>	Plum pine	✓	✓	✓	

<i>Pullea stutzeri</i>	Hard alder		✓	✓	
<i>Rhodomyrtus psidioides</i>	Native guava		✓	✓	
<i>Stenocarpus sinuatus</i>	Firewheel tree	✓	✓	✓	
<i>Syzygium francisii</i>	Giant water gum	✓			✓
<i>Syzygium leuhmanii</i>	Small-leaved lilly pilly	✓			✓
<i>Tristaniopsis laurina</i>	Water gum	✓			
<i>Waterhousea floribunda</i>	Weeping Lilly Pilly	✓			
<i>Xanthostemon chrysanthus</i>	Golden penda	✓			✓

SC6.7 Appendix 4: Town Streetscaping

SC6.7.10 Gatton and Plainland streetscaping

SCIENTIFIC NAME	COMMON NAME
Trees	
<i>Atalaya salicifolia</i>	Scrub whitewood
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachychyton populneus</i>	Kurrajong
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Flindersia australis</i>	Crows ash
<i>Harpullia pendula</i>	Tulipwood
<i>Lophostemon suaveolens</i>	Swamp box
<i>Melaleuca salignus</i>	White bottle brush
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Waterhousea floribunda</i>	Weeping lilly pilly
Grasses or Groundcovers	
<i>Callistemon sp.</i>	'Little John'
<i>Coleus alloplectus</i>	Narrow leaved coleus
<i>Coleus australis</i>	Small flowered coleus
<i>Coleus suaveolens</i>	Sticky leaved coleus
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Dianella brevipedunculata</i>	Bent leaf flax lily
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Lomandra hystrix</i>	Creek mat rush
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Turraea pubescens</i>	Native Witchhazel
<i>Zieria cytisoides</i>	Downy zieria

SC6.7.11 Helidon Streetscaping

SCIENTIFIC NAME	COMMON NAME
Trees	
<i>Acacia maidenii</i>	Maidens wattle
<i>Acmena smithii</i>	Creek lilly pilly
<i>Allocasuarina littoralis</i>	Black she-oak
<i>Brachychiton rupestris</i>	Queensland Bottle Tree
<i>Hibiscus heterophyllus</i>	Native hibiscus
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Myrsine variabilis</i>	Muttonwood
<i>Pipturus argenteus</i>	Native mulberry

Shrubs to 5m	
<i>Leptospermum Crimson Cascade</i>	Tea tree
<i>Leptospermum Pink Cascade</i>	Tea tree
<i>Leptospermum poligalifolium</i>	Tantoon
Grasses or Groundcovers	
<i>Grevillea Misty Pink</i>	Grevillea Misty Pink
<i>Hardenbergia violacea 'Meema'</i>	Hardenbergia Meema
<i>Hymenocallis littoralis</i>	Spider Lilly
<i>Lomandra longifolia'</i>	Spiny Matt Rush
<i>Melaleuca thymifolia</i>	Melaleuca Little Beauty
<i>Scaevola aemula</i>	Fairy fan flower
<i>Tulbaghia violecea</i>	Society Garlic
<i>Turraea pubescens</i>	Native Witchhazel
<i>Westringia 'Jarvis Gem'</i>	Rosemary
<i>Zieria cytisoides</i>	Downy zieria

SC6.7.12 Laidley Streetscaping

SCIENTIFIC NAME	COMMON NAME
Trees	
<i>Acacia falcata</i>	Falcate wattle
<i>Brachychiton rupestris</i>	Queensland Bottle Tree
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Croton insularis</i>	Silver Croton
<i>Cyclophyllum coprosmoides</i>	Coastal Canthium; Coastal coffee
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Melia azedarach</i>	White Cedar
<i>Polyscias elegans</i>	Celery wood
Shrubs to 5m	
<i>Leptospermum Crimson Cascade</i>	Tea tree
<i>Leptospermum Pink Cascade</i>	Tea tree
<i>Leptospermum poligalifolium</i>	Tantoon
Grasses or Groundcovers	
<i>Dianella brevipedunculata</i>	Bent leaf flax lily
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Grevillea 'Bronze Rambler'</i>	Prostate Grevillea
<i>Grevillea 'Poorinda Royal Mantle'</i>	Prostate Grevillea
<i>Leptospermum Crimson Cascade</i>	Tea tree
<i>Leptospermum Pink Cascade</i>	Tea tree
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Turraea pubescens</i>	Native Witchhazel

SC6.7.13 Withcott Streetscaping

SCIENTIFIC NAME	COMMON NAME
Trees	
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Alphitonia excelsa</i>	Soap Tree
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachychiton rupestris</i>	Narrow-leaved bottle tree
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Melaleuca linariifolia</i>	Narrow-leaved paperbark
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Psyrax odorata</i>	Sweet suzie
<i>Syzygium luehmannii</i>	Small Leaf Lilly Pilly
Shrubs to 5m	
<i>Leptospermum petersonii</i>	Lemon Scented Tea Tree
<i>Leptospermum polygalifolium</i>	Tantoon
<i>Myoporum acuminatum</i>	Boobialla
Grasses or Groundcovers	
<i>Callistemon 'Little John'</i>	Callistemon Little John
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Grevillea 'Ivory Whip'</i>	Grevillea 'Ivory Whip'
<i>Grevillea 'Kay Williams'</i>	Grevillea 'Kay Williams'
<i>Grevillea 'Misty Pink'</i>	Grevillea 'Misty Pink'
<i>Grevillea juniperina 'Molongolo'</i>	Grevillea 'Molonglo'
<i>Hardenbergia violacea 'Meema'</i>	Hardenbergia Meema
<i>Leptospermum petersonii</i>	Lemon Scented Tea Tree
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Scaevola aemula</i>	Blue Ribbon
<i>Turraea pubescens</i>	Native Witchhazel
<i>Westringia fruticosa</i>	Coastal Rosemary

SC6.7.14 Forest Hill Streetscaping

SCIENTIFIC NAME	COMMON NAME
Trees	
<i>Araucaria cunninghamii</i>	Hoop Pine
<i>Backhousia citriodora</i>	Lemon-scented myrtle
<i>Brachychiton discolor</i>	Lacebark tree
<i>Buckinghamia celsissima</i>	Ivory Curl
<i>Cupaniopsis anacardioides</i>	Tuckeroo
<i>Harpulia pendula</i>	Tulipwood
<i>Hibiscus heterophyllus</i>	Native hibiscus

<i>Myrsine variabilis</i>	Muttonwood
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<i>Stenocarpus sinuatus</i>	Firewheel Tree
Shrubs to 5m	
<i>Leptospermum polygalifolium</i>	Tantoon
<i>Myoporum acuminatum</i>	Waterbush
<i>Olearia elliptica</i>	Scrub daisy
Grasses or Groundcovers	
<i>Callistemon sp.</i>	Little John
<i>Crinum pedunculatum</i>	Brisbane River Lily
<i>Dianella caerulea</i>	Blue Flax Lily
<i>Hardenbergia violacea 'Meema'</i>	Hardenbergia Meema
<i>Lomandra longifolia</i>	Spiky Matt Rush
<i>Myoporum acuminatum</i>	Waterbush
<i>Olearia elliptica</i>	Scrub daisy
<i>Turraea pubescens</i>	Native Witchhazel
<i>Westringia 'Jarvis Gem'</i>	Rosemary

SC6.7 Appendix 5: Screen landscaping plant species

SCIENTIFIC NAME	COMMON NAME	PLANTING INTERVALS
Pioneer species (tree planting)		
<i>Acacia blakei</i> subsp. <i>diphylla</i>	Gorge wattle	Every 3m
<i>Acacia disparrima</i>	Hickory wattle	
<i>Acacia maidenii</i>	Maidens wattle	
<i>Acacia salicina</i>	Sally wattle	
Shrub species		
<i>Melaleuca alternifolia</i>	Snow in summer	Every 5m to infill gaps between tree planting
<i>Melaleuca formosa</i>	Cliff bottlebrush	
<i>Melaleuca irbyana</i>	Swamp tea tree	
<i>Melaleuca quinquenervia</i>	Broad leaved paperbark	
<i>Melaleuca sieberi</i>	Small leaved paperbark	
<i>Melaleuca stypheliodes</i>	Prickly paperbark	
<i>Melaleuca viminalis</i>	Weeping bottlebrush	
<i>Harpullia pendula</i>	Tulipwood	
<i>Leptospermum polygalifolium</i>	Tantoon	
Groundcover species		
<i>Dianella brevipedunculata</i>	Bent leaved flax lily	Every 1m
<i>Dianella caerulea</i>	Blue flax lily	
<i>Eremophila debilis</i>	Winter berry	
<i>Hardenbergia violacea</i>	False Sarsaparilla	
<i>Lomandra hystrix</i>	Creek mat rush	
<i>Lomandra longifolia</i>	Creek mat rush	
<i>Myoporum acuminatum</i> (<i>prostrate form</i>)	Creeping boobialla	
Low density screen landscaping tree planting		
<i>Glochidion ferdinandi</i>	Cheese Tree	Every 4m <i>Note—High density planting species can also be used in the low-density planting area.</i>
<i>Jagera pseudorhus</i>	Foam Bark	
<i>Melaleuca salicina</i>	Willow bottlebrush	
<i>Melaleuca viminalis</i>	Weeping Bottlebrush	
High density screen landscaping tree planting		
<i>Acmena smithii</i>	Creek lilly pilly	Every 3m
<i>Allocasuarina torulosa</i>	Forest she-oak	
<i>Allocasuarina littoralis</i>	Black she-oak	
<i>Casuarina cristata</i>	Belah	
<i>Melaleuca bracteata</i>	Black tea tree	
<i>Syzygium australe</i>	Creek cherry	
<i>Hymenosporum flavum</i>	Native frangipani	

SC6.7 Appendix 6: Undesirable plant species

SCIENTIFIC NAME	COMMON NAME	FORM	REASON FOR UNDESIRABILITY
<i>Allamanda spp.</i>	Allamanda	Shrub	Poisonous: Unsuitable for parks
<i>Alocasia brisbanensis (macrorrhiza)</i>	Cunjevoi	Shrub	Poisonous: Unsuitable for parks
<i>Araucaria bidwilli</i>	Bunya pine	Tree	Large nuts fall: Unsuitable for public areas and road reserves
<i>Aristolochia durior</i> ; or <i>Aristolochia elegans</i> ; or <i>Aristolochia macrophylla</i>	Dutchman's Pipe	Climbing vine	Poisonous: Unsuitable for parks
<i>Banksia integrifolia</i>	Coastal banksia	Small tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Bougainvillea spp.</i>	Bougainvillea	Shrub	Unsuitable for parks and public areas
<i>Callistemon salignus</i>	White bottlebrush	Small tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Callistemon viminalis</i>	Weeping bottlebrush	Medium tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Casuarina cunninghamiana</i>	Creek she-oak	Large tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Casuarina glauca</i>	Swamp sheoak	Large tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Duranta spp.</i>	Golden dew drop; prickly duranta	Shrub	Poisonous: Unsuitable for parks
<i>Ervatamia coronaria</i>	Crepe jasmine	Shrub	Poisonous: Unsuitable for parks
<i>Eucalyptus intermedia</i>	Red bloodwood	Large tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Eucalyptus microcorys</i>	Tallowood	Large tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Eucalyptus robusta</i>	Swamp mahogany	Large tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Euphorbia spp.</i>	Poinsettia	Shrub	Poisonous: Unsuitable for parks
<i>Ficus spp.</i>	Fig	Tree	Invasive root systems
<i>Glochidion ferdinandii</i>	Cheese tree	Medium tree	Shallow roots: Unsuitable in or near subsurface disposal area
<i>Jagera pseudorhus</i>	Foam bark tree	Tree	Poisonous: Unsuitable for parks

SC6.8 Scenic landscape assessment

SC6.8.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.8 Scenic landscape assessment as supporting an outcome of the code.

SC6.8.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the planning scheme and applies when development is proposed in an area identified on OM10 Scenic landscape overlay.
2. This policy specifically relates to the assessment of section 8.10 Scenic landscape overlay code and ensuring development is consistent with the purpose and performance outcomes of the code.

SC6.8.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. ensure scenic landscape values are considered and proposed development is designed to protect landscape features;
 - b. provide supporting information about achieving outcomes of the Scenic landscape overlay code;
 - c. provide guidance about information that may be required to support a development application where affecting scenic landscapes.
2. An information request will be requested where the information required by this policy is not supplied when a development application is made.

SC6.8.4 Qualifications

1. A scenic landscape and visual assessment for the development should be conducted by an Architect, Landscape architect, or Urban designer with five years of technical experience in scenic landscape and visual assessments.
2. The qualifications, experience and licences of the person undertaking the scenic landscape and visual assessment must be stated within the assessment report.
3. Where proposing to engage a suitably qualified person with qualifications other than those listed, prior approval by Council is required.

SC6.8.5 Technical standards

1. The following studies and guidelines are relevant when preparing a scenic landscape and visual assessment.
2. A reference in the policy to a specific guideline or document means the latest version of the guideline or document.

SC6.8.5.1 Study

1. The following studies are relevant when preparing a Scenic landscape assessment:
 - a. Gatton Shire Council, Laidley Shire Council, Esk Shire Council, the Environmental Protection Agency, Powerlink Queensland (2002) *Scenic Amenity of the Lockyer: A community resource for the enjoyment of current and future generations*, Forest Images, Brisbane;
 - b. State of Queensland, the Department of State Development, Infrastructure, Local Government and Planning, (2023) *ShapingSEQ: South East Queensland Regional Plan 2023*, p.132, Map 17 Regional landscape values, Regionally significant scenic amenity.

SC6.8.5.2 Guidelines

1. The following guidelines are relevant when preparing a Scenic landscape assessment:
 - a. Australian Institute of Landscape Architects (2018) *Guidance Note for Landscape and Visual Assessment*.
 - b. Sullivan, R. and Meyer. M. (2014) *Guide to Evaluating Visual Impact Assessments for Renewable Energy Projects: Natural Resource Report NPS/ARD/NRR—2014/836*, National Park Service, Fort Collins, Colorado.

SC6.8.6 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.8.7 Scenic landscape overlay map methodology

1. The Scenic landscape overlay uses the outcomes of the Scenic Amenity of the Lockyer: A community resource for the enjoyment of current and future generations ('the Study'). The outcome of the Study has been simplified to create a useable overlay map and workable code.
2. The Study divides the map features into categories numbered 1 to 10, where 1 has the lowest value and 10 the highest.
3. Map 4 of the Study categorises the view networks. View networks with a rating of 9 and 10 have been merged to identify the extent of viewing corridors.
4. Map 8 of the Study categorises the scenic amenity of the landscape. Categories 9 and 10 have been merged to define areas of the region identified in the overlay as Scenic landscape areas.

SC6.8.8 Addressing assessment benchmarks

1. Compliance with Performance Outcomes PO1 to PO8 of Table 8.10-1 of the Scenic landscape overlay code may be demonstrated in part or aided by the submission of a Scenic landscape assessment prepared by a suitably qualified person as indicated in section SC6.8.4.
2. A Scenic landscape assessment needs to consider existing landscape features of the site and surrounds, and/or combinations of attractive landscapes.
3. Scenic landscape assessments may vary depending on the specific values of the Scenic landscape area.

SC6.8.9 Guidance for the preparation of a Scenic landscape assessment

1. Scenic landscape assessments are to describe, through detailed analysis and assessment, the following as relevant:
 - a. the effect of development on visual qualities and characteristics of the landscape;
 - b. the impact of the development on the views of the Scenic landscape area;
 - c. how the design of development minimises its impact on surrounding views by siting, stepping, chamfering or breaking up the visible mass of the building form or roofline, or by other design responses;
 - d. the visual impact of the development when seen from roads and other public spaces and how the design of the development seeks to minimise the visual impacts by providing appropriate design responses and landscaping.

SC6.8.9.1 Information to be included in Scenic landscape assessments

1. The following information must be included in a Scenic landscape assessment:
 - a. **Context and setting:**
 - i. Provide a plan showing the proposed development in relation to ridges, peaks, escarpments, skyline features and watercourses;
 - ii. Identify the view shed/s of significant viewpoints (including but not necessarily limited to views from viewing corridors and lookouts, towns and public places, and sensitive land uses);
 - iii. Identify existing vegetation on site.
 - b. **Development visibility:**
 - i. Provide a plan or similar identifying the zone of visual influence, showing places where the development is likely to be visible from, at different viewing distances.
 - c. **Development appearance:**
 - i. Provide photographs, photomontage/s or similar visualisation of the proposed development from public viewing place/s, including sight line sections, views to background landscape features, and details of height of existing screening vegetation.
 - d. **Development screening and other mitigation measures:**
 - i. Provide details of proposed setbacks, screening, earthworks, built form, materials and colours;
 - ii. Identify vegetation to be retained and/or removed;
 - iii. Provide a landscape concept plan for screening vegetation and visual integration (SC6.1 Biodiversity provides information on restoration buffers and SC6.7 Landscaping provides information on screen landscaping).
 - e. **Landscape character analysis:**
 - i. Provide a description of existing character of the surrounding area and comment on whether the development is consistent or incongruous with the existing character of the locality.
 - f. **View analysis:**

- i. Provide sight lines and cross sections of the proposed development with the retained or proposed landscaped vegetation.
- g. **Visual impact assessment:**
 - i. Provide an assessment of negative effects on views, visible features and scenic landscape values.

SC6.8.10 Mitigation methods

1. Adverse effects of development on features of scenic value may be mitigated by incorporating the following design responses:
 - a. retaining and/or restoring vegetation on ridgelines and prominent slopes;
 - b. retaining and/or restoring waterways and overland flow paths;
 - c. locating buildings below the canopy height of surrounding trees or ridgelines;
 - d. retaining established mature trees and groves of established vegetation;
 - e. using materials and finishes that have a matte or non-reflective appearance to the exterior of the buildings or structures;
 - f. using materials and finishes that have muted colours to the exterior of the buildings or structures;

Note—Muted colours are colours with low saturation or chroma. Muted colours are created by adding black, white, or complimentary colours to a base colour, therefore, greying, dulling, or desaturating it.

- g. using materials in their natural state;
- h. avoiding the use of building styles that are incompatible with the natural or rural landscape;
- i. avoiding extended straight lengths of new road or driveways in areas of hilly topography that are seen from other public places or a road pattern that is inconsistent with the established streetscape character of adjacent areas;
- j. avoiding the use of fencing, landscaping and lighting treatments that are 'urban' in character and providing features that have a rural character;
- k. providing building setbacks from lot boundaries and spaces between buildings that are proportionate to the lot area and consistent with the setbacks of other buildings in adjacent area;
- l. locating buildings and other structures to keep significant views and not obscure or interrupt the views from lookouts, viewing corridors and other public spaces.

SC6.9 Stormwater management

SC6.9.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.9 Stormwater management as supporting an outcome of the code.

SC6.9.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the Planning Scheme and applies to the whole of the local government area. This Policy specifically relates to section 9.4.7 Stormwater management code and ensuring development is consistent with the stormwater management design objectives specified in the code.

SC6.9.3 Purpose

1. The purpose of this planning scheme policy is to ensure that development complies with the local government's standards for the planning and design of stormwater infrastructure by:
 - a. providing about achieving outcomes in the planning scheme code;
 - b. identifying requirements for site assessments and management plans;
 - c. providing supporting technical information, where relevant;
 - d. identifying other guidelines, standards and information sources;
 - e. ensuring stormwater management issues are appropriately addressed at the reconfiguring a lot and material change of use stages and any problems are identified and addressed prior to the operational works stage.
2. An information request will be requested where the information required by this policy is not supplied when a development application is made.

SC6.9.4 Qualifications

1. Stormwater quality and quantity management must be designed and certified by a suitably qualified person. A suitably qualified person is one (or more) of the following:
 - a. For Urban Stormwater Quality and Quantity Management: A Registered Professional Engineer of Queensland (RPEQ) (civil engineering, environmental engineering). The person must have at least 5 years demonstrated experience in the design and delivery of stormwater management strategies.
 - b. For Erosion and Sediment Control: A person who has minimum 5 year experience as a Certified Practitioner in Erosion and Sediment Control (CPESC) or a suitably experienced engineer (RPEQ) with training in soil science and erosion and sediment control. Such persons will be responsible for designing erosion and sediment control plans and supervising the delivery of erosion and sediment control on development sites.
 - c. Non-tidal artificial waterways: A person with tertiary qualifications or equivalent, such as an RPEQ (environmental engineering) or environmental scientist (or similar), and at least 5 years demonstrated experience in the design and management of non-tidal artificial waterways or lakes.

Note—At suitable qualification in one of the disciplines above does not necessarily mean the person is qualified in all aspects of stormwater management. For example, a person qualified to complete stormwater quality and quantity management does not necessarily qualify for non-tidal artificial waterways, lake design or geomorphic assessment.

Note—Erosion and sediment control plan means a plan:

- a. prepared by an appropriately qualified person; and
- b. stating measures to be implemented, including measures relating to the design and location of buildings and structures, to minimise erosion and sediment run-off impacts of the use.

SC6.9.5 Technical standards

1. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the resource, guideline, standard or document. Refer also to section 4 - Flood hazard policy.
2. The listed technical standards are not intended to be exhaustive. It is expected that appropriate references are also used in accordance with accepted best practice.

SC6.9.5.1 Guidelines

1. Accepted development requirements for the construction of new levees or the modification of existing levees
2. Beesley LS, Middleton J, Gwinn DC, Pettit N, Quinton B and Davies PM, Riparian Design Guidelines to Inform the Ecological Repair of Urban Waterways (2017), Melbourne, Australia: Cooperative Research Centre for Water Sensitive Cities.
3. Brisbane City Council, Natural Channel Design Guidelines.
4. Department of Environment and Science Monitoring and Sampling Manual: Environmental Protection (Water) Policy
5. Department of Environment and Science Procedural guide: Releases to waters from land development sites and construction sites 2500m² and greater
6. Engineers Australia, Australian Run-off Quality: A guide to Water Sensitive Urban Design.
7. Environmental Protection (Water and Wetland Biodiversity) Policy 2019, Lockyer River Environmental Values and Water Quality Objectives, Part of Basin 143
8. Erosion and Sediment Control — A Field Guide for Construction Site Managers
9. Guideline for construction of new levees or modification of existing levees
10. Guidelines for construction or modification of category 1 levees
11. Guidelines for construction or modification of category 2 and 3 levees
12. Guidelines for failure impact assessment of water dams.
13. MUSIC Modelling Guidelines.
14. Queensland Dam Safety Management Guideline.
15. Small Dam Safety: Information for Queensland small dam owners.

SC6.9.5.2 Standards

1. Australian Rainfall and Runoff
2. ARR Data Hub <https://data.arr-software.org>
3. AS.1289.3.6.3:2020 Methods of testing soils for engineering purposes, Part 3.6.3: Soil classification tests — Determination of the particle size distribution of a soil — Standard method of fine analysis using a hydrometer
4. Austroads, Guide to Bridge Technology Part 8: Hydraulic Design of Waterway Structures and supporting information
5. Department of Agriculture and Fisheries, Accepted development requirements for operational work that is constructing or raising waterway barrier works
6. Department of Agriculture and Fisheries, Habitat Guidelines
 - a. Fish passage in streams: Design of stream crossings (FHG 001);
 - b. Restoration of fish habitats: Marine areas (FHG 002);
 - c. Fish habitat buffer zones (FHG 003);
 - d. Mangrove nurseries: Construction, propagation and planting (FHG004).
7. *Environmental Protection Act 1994*
8. Erosion and Sediment Control Decision Support Tools for Local Government templates including:
 - a. Design Certificate for Erosion and Sediment Control.
 - b. Inspection Certificate for Erosion and Sediment Control.
 - c. Erosion and Sediment Control Plan Checklist.
 - d. Erosion and Sediment Control Development Site Audit Checklist.
 - e. Erosion and Sediment Control Pre-start Meeting Checklist.
9. International Erosion Control Association, Best Practice Erosion and Sediment Control
10. IPWEAQ Standard Drawings
11. Queensland Urban Drainage Manual
12. Transport and Main Roads, Road Drainage Manual
13. Water Sensitive Urban Design Principles including Water by Design Guidelines:
 - a. Bioretention Technical Design Guidelines;
 - b. Construction and Establishment Guidelines: Swales Bioretention Systems and Wetlands;
 - c. Cost of Maintaining Bioretention;
 - d. Framework for the Integration of Flood and Stormwater into Open Space;
 - e. Maintaining Vegetated Stormwater Assets;
 - f. Rectifying Vegetated Stormwater Assets;
 - g. Stormwater harvesting guidelines;
 - h. Transferring Ownership of Vegetated Assets;
 - i. Waterbody management guidelines;
 - j. Wetland Technical Design Guidelines.
14. Accepted development requirements for the construction of new levees or the modification of existing levees

Table SC6.9.5-1: Minimum water quality technical standards to be used at each stage of development

DEVELOPMENT STAGE	STANDARD
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Planning application (Concept design)	Best Practice Erosion and Sediment Control Living waterways booklet Queensland Urban Drainage Manual MUSIC Modelling Guidelines Water Sensitive Urban Design Guides: <ol style="list-style-type: none"> Water by Design: Concept Design Guidelines for Water Sensitive Urban Design Water by Design: Deemed to Comply Solutions— Stormwater Quality Water by Design: MUSIC Modelling Guideline Water by Design: Stormwater Harvesting Guideline Water by Design: Water Sensitive Urban Design Technical Design Guidelines for South East Queensland
Operational works application (Detailed design)	Best Practice Erosion and Sediment Control Living waterways booklet Queensland Urban Drainage Manual IPWEAQ Standard Drawings Water Sensitive Urban Design Principles: <ol style="list-style-type: none"> Water by Design: Bioretention Technical Design Guideline Water by Design: Cost of Maintaining Bioretention Water by Design: Water Sensitive Urban Design Technical Design Guidelines for South East Queensland Water by Design: Wetland Technical Design Guidelines
Construction phase	Best Practice Erosion and Sediment Control Water Sensitive Urban Design Guides: <ol style="list-style-type: none"> Water by Design: Construction and Establishment Guidelines: Swales, Bioretention Systems and Wetlands Water by Design: Transferring Ownership of Vegetated Assets
Post construction phase	Water Sensitive Urban Design Principles: <ol style="list-style-type: none"> Water by Design: Maintaining Vegetated Stormwater Assets Water by Design: Rectifying Vegetated Stormwater Assets Water by Design: Transferring Ownership of Vegetated Assets

SC6.9.6 Consultation

- Council may seek third party advice or comment about an application where:
 - development may conflict with a code; or
 - technical advice is required to assess the development.
- Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.9.7 Requirements for stormwater assessment and management plans

- A Stormwater assessment and management plan should include the following:
 - project location and address;
 - project title and description;
 - the date on which the assessment and any plans were prepared, including any amendments;
 - name and relevant professional qualifications of the person/s preparing the assessment;
 - for all plans include a north point, scale, location of property boundaries, road alignments and street names.
- A Stormwater management plan should provide the minimum requirements shown in the table below:

Table SC6.9.7-1: Standard requirements for impact assessments and mitigation plans

SECTION:	DETAILS
1: Summary	This section should include: <ol style="list-style-type: none"> authorship details including contact information; industry accreditation number; document certification by RPEQ; assumptions, design criteria, hydrologic and hydraulic assessment, results and key findings, recommendations and conclusions; any areas of non-compliance with the Stormwater Management code; how areas of non-compliance with the Stormwater Management code will be managed or overcome.

<p>2: Introduction</p>	<p>This section should include:</p> <ul style="list-style-type: none"> a. the purpose, aims and objectives of the Stormwater assessment and management plan; b. scope of study including any limitations; c. any previous deal with stormwater management; d. any related reports that which should be read with this report such as waterway assessments and soil investigations; e. any previous approvals or request for information (if relevant).
<p>3: Existing site conditions</p>	<p>This section should include information and plans showing:</p> <ul style="list-style-type: none"> a. existing and land use or development including extent of existing impervious area; b. site topography survey including spot levels, contours, boundaries, waterways, vegetation (particularly regional ecosystem mapping), easements and other relevant site features catchment and sub catchments boundaries including a description of external catchments, upstream catchment and the downstream receiving environments; c. site geology survey of soil type (including salinity, dispersive potential, iron content and potential ground water issues (as applicable)); d. existing vegetation including areas to be cleared and retained; e. all relevant hydrological/drainage features including pre-development catchments and drainage needs to be shown on plans. <ul style="list-style-type: none"> i. major and minor flow paths and inundation extents and levels including design events for assessment (whre applicable); ii. all discharge points from the site including drain location/s, dimensions, elevation/s and capacity; iii. any local flooding issues; f. any other site-specific issues. <p><i>Note—Many areas of the Council's stormwater system are known to have capacity issues and a detailed assessment may be required to ensure that new development does not worsen existing stormwater drainage problems.</i></p>
<p>4: Development details</p>	<p>This section should include:</p> <ul style="list-style-type: none"> a. site details, real property description and street address; b. description of the proposed development and resulting land use/s; c. details of any relevant previous approvals; d. the date on which the assessment and any plans were prepared, including any amendments; e. name and relevant professional qualifications of the person/s preparing the assessment and management plan; f. plans that show all the development details, including those relevant to the stormwater designs; g. proposed development details including land use, scale, densities, site coverage and impervious area; h. proposed development details relevant to the stormwater drainage system including: <ul style="list-style-type: none"> i. an analysis of the capacity of the system to accept any extra flows, ii. existing stormwater devices, such as drains, detention basins, iii. stormwater quality improvement devices, and existing easements. <p><i>Note—The lawful point of discharge for the development is to be identified in accordance with QUDM and Section 4 — Stormwater drainage and water sensitive urban design.</i></p>
<p>5: Catchment design objectives</p>	<p>This section should identify all of the stormwater management objectives which apply to the development must be listed in the report. These include:</p> <ul style="list-style-type: none"> a. erosion and sediment control; b. stormwater quality; c. stormwater quantity including for lawful point of discharge (often a continuum — <u>not</u> a single point) for afflux, velocity, flow and hazard management, likely locations of offsite impacts requiring management; d. waterway stability and frequent flow objectives are required and their derivation. <p>Where an objective has not been included for the site, a brief justification is to be provided.</p>
<p>6: Erosion and sediment control plans (refer to section SC6.9.10)</p>	<p>Developments involving multiple stages or disturbance of more than 2,500m² of land, a conceptual erosion and sediment control plan is to be included. The plan will need to include the following:</p> <ul style="list-style-type: none"> a. area of disturbance and likely stockpiling locations; b. list of erosion control measures; c. location and size of external catchment diversions;

	<p>d. location of channels which convey site runoff to sediment basins; e. location and size of sediment basins based on type D or F basins and whether they will be located within future stormwater treatment systems (i.e. bioretention basins and wetlands). The basin must be located on appropriate topography (typically <6% slopes); f. sediment basin calculations; g. summary of staging associated with the site and sediment basins; and h. any areas which cannot be drained to the sediment basin and details of compensatory erosion and sediment controls.</p> <p>Where possible all the above should be presented in A3 drawing format for ease of assessment.</p>
<p>7: Stormwater strategy</p>	<p>The selected stormwater management initiatives for the development are to be described. This should include a scaled figure providing conceptual catchments, location and scale of the stormwater management systems. This should also include detail on:</p> <p>a. opportunities and constraints; b. strategies for managing potential impacts of the development; c. strategies for achieving compliance with each of the design objectives including calculations of volumes and anticipated quality at Construction Phase and Operational Phase of the development including fully developed site catchment and release points; d. the total footprint of the stormwater management systems is to be provided in the form of conceptual earthworks plans; e. stakeholders and consultation with any party responsible for any specific actions including documentation of any discussions with Council, and affected landowners, affected landowners' consent for operational works application and construction works.</p> <p><i>Note—Where development proposes to discharge an altered or concentrated flow of stormwater runoff onto adjacent (or downstream) property, a letter of approval from the property owner(s) must be supplied at application stage (an easement is likely required). Where this is not the case, stormwater flows must not create actionable nuisance over the pre-developed conditions and overall catchment response.</i></p>
<p>8: Stormwater quality</p>	<p>The stormwater quality management sizes and function is described. Sufficient detail is required to show enough area and vertical height is available to allow the systems to function without impact on adjacent land uses. Detail should include:</p> <p>a. MUSIC modelling in accordance with the MUSIC Modelling Guidelines (Water by Design) or complying solutions; b. modelling assumptions; c. reduced imperviousness; d. supporting tools and calculations used to demonstrate compliance; e. design - Construction Phase and Operational Phase; f. plans showing location of water quality devices; g. plan details to be commensurate with preliminary approval for operational works.</p>
<p>9: Stormwater quantity</p>	<p>The stormwater quantity management sizes, volume and function is described. Sufficient detail is required to show enough area, volume and vertical height is available to allow the systems to meet the stormwater quantity objectives without impact on adjacent land uses. Details should include:</p> <p>a. flow mitigation requirements to meet the waterway stability objectives; b. hydraulic calculations derived from computer modelling that show that post development stormwater flows achieve no actionable nuisance both upstream and downstream including increased flood heights;</p> <p><i>Note—Calculations must use the ultimate upstream development scenario.</i></p> <p>c. mitigation measures to achieve no actionable nuisance both upstream and downstream. Measures should include as a minimum, investigation of upgrading the existing downstream system, onsite detention facilities; d. hydrologic modelling assumptions; e. blockage and sensitivity testing; f. evidence of a lawful point of discharge and satisfactory management of each lawful point of discharge; g. identification of the location of proposed easements internal and external to the site; h. identification of the location of proposed external works; i. proposed storage volumes — if a staged development, at each stage of the development and anticipated volume for each stage; j. infrastructure details — including outlet structures RLs and sizes, infrastructure life</p>

	<p>and replacement costs;</p> <p>k. plans and drawings of the location, and the details of stormwater management measures including sizes/ volumes and cross sections with dimensions, levels, batter slopes, and boundary clearances, demonstration of management of hazard within and outside of the site on e.g. roadways, channels, detention basins, application and implementation of Crime Prevention Through Environment Design (CPTED), service clashes and operational accessibility (where applicable).</p> <p>l. proposed development levels related to AHD.</p> <p><i>Note—in many cases the practical approach to demonstrate satisfactory consideration of timing and impact dictates modelling (in TUFLOW or equivalent) of the proposed site and locality.</i></p> <p><i>Note—Assessment of potential flood hazard and risk must be consistent with the requirements of the TLPI 2024 Flood Regulation.</i></p>
10: Waterway stability	<p>The waterway stability management sizes and function is described.</p> <p>Summary of the calculations or modelling is provided.</p>
11: Detailed design and staging	<p>This section should include:</p> <ol style="list-style-type: none"> detailed design of measures; timing and delivery of strategy components where a development is staged (including separate implementation/maintenance periods as required); construction management to prevent interim stormwater quantity or quality impacts; conversion of construction phase erosion and sediment control measures to operational phase; the design and selection of pipe class must consider the construction loadings. Pipes must have a service life of 80-100 years without cracking. <p>Plans and document that show embankments and basin design are to provide detailed landscaping plans consistent with the Planning Scheme Policy SC6.77 Landscaping. Basin design (embankments) need to consider planting risk on the embankments and need to be suitably designed (over-filled, proper cores not susceptible to piping, roots, fauna, etc.).</p>
12: Maintenance plan (refer to section SC6.9.11)	<p>Where the stormwater strategy involves proprietary devices or systems other than bioretention, wetland and sediment basins, lifecycle costing information is to be provided including capital cost and on-going maintenance/operating costs (and frequency). Detailed information should include:</p> <ol style="list-style-type: none"> responsibility and cost to maintain the infrastructure over the short and long term; proposed maintenance during the maintenance period; ongoing required maintenance once handed over to Council including type and timing of maintenance; access to easements and reserves considering the size and type of vehicles and/or machinery to ensure a safe working environment.
13: Assessment against stormwater management code	<p>This section should demonstrate how the proposed development complies with the Stormwater management code and identify any areas of non-compliance and how these will be managed.</p> <p>Provide justification for any proposed variation.</p>
14: Conclusions and recommendations	<p>Summary of stormwater management objectives, outcomes and any key issues regarding the detailed design.</p> <p>Summary of modelling results.</p>
15: References	<p>List of documents referred to in the study.</p>
16: Appendices	<p>As required but as a minimum should include:</p> <ol style="list-style-type: none"> relevant reference material and models that have been relied on; documenting model methodology and setup; time to and duration of inundation. conceptual earthworks plans; all modelled outputs that are mapped are provided to Council including: <ol style="list-style-type: none"> pre and post development; impact mapping for all flow characteristics; all maps within the report are to include as high resolution A3 PDFs with reporting points included at key locations (e.g. critical infrastructure, road crossings, vulnerable sites, impacted property improvements, cropping lands, etc.).

	<p>g. sensitivity Testing being an adverse change in flood risk or flow characteristics (i.e. flow, depth, volume, velocity, hazard, warning time) this includes consideration and application of relevant extreme events;</p> <p>h. other appendices may be required to present geomorphic assessment, waterway condition assessment or other investigations</p>
17: Digital file	Model files (input and output), output files for each event (including difference mapping) - elevation, depth, velocity, velocity x depth, hazard (H1 to H6) in suitable format.

SC6.9.7.1 Material change of use

1. Development that is subject to a requirement for a stormwater management plan should protect drinking water quality by implementing a total water cycle approach that includes the use, reuse and disposal of:
 - a. water;
 - b. stormwater;
 - c. sewage;
 - d. wastewater (other than sewerage).
2. A water cycle environmental management plan is to be prepared by a suitably qualified person consistent with *Environmental Protection Act 1994*.
3. A water quality management plan should address the total water cycle and:
 - a. minimise water use;
 - b. minimise the use and strength of contaminants;
 - c. avoid the creation of wastewater;
 - d. wastewater should be managed through a combination of responsible and efficient wastewater treatment, reuse and disposal strategies that:
 - i. store wastewater on-site until collected and disposed of by a regulated waste treatment facility;
 - ii. dispose of wastewater on-site so that the water quality complies with the objectives suitable for agricultural irrigation under the *Environmental Protection (Water and Wetland Biodiversity) Policy 2009*;
 - iii. dispose of wastewater to a satisfactory reticulated sewerage system or an on-site effluent disposal system which is certified under the *Plumbing and Drainage Act 2018*;
 - iv. dispose of wastewater to surface or groundwaters so that the water quality complies with the objectives suitable for drinking under the *Environmental Protection (Water and Wetland Biodiversity) Policy* and the *Australian Drinking Water Guidelines*.
4. Schedule 1 of the *Environmental Protection (Water and Wetland Biodiversity) Policy* provides the environmental values and water quality objectives for the Lockyer Creek catchment.
5. For any declared water catchments under the overlays OM12A and OM12B, development should aim to meet the specific outcomes of the *Seqwater Development Guidelines for Water Quality Management in Drinking Water Catchments*.

SC6.9.8 Requirements for a failure impact assessment

1. Detention basins are effectively dams and the requirements of the *Water Supply (Safety and Reliability) Act 2008* apply. As such, a detention basin must be assessed under the relevant Queensland Dam Safety and Failure Risk Assessment Guidelines. At the date of preparation of this policy, a dam failure impact assessment is required where it is considered that the failure of a detention basin may have a population at risk of 2 or more persons. In addition to the QDUM standards, a failure impact assessment of the detention basin is required to determine the downstream impact of an asset failure that discharges the whole volume over a 30-minute period. The requirement for the failure impact assessment is purely based on population at risk and not height or volume of the detention basin. These requirements may also apply to levees and in this case, the levees regulations apply.
2. Advice from the regulator indicates that the minimum design standard required for failure immunity is likely to be greater than a 1% CC and over a number of extreme events (refer to the regulations and best engineering practice).

SC6.9.9 Alternative quality design objectives and management measures

1. There are several approaches promoted within the industry to demonstrate compliance with the stormwater quality design objectives.
2. Alternative management measures are applicable only when the development is exempt from complying with stormwater quality design objectives.
3. It should be noted that not all alternative management measures will be accepted by Council; however, each compliance approach and their applicability are described below.

SC6.9.9.1 On-site stormwater treatment

1. A range of stormwater treatment measures and technologies can be adopted within developments and streetscapes that will fully achieve the stormwater quality design objectives on-site.
2. This is the traditional approach to achieving compliance, whereby a stormwater treatment train is implemented within the development to meet the stormwater quality design objectives. Due to water supply considerations, conventional approaches may not satisfy water quality objectives.

Note—Deemed-to-Comply Solutions (or Complying Solutions) may not meet the water quality requirements.

Note—Numerical Modelling: The Model for Urban Stormwater Improvement Conceptualisation (MUSIC) is widely adopted for this purpose. Modelling should be undertaken in accordance with the latest version of the MUSIC Modelling Guidelines using the split land use approach.

Note—Conventional approaches may not be consistent with inground soil conditions (e.g. dispersive soils).

SC6.9.9.2 Living waterways

1. A flexible environmental management approach assists practitioners and government to deliver water management systems which are integrated with outdoor spaces that are socially, economically and environmentally sound. These approaches must satisfy safety, maintenance and operative requirements.

SC6.9.9.3 Off-site stormwater solutions (off-site solutions)

1. Offsite stormwater solutions may be considered in locally applied alternative solutions that achieve an equivalent or improved water quality outcome to the stormwater management design objectives of the State Planning Policy. It is possible for this concept to be applied between multiple developers (in the same catchment) where it can be demonstrated that the combined outcome is equivalent to the outcome required of the individual sites (together) regardless of whether a particular site has satisfied the objectives. This could be done as an infrastructure agreement and would be considered by Council as part of the development application. The concept of off-site solutions has also been presented as a voluntary mechanism with local governments collecting a fee from developers in lieu of managing stormwater on-site. This money is then used by the local government to implement stormwater solutions off-site. This concept transfers developer responsibility to Council and creates a significant administrative burden for Council. At this time, this off-site solutions concept is not able to be supported and this compliance approach is not applicable.

SC6.9.9.4 Reducing imperviousness

1. Reducing imperviousness may assist in minimising stormwater runoff and reducing stormwater management requirements. To encourage low impact design that minimises stormwater runoff, MCU developments with less than 25% effective imperviousness are excluded from achieving the stormwater quality design objectives.
2. Although there is an emphasis on quantitatively meeting design objectives, of equal or greater importance is developing good concept designs which are low maintenance, and which deliver multiple benefits such as high amenity. Concept designs are to be developed in conjunction with each of the compliance approaches and should be based on the Concept Design Guidelines for Water Sensitive Urban Design, Chapter 3.
3. The benefits of low-impact design are well recognised, however traditional compliance methodologies such as through MUSIC modelling have often disadvantaged such approaches due to requirements for infiltrated flows to be accounted for in the pollutant export from the site.

SC6.9.10 Erosion and sediment control plans (ESCP)

1. Erosion and Sediment Control Plans (ESCP) are to be prepared by suitably qualified and experienced Registered Professional Engineer of Queensland (RPEQ) or Certified Professional in Erosion and Sediment Control (CPESC).

SC6.9.10.1 Standard requirements for ESCP

1. The goals of an ESCP are to:
 - a. minimising site erosion;
 - b. minimise sediment release from the site and water contamination;
 - c. manage concentrated stormwater flows to ensure concentrated stormwater flow paths have sufficient capacity and are structurally stable before each rainfall event;
 - d. ensure all site surfaces are 'effectively stabilised' soon as possible and before development commences.

Note—An 'effectively stabilised' surface is defined as one that does not, or is not likely to result in:

- a. visible evidence of soil loss caused by sheet, rill or gully erosion; or

- b. lead to sedimentation, or
- c. lead to water contamination.

2. An ESCP is required to ensure that downstream receiving waters are not adversely affected by development. Protection of waterways is undertaken in accordance with the *Environmental Protection Act* and the discharge standards required in Stormwater code. An ESCP should:
 - a. control erosion by ensuring that all exposed surfaces are stabilised as soon as possible and that erosion of un-stabilised areas of work are minimised.
 - b. control drainage control by ensuring that provision is made to control all on site runoff to designated treatment areas and to enable appropriate by pass of external flows which do not require treatment.
 - c. capture sediment capture by ensuring that mobilised sediment is captured through a combination of source controls such as silt fences and appropriately designed sediment basins.
 - d. address the how site and cumulatively for each stage as it is rare that erosion and sediment control requirements for a single stage can be communicated and detailed effectively.
 - e. include guidance for on-site contractors as standard notes and drawings do not provide informed on-site practice.

SC6.9.10.1.1 Submission requirements (<850m²)

1. For developments involving less than 850m² lot size, erosion and sediment control is to occur in accordance with the Model Code of Practice for Building Sites provided in Best Practice Erosion and Sediment Control and the relevant guidance provided by Healthy Waterways – Water by Design guidelines. These provide the minimum requirements for small scale construction or building works.

SC6.9.10.1.2 Submission requirements (≥850m²)

1. For developments of 850m² lot size or greater, submit to Council a site specific ESCP. The ESCP is to be developed in accordance with IECA and the relevant guidance provided by Water by Design.
2. An ESCP must:
 - a. be prepared, certified and supervised by a licenced RPEQ engineer.
 - b. be designed, implemented and maintained in accordance with Best Practice Erosion and Sediment Control published by the International Erosion Control Association (as documented in the State Planning Policy);
 - c. include a scaled plan(s) which show the staging of works and the proposed strategy to manage runoff. Plans are to include topography of the site, locations of stockpiles, main vehicle access points, locations or footprints of sediment basins (including safe batters etc.), approximate alignment of sediment fences and any other interventions. Plans are provided at A3 size and clearly annotated with appropriate legends for different stabilisation methods and the like;
 - d. demonstrate all phases of the works from any initial clearing works through to the final build out phase. Typically this will be achieved through separate plans that show the initial site clearing works, bulk earthworks and build out. The on-site control measures will need to be dynamic as development progresses and new areas are exposed;
 - e. include details of the proposed flocculants and automatic dosing systems for sediment basins, including jar testing results. This should demonstrate the suitability of the proposed flocculants that has regard to the downstream receiving environment and water quality;
 - f. be based on site-specific considerations, and include the results of all soil investigations, topography, hydrology, scale of excavations and protection of riparian buffers where applicable for the whole development site;
 - g. include monitoring requirements, and clearly outlines the need to adjust or maintain erosion and sediment control and site management practices if the release limits are not being met or if contaminated water is released. Monitoring is to occur in accordance with IECA and compared with release limits and any other water quality objectives set for the site. A monitoring report is to be prepared and retained at the site officer and made available to Council upon request. A CSV file of the associated monitoring data, including methodology should be provided at both the pre-start meeting and the end of the on-maintenance period.

SC6.9.10.1.3 Design checklist

1. Where the stormwater management strategy has not changed since the SMP was submitted for a Material change of use or Reconfiguring a lot and no additional stormwater quality management modelling was completed as part of the Operational work application, the design checklists provided in the *Water Sensitive Urban Design-Technical Design Guidelines for South East Queensland* only need to be provided to Council, along with a design certification letter by a suitably qualified person. Where the stormwater management strategy has changed as part of detailed design, then a revised SMP is required.

SC6.9.11 Maintenance plans

1. This reporting template is to be used for preparing a maintenance report for vegetated stormwater assets such as

vegetated channels, swales, bioretention basins and wetlands. The report is intended to be read by Council maintenance staff after the asset has been handed over to Council (i.e. the asset is off-maintenance) so is to focus on long-term maintenance tasks rather than establishment.

2. The report should avoid large sections of text and should utilise drawings and tabular information to allow quick access to information by maintenance staff. Detailed guidance on maintenance for different vegetated stormwater assets can be found in the Healthy Waterways (2012) publication titled *Maintaining Vegetated Stormwater Assets* and should be referred to when completing sections of the below template.

SC6.9.11.1 Standard requirements for a stormwater maintenance plans

1. A stormwater maintenance plan should provide the minimum requirements shown in the table below.

Table SC6.9.11-1: Standard requirements for stormwater maintenance plans

SECTION:	DETAILS
1: Site location	A plan should be provided showing the location of the asset, including the nearest street intersection and the name of any park or reserve in which the asset is located.
2: Functional description	This section should include: <ol style="list-style-type: none"> a. a brief description of the purpose and key design features of the asset; b. a schematic drawing showing the functional components; c. full design drawings should be referenced and provided as an appendix to the report.
3: Maintenance access	This section should include a plan of the asset showing: <ol style="list-style-type: none"> a. the access to the nearest constructed road; b. access around or within the asset; c. access standard and design features such as width and surface type (e.g. concrete, gravel, turf, etc.) of each access; d. the location of any access gates or removable bollards.
4: Surface and horticultural maintenance	This section should include a plan of the asset showing: <ol style="list-style-type: none"> a. the different functional surfaces of the asset (e.g. turf, filter media or batter); b. surfaces are to be categorised logically based on the function and the expected maintenance regime. c. the maintenance regime required for each surface type is to be summarised into a table (see Table SC6.9.11-2: Example horticultural maintenance schedule) that shows the preferred maintenance schedule: <ol style="list-style-type: none"> i. methods; ii. time period; iii. indicative rates for common activities; and iv. indicative cost.
5: Drainage and pollutant maintenance	This section should include maintenance activities that will be undertaken on a reactive basis when issues are observed. A plan showing the asset location and maintenance activities are to be shown. A maintenance regime is required for each asset type is to be summarised into a table (see Table SC6.9.11-3: Example drainage and pollutant maintenance schedule). <p>Monitoring and reactive maintenance activities to be considered should include:</p> <ol style="list-style-type: none"> a. unblocking inlets and outlets; b. managing mosquitos; c. managing birds; d. managing high or low water levels in a wetland; e. responding to spills of paint, fuel or concrete; f. replanting; g. managing excessive algal blooms in wetland or sediment basins; h. managing algae or moss on bioretention surfaces; i. storm damage assessments following events; j. green waste removal & notification of any dumping; k. infrastructure repairs — caps, pipes, pits, fencing; l. council also undertakes quarterly scheduled condition assessments in addition to the above reactive monitoring.
6: Benchmark and budget allocation	The resulting overall maintenance cost should be compared against benchmark costing data (where available) such as the “Guide to the Cost of Maintaining Bioretention Systems” (Water by Design, 2015). Where calculated maintenance costs exceed benchmark

figures, the design should be revised based on utilising lower-cost surfaces or justification for the higher costs should be provided.

Table SC6.9.11-2: Example horticultural maintenance schedule

SURFACE TYPE	ACTIVITIES	PREFERRED METHODS	MAINTENANCE INTERVAL	AREA (M ²)	RATE (\$/M ² OR \$/LM)	COST (\$/YR)
Turf	mowing	flat-deck	Fortnightly December to April 3 weekly May to November	TBC	\$0.0403/m ²	TBC
Filter media or planted channel invert	weeding	hand pulling	3 weekly	TBC	\$0.30/m ²	TBC
Vegetated batter	weeding	herbicide—foliar spray or ropewick	3 weekly	TBC	\$0.18/m ²	TBC
Loose rock (unplanted)	weeding	herbicide— foliar spray or ropewick	6 weekly	TBC	\$0.093/m ²	TBC
Loose rock (with pocket planting)	weeding	hand pulling	6 weekly	TBC	\$0.36/m ²	TBC
Open water	weeding	mechanical or hand removal of floating aquatic weeds	6 monthly	TBC	mechanical \$188/hr hand \$100/hr	TBC
Macrophyte plantings (wetland, edges of open water)	weeding	hand pulling cut-stump	6 monthly	TBC	mechanical \$188/hr hand \$100/hr	TBC

Table SC6.9.11-3: Example drainage and pollutant maintenance schedule

ACTIVITY	LOCATION/TYPE	MAINTENANCE INTERVAL	STORAGE VOLUME OR AREA (M ³ OR M ²)	RATE (\$/M ² OR \$/LM)	COST (\$/YR)
Sediment removal	forebay (at-source)	3 weekly	TBC	TBC	TBC
	forebay (end-of-line)	12 months	TBC	TBC	TBC
	sediment basin (wet)	12 months	TBC	TBC	TBC
	GPT	12 months	TBC	TBC	TBC
Litter removal	within vegetation (hand removal)	As per Table SC6.9.11-2	TBC	TBC	TBC
	in-pit basket	3 months	TBC	TBC	TBC
	floating boom	12 months	TBC	TBC	TBC
	GPT	12 months	TBC	TBC	TBC

SC6.9.12 Green infrastructure opportunities and operation

1. For green infrastructure opportunities and operation may be suitable for Material change of use applications with the exception of the swales. Swales are only suitable for subdivisions in Rural residential areas where the existing road network does not require upgrading to kerb and channel.

Table SC6.9.12-1: Green infrastructure opportunities and operation

GREEN	OPPORTUNITY AND OPERATION
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INFRASTRUCTURE TYPE	
Swales	Swales are typically provided as roadside vegetated drains that filter and infiltrate stormwater into the soil. They can be turfed or planted with vegetation that provides effective protection for receiving waterways through filtration and can also deliver water to rain gardens or other passively irrigated vegetation. To prevent ponding, a subsurface drain may be required. Water tanks may be provided for private irrigation.
Rainwater tanks for private irrigation	The capture of roof water runoff can provide a significant amount of the household level needs for landscape irrigation. Greening of the private realm contributes significantly to both liveability outcomes and the local character of towns. It has the benefit of reducing demand on potable water, making the most of water that may otherwise not be available for use. Water tanks are not used to achieve stormwater quality and quantity outcomes.
Landscaping buffers	Buffer strips are vegetated surfaces that accept sheet runoff from adjacent impervious surfaces, such as road pavements. This maximises water availability for kerb-side vegetation, including gardens, turf and trees. Buffer strips are to be provided around waterways and gullies to intercept sediment-laden waters.
Passively irrigated trees	Passively irrigated street trees improve the growth and cooling benefits of vegetation. It focuses on ensuring that a suitable soil volume is achieved and directing stormwater drainage to the tree to provide soil moisture. Passively irrigated street trees can be provided with or without wicking zones to provide access to soil moisture through extended dry period. Road pavement competency must be considered and retained.
Bioretention street trees	Bioretention street trees typically use an engineered filter media with the aim of providing water quality treatment. These may be appropriate in new developments where water quality treatment objectives are required to be met.
Wicking lawns and gardens	Wicking lawns use a storage reservoir for the capture and storage of stormwater underneath the turf surface. The reservoir typically consists of coarse sand underneath a quality topsoil typically for turf surfaces. This maintains soil moisture of the root zone via wicking, or capillary rise. Stormwater typically enters a sub-surface drainage system through a filtration system or bioretention filter media to prevent clogging of the underdrainage. It can be used at a variety of scales from sports fields to streetscape.
Infiltration trench	Infiltration trenches with structural soils can improve deep-soil moisture recharge. Lateral exfiltration to the root zone of street trees can improve access to water and improved growth.
Permeable pavements	Permeable pavements can be used to provide improved infiltration of stormwater into the root zone of trees. They can be used in conjunction with infiltration trenches, wicking beds and passively irrigated vegetation.
Green corridors and waterway riparian areas	Activation and enhancement of waterways and riparian zones can provide linear connection for active transport and recreation, in a cooler part of the land. Trees in these areas have greater access to soil moisture and are therefore larger and provide more cooling benefit than other vegetation.

SC6.10 Transport assessment

SC6.10.1 Application

1. This planning scheme policy applies to development where an applicable code identifies Planning Scheme Policy SC6.10 Transport assessment as supporting an outcome.

SC6.10.2 Relationship to the planning scheme

1. This planning scheme policy is to be read in conjunction with the assessment benchmarks specified in the planning scheme and applies to the whole of the local government area.
2. This policy specifically relates to the assessment of section 9.3.8 Transport, access, and parking code and ensuring development is consistent with the purpose and performance outcomes specified in the code.

SC6.10.3 Purpose

1. The purpose of this planning scheme policy is to:
 - a. identify when a Transport Assessment is to be undertaken for development;
 - b. identify the scale and information to be included in a Transport Assessment;
 - c. identify other relevant guidelines, standards and information sources, where relevant;
 - d. identify the qualifications required to be held by the author of a Transport Assessment report.
2. The planning scheme policy is arranged into 5 sections:
 - a. qualification;
 - b. technical Standards;
 - c. transport assessment hierarchy;
 - d. requirements for different types of Transport assessment;
 - e. other technical information and requirements.
3. An information request will be requested where the information required by this policy is not supplied when a development application is made.

SC6.10.4 Qualifications

1. A transport assessment is to be prepared and certified by a qualified and experienced consultant, who has a minimum five years' experience and has qualifications in:
 - a. transport engineering; or
 - b. transport planning.
2. The qualifications, experience, licences, approvals and permits of the person undertaking the Transport assessment and management plan must be stated within the report.
3. Where proposing to engage a suitably qualified person with qualifications other than those listed, prior approval by Council is required.

SC6.10.5 Technical standards

1. A reference in the policy to a specific resource, guideline, standard or document means the latest version of the standard or document.

SC6.10.5.1 Manuals

1. The following references are relevant when preparing a Transport assessment:
 - a. Department of Transport and Main Roads' Public transport infrastructure manuals;
 - b. Department of Transport and Main Roads' Technical standards for Cyclists and pedestrians.

SC6.10.5.2 Guidelines

1. The following guidelines are relevant when preparing a Transport assessment:
 - a. Australian Transport Assessment and Planning guidelines;
 - b. Austroads (2020) *Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments*;

- c. Department of Transport and Main Roads (2018) *Guide to Traffic Impact Assessment*, State of Queensland, Brisbane;
- d. Department of Transport and Main Roads (2018) *Guide to Traffic Impact Assessment Practice Note: Pavement Impact Assessment*, State of Queensland, Brisbane.

SC6.10.5.4 Information sources

1. The following information sources are relevant when preparing a Transport assessment:
 - a. Department of Transport and Main Roads' Crash Analytics Reporting System;
 - b. Department of Transport and Main Roads' Freight Strategy and Action Plan;
 - c. Department of Transport and Main Roads' Projects webpage <https://www.tmr.qld.gov.au/projects/districts/darling-downs>;
 - d. Department of Transport and Main Roads' Traffic Census Data;
 - e. Department of Transport and Main Roads' Warrego Highway Upgrade Program;
 - f. Lockyer Valley Regional Council, Traffic Count Data.

SC6.10.6 Consultation

1. Council may seek third party advice or comment about an application where:
 - a. development may conflict with a code; or
 - b. technical advice is required to assess the development.
2. Where technical advice is outsourced to an independent consultant an additional fee will apply.

SC6.10.7 Transport assessments

1. The objectives of a Transport assessment are to:
 - a. determine the access and movement systems for all modes of transport;
 - b. ensure integration of the development with the surrounding land uses and transport networks;
 - c. ensure high quality pedestrian and cycle networks are provided both within the development and connected to the surrounding area;
 - d. ensure adequate consideration is given to public transport access.
2. The key requirements of a Transport assessment include:
 - a. assessment of the proposed internal transport networks with respect to accessibility, circulation and safety for all modes, i.e. vehicles, public transport, pedestrians, and cyclists;
 - b. assessment of the level of transport integration between the development and the surrounding land uses;
 - c. determine the impacts of the traffic generated by the development on the surrounding land uses;
 - d. determine the impacts of the traffic generated by the development on the surrounding transport networks.
3. It should also demonstrate that the proposed development is consistent with the transportation aspects of the structure and development planning for the area.
4. The intent of a Transport assessment is to clearly demonstrate the development will:
 - a. provide safe and efficient access for all modes of transport;
 - b. be well integrated with the surrounding land uses;
 - c. not adversely impact on the surrounding land uses;
 - d. not adversely impact on the surrounding transport networks and the users of those networks.

SC6.10.7.1 Types of transport assessments

1. The type of Transport assessment undertaken, i.e. a Transport Impact Assessment or a Transport Impact Statement, will depend upon the level of development impact that is likely to occur.
2. The type of Transport assessment applicable to a particular development proposal may be determined from Table SC6.10-1: Development impact by type of Transport assessment by development impact.
3. Table SC6.10-3: Transport impact by land use type and scale provides guidance on the likely effects to be generated by land use, scale and type of trips. The information in Table SC6.10-3 should be used as guide and each application should address its own unique situation.

SC6.10.7.2 Transport impact assessment (TIA)

1. A Transport Impact Assessment is to be submitted with all development applications that generate high impact on the surrounding land uses and transport networks.
2. Key components of a TIA for a development are to:
 - a. assess the proposed internal transport networks with respect to accessibility, circulation, safety and priority for all

- modes, i.e. vehicles, public transport, pedestrians and cyclists;
 - b. assess the level of transport integration between the development area and the surrounding land uses;
 - c. determine the impacts of the traffic generated by the development on the surrounding land uses;
 - d. determine the impacts of the traffic generated by the development on the surrounding transport networks.
3. A TIA includes an assessment of traffic operations and safety for the following scenarios:
 - a. at completion of the development, and if the development is staged, also at each significant stage prior, including a comparison between current traffic arrangements and proposed traffic arrangements and an outline of the works proposed to offset anticipated traffic impacts;
 - b. without the development on 5 and 10 year planning horizons from completion of the development;
 - c. with the development and any additional upgrading works proposed in conjunction with the development on a 5 and 10 year planning horizon from completion of the project.
 4. Council should be consulted regarding the expected traffic growth rates.

SC6.10.7.3 Transport impact statement (TIS)

1. A Transport Impact Statement is to be submitted with all development applications that generate moderate impact on the surrounding land uses and transport networks. The TIS is a statement outlining the transport and traffic aspects of the proposed development. The intent of the statement is to ensure that the relevant transport aspects of the development have been considered and will not have an adverse impact on the surrounding area.
2. A TIS should also fulfill the following objectives:
 - a. indicate the traffic management and road safety effects for all road users, including cyclists and pedestrians, expected by the installation, operation, alteration or removal of a traffic control device.
 - b. explain both the positive and negative effects expected on all road users by implementing the proposed devices.
 - c. Be a source of information from which there should be a clear understanding of the proposal, the need for the proposal, the alternatives considered, any impacts that may occur and any measures to be taken to minimise those impacts.
 - d. provide a framework from which decision-makers may consider the traffic management aspects of the proposal in parallel with social, economic, technical and other factors.
 - e. provide a record of works to be undertaken including the installation or removal of traffic control devices that may be subject to legal scrutiny, as such the information provided in the document needs to be complete.
3. Council should be consulted regarding the expected traffic growth rates.

Table SC6.10-1: Type of Transport assessment by development impact

IMPACT CATEGORY	DEVELOPMENT IMPACT	TRANSPORT IMPACT STATEMENT	TRANSPORT IMPACT ASSESSMENT
Low Impact	a. Development which is expected to generate less than 100 vehicle trips per day or less than 10 vehicle trips per hour; and b. Does not meet the moderate impact criteria.	No transport assessment required A description of land use and proposed development is required to determine the impact as low	
Moderate Impact	a. Development which is expected to generate between 100 and 1000 vehicle trips per day or between 10 and 100 vehicle trips per hour; or b. Development that is expected to generate less than 100 vehicle trips per day or less than 10 vehicle trips per hour, but meets the moderate impact criteria in Table SC6.10-2: Level of transport impact or Table SC6.10-3: Transport impact by land use type and scale.	✓	
High Impact	a. Development which is expected to generate more than 1000 vehicle trips per day or more than 100 trips per hour; or b. Development meets at least one of the high impact criteria Table SC6.10-2: Level of transport impact or Table SC6.10-3: Transport impact by land use type and scale.		✓

Table SC6.10-2: Level of transport impact

Note—

- a. If development has multiple stages, then the transport impact assessment should be based on all stages of development.
- b. Trip generation relates to the number of vehicle trips generated by the development during its busiest (peak) hours of operation.

TRANSPORT CRITERIA	LOW IMPACT	MODERATE IMPACT	HIGH IMPACT
Trip generation	a. Less than 100 vehicle trips per day; or b. Less than 10 vehicle trips per hour.	a. Between 100-1,000 vehicle trips per day; or b. Between 10-100 vehicle trips per hour.	a. More than 1,000 vehicle trips per day; or b. More than 100 vehicle trips per hour.
Size of Development		Refer to Table SC6.10-3: Transport impact by land use type and scale	
Site access		a. Development has direct access to a sub-arterial; or b. Development access does not align with the road hierarchy.	Development has direct access to an arterial road or State-controlled road
Parking		Development seeks a reduction to minimum parking requirements.	a. Development seeks a shared parking arrangement; or b. A car parking demand assessment is required.
Active Transport			Development is within or adjacent to the Principal Cycle Route.
Public Transport			Development requires the relocation of a bus stop and/or impacts upon a bus interchange.
Freight		Development requires Articulated Vehicle, B-double or Multicombination vehicle access.	
Local Government Infrastructure Plan			Development provides new infrastructure under the LGIP.

Table SC6.10-3: Transport impact by land use type and scale

Note—Where development involves two or more uses, a Transport impact assessment should be provided unless it can be demonstrated the impact is moderate.

LAND USE	MODERATE IMPACT (10—100 VEHICLE TRIPS IN THE PEAK HOUR)	HIGH IMPACT (MORE THAN 100 VEHICLE TRIPS IN THE PEAK HOUR)
Residential Activities		
Multiple dwelling; Relocatable home park, Residential care facility; Retirement facility	10-49 dwellings	50 dwellings and more
Commercial activities		
Agricultural supplies store; Garden centre; Hardware and trade supplies; Showroom; Veterinary service	250—1,000m ² GFA (combined total of uses)	More than 1,000m ² GFA (combined total of uses)
Shop; Shopping centre	100-500m ² GFA	More than 500m ² GFA
Club; Function facility; Hotel; Theatre	10-49 car parking spaces	50 car parking spaces and more
Food and drink outlet	50-300m ² GFA	More than 300m ² GFA or containing a drive-through
Office	500—5,000m ² GFA	More than 5,000m ² GFA
Parking station	10-49 car parking spaces	50 car parking spaces and

		more
Service Station		All applications
Community activities		
Childcare centre; Education Establishment	10-100 students	More than 100 students
Hospital	10-99 car parking spaces	100 car parking spaces and more
Industry activities		
Extractive industry; High impact industry; Special industry		All applications
Low impact industry; Medium impact industry; Warehouse	1,000—5,000m ² GFA	More than 5,000m ² GFA
Sport and recreation activities		
Indoor sport and recreation; Outdoor sport and recreation; Tourist attraction	10-49 car parking spaces	50 car parking spaces and more
Rural activities		
Intensive animal industries	Where code assessable	Where impact assessable
Tourism activities		
Nature-based tourism; Resort complex; Short-term accommodation; Tourist park;	20-75 persons	More than 75 persons

SC6.10.8 Requirements for different types of development and transport assessment

1. The hierarchy of transport assessment is intended to reflect the complexity of the development being assessed. Transport planners should use the following sections for the minimum reporting requirements:
 - a. Transport Assessment requirements for all types of assessment section SC6.10.8.1;
 - b. Transport Impact Assessment section SC6.10.8.2;
 - c. Transport Impact Statement section SC6.10.8.3;
 - d. Transport Assessment matters for different types of development section SC6.10.8.4;

SC6.10.8.1 Requirements for Transport assessments

1. The minimum requirements for all transport assessment reports are detailed in Table SC6.10-4 Minimum requirement for Transport assessments.

Table SC6.10-4: Minimum requirements for Transport assessments

SECTION	DETAIL	TRANSPORT IMPACT STATEMENT	TRANSPORT IMPACT ASSESSMENT
Summary	An overview of the key findings, potential impacts, recommended mitigation measures and any inconsistency with the Transport, access and parking code.	✓	✓
Author's Qualifications	The name and relevant professional qualifications of the person/s preparing the ecological assessment. Certification statement and authorisation.	✓	✓
Report date	Date the assessment and any plans were prepared, including any amendments.	✓	✓
1.0 Introduction and Background	A brief background summary explaining: <ol style="list-style-type: none"> a. The scope of the report; b. The study area catchment (e.g. Within 3km from the site); 	✓	✓

	<p>c. Overview of pre-lodgement meeting minutes.</p> <p>d. Study area or catchment boundaries</p>		
<p>2.0 Existing conditions</p> <p>Detailed description of existing transport conditions and land use context</p>	<p>Description of the study area or study catchment including:</p> <p>a. site location and address;</p> <p>b. all roads fronting the site, for the extent of the site frontage plus 100m beyond the site;</p> <p>c. existing and adjacent land use, zone and recent approvals;</p> <p>d. surrounding road network details such as road network structure, road hierarchy, site access;</p> <p>e. existing and planned active transport within 800m of the site (if applicable);</p> <p>f. existing and planned public transport within 800m of the site (if applicable);</p> <p>g. existing road safety issues and risks including limitations and/or deficiencies;</p> <p>h. traffic volumes including existing daily and peak hour traffic volumes for relevant vehicle types;</p> <p>i. existing intersection operational performance;</p> <p>j. existing condition of potentially affected infrastructure (pavements etc.);</p> <p>k. parking (if applicable);</p> <p>l. any major traffic attractors, e.g. for a small residential development, attractors could be a corner shop, a primary school or a nearby park;</p> <p>m. any other site specific issues;</p>	✓	✓
	<p>n. existing condition of potentially affected infrastructure (bridges etc. if relevant);</p> <p>o. public transport generates its peak demand (if relevant);</p> <p>p. intersection and network performance;</p> <p>q. regional context if relevant to impacts from development.</p>		✓
<p>3.0 Proposed development</p> <p>3.1 Development description</p>	<p>Description of the proposed development including:</p> <p>a. detailed project title and description;</p> <p>b. hours of operation (if relevant);</p> <p>c. proposed access and parking for all modes of transport including disabled parking, service vehicles, set down and pick up areas;</p> <p>d. proposed changes to external transport networks such as any change to traffic re-distribution and generation;</p> <p>e. integration with surrounding area.</p>	✓	✓
	<p>f. operational details (including year of opening of each stage and any relevant catchment or market analysis);</p> <p>g. proposed internal transport networks (if relevant).</p>		✓
<p>3.2 Development site plan</p>	<p>Provide a development site plan with current aerial photography at a</p>		

	scale. Plans include a north point, scale, location of property boundaries road alignments and street names.	✓	✓
4.0 Development traffic	Analysis of development including:		
4.1 Analysis of internal transport networks	<ul style="list-style-type: none"> a. determined peak activity time of the development and of the adjacent road network should be considered. b. determined for safety, road capacity, pavement and structural integrity assessments. c. traffic generation (by development stage if relevant and considering light and heavy vehicle trips). 	✓	✓
4.2 Trip distribution	<ul style="list-style-type: none"> a. number of vehicle trips by type (including heavy vehicles); b. daily traffic generation for an average day. 	✓	✓
4.3 Development traffic volumes on the network	<ul style="list-style-type: none"> a. identify and justify the traffic distribution and route choice assumptions of the development-generated traffic; b. impact assessment areas and impact assessment years. 		✓
5.0 Impact assessment and mitigation design	<p>The assessment should include:</p> <ul style="list-style-type: none"> a. with and without development traffic volumes; b. construction traffic impact assessment and mitigation (if applicable); c. road safety impact assessment and mitigation; d. access and frontage impact assessment and mitigation; e. intersection delay impact assessment and mitigation; f. road link capacity assessment and mitigation; g. pavement impact assessment and mitigation; h. transport infrastructure impact assessment and mitigation - DTMR guide Steps 6 and 9; i. other impacts assessment relevant to the specific development type or location (if applicable). 		✓
6.0 Recommendations	<p>Summarise proposed management and mitigation measures and provide a list of recommendations including by not limited to:</p> <ul style="list-style-type: none"> a. The need for other approvals such as DTMR works on road permits; b. Other aspects of the development application stormwater. 	✓	✓
7.0 Assessment against Transport, access and parking code	This section should demonstrate how the proposed development complies with the Transport, access and parking code and identify any areas of non-compliance and how these will be managed. Provide justification for any proposed variation.	✓	✓
8.0 Conclusions	Restate the scope of the report, summarise the key findings, potential	✓	✓

	impacts, and recommended mitigation measures proposed.		
9.0 References	List of documents referred to in the study	✓	✓
Appendices	As required but as a minimum should include: a. prelodgment meeting minutes; b. relevant reference material that has been relied on (e.g. traffic counts); c. proposed management plans.	✓	✓

SC6.10.8.2 Transport assessment matters for different development types

1. The Transport assessment will vary depending on the type of development. The following matters should be addressed for Reconfiguring a lot applications, specifically subdivisions, and Material change of use applications.

Table SC6.10-5: Transport assessment matters for different development types

ASSESSMENT MATTERS	RECONFIGURATION OF A LOT	MATERIAL CHANGE OF USE
Development proposal	<ul style="list-style-type: none"> regional context; proposed land uses; table of land uses and quantities; major attractors or generators; any specific issues. 	<ul style="list-style-type: none"> regional context; proposed land uses; table of land uses and quantities; access arrangements; parking provision; end of trip facilities; any specific issues; road network; intersection layouts and controls; pedestrian or cycle networks and crossing facilities; public transport services.
Existing situation	<ul style="list-style-type: none"> existing land uses within any proposed structure plan area; existing land uses surrounding the development; existing road network within development; existing road network surrounding the development; traffic flows on roads within development (AM and PM peak hours); traffic flows on roads surrounding the development (AM and PM peak hours); existing pedestrian or cycle networks within the development; existing pedestrian or cycle networks; existing public transport services within the development; existing public transport services surrounding the development. 	<ul style="list-style-type: none"> existing site uses (if any); existing parking and demand (if appropriate); existing access arrangements; existing site traffic; surrounding land uses; surrounding road network; traffic management on frontage roads; traffic flows on surrounding roads (usually AM and PM peak hours); traffic flows at major intersections (usually AM and PM peak hours); operation of surrounding intersections; existing pedestrian or cycle networks; existing public transport services surrounding the development; crash data.
Proposed internal transport networks	<ul style="list-style-type: none"> changes or additions to existing road network or proposed new road network; road reservation widths; road cross-sections and speed limits; intersection controls; pedestrian or cycle networks and crossing facilities; public transport routes. 	
Changes to external transport networks	<ul style="list-style-type: none"> road network; intersection controls; pedestrian or cycle networks and crossing 	

	<ul style="list-style-type: none"> facilities; public transport services. 	
Integration with surrounding area	<ul style="list-style-type: none"> surrounding major attractors or generators; proposed changes to surrounding land uses; travel desire lines from development to these attractors or generators; adequacy of existing transport networks; deficiencies in existing transport networks; remedial measures to address deficiencies. 	<ul style="list-style-type: none"> surrounding major attractors or generators; committed developments and transport proposals; proposed changes to land uses within 1,200m; travel desire lines from development to these attractors or generators; adequacy of existing transport networks; deficiencies in existing transport networks; remedial measures to address deficiencies.
Analysis of internal transport networks	<ul style="list-style-type: none"> assessment years and time periods; development generated traffic; extraneous (through) traffic; design traffic flows; road cross-sections; intersection sight distances; intersection operation and method of control; frontage access strategy; pedestrian or cycle networks; safe walk or cycle to school assessment (residential developments only); pedestrian permeability and efficiency; access to public transport. 	<ul style="list-style-type: none"> assessment years and time periods; development generated traffic; distribution of generated traffic; parking supply and demand; base and 'with development' traffic flows; analysis of development accesses; impact on surrounding roads; impact on intersections; impact on neighbouring areas; road safety; public transport access; pedestrian access or amenity; cycle access or amenity; analysis of pedestrian or cycle networks; safe walk or cycle to school (for residential and school site developments only); traffic management plan (where appropriate).
Analysis of transport networks	<ul style="list-style-type: none"> base flows for assessment years; total traffic flows; road cross-sections; intersection operation; pedestrian or cycle networks. 	<ul style="list-style-type: none"> assessment years; time periods; development generated traffic; distribution of generated traffic; parking supply and demand; base and 'with development' traffic flows; analysis of development accesses; impact on surrounding roads; impact on intersections; impact on neighbouring areas; road safety; public transport access; pedestrian access or amenity; cycle access or amenity; analysis of pedestrian or cycle networks; safe walk or cycle to school (for residential and school site; developments only); traffic management plan (where appropriate).
Safety issues	<ul style="list-style-type: none"> identify issues; identify the parties to be responsible for any specific remedial measures. 	<ul style="list-style-type: none"> identify the parties to be responsible for any specific remedial measures.

Appendix 1 Index and glossary of abbreviations and acronyms

Table AP1-1: Abbreviations and acronyms

ABBREVIATION / ACRONYM	MEANING
%	Percent
AADT	Annual average daily traffic
AC	Asphalt concrete
ADG	Australian dangerous goods
ADAC	Asset Design as Constructed (data specification)
AEP	Annual exceedance probability
AHD	Australian height datum
ALC	Agricultural Land Classification
ARI	Average recurrence interval
AS	Australian standard/s
ASD	Approach sight distance
AS/NZS	Australian and New Zealand Standards
AV	Articulated vehicle
ANZECC	Australian and New Zealand Environment and Conservation Council
BMP	Bushfire management plan
BPM	Best practice management
C&T	Car and trailer
CBD	Central business district
CBR	Californian bearing ratio
cd/m ²	Candela per square metre
CEMP	Construction Environmental Management Plan
cm	Centimetre/s
CPI	Consumer Price Index
CPESC	Certified professional in erosion and sediment control
CPSS	Certified practising soil scientist
CPTED	Crime Prevention Through Environmental Design
Cth	Commonwealth
dB(A)	Decibels measured on the 'A' frequency weighting network
DFE	Defined flood event
DFL	Defined flood level
dia	Diameter
DSMP	Dispersive soil management plan
DSS	Desired standard of service
DTMR	Department of Transport and Main Roads

EDD	extended design domain
EP	Equivalent persons
ERA	Environmentally relevant activity
ESA	Equivalent standard axles
ESC	Erosion and sediment control/s
ESCP	Erosion and sediment control plan or program
EY	Exceedance Year
FFL	Finished floor level
GDE	Groundwater dependent ecosystems
GFA	Gross floor area
GVM	Gross vehicle mass
Ha or ha	Hectare/s
HDPE	High-density polyethylene
HED	high early discharge
HEV	High ecological value
HPS	high-pressure sodium
HRV	Heavy rigid vehicle
HV	Heavy vehicle
HVAG	Heavy vehicle axle groups
IAA	Important agricultural area
IECA	International Erosion Control Association
IFD	intensity, frequency and duration
IPWEAQ	Institute of Public Works Engineering Australasia of Queensland
ISO	International Organization for Standardization
km/hr	Kilometre/s per hour
KRA	Key resource area
kPa	Kilopascal
kV	Kilovolt
kW/m²	Kilo Watts per square metre
L or l	Litre/s
LAeq	The equivalent continuous (time-averaged) A-weighted sound level.
LA90	The A-weighted noise level equalled or exceeded for 90% of the measurement period. This is commonly referred to as the background noise level.
LED	Light Emitting Diode
LPD	Lawful point of discharge
m	Metre/s
m²	Square metre/s
m³	Cubic metre/s
MES	Matters of environmental significance collectively including MNES, MSES & MLES
MGA94	Map Grid of Australia, 1994

MGSD	minimum gap sight distance
MLES	Matters of local environmental significance
mm	Millimetre/s
MNES	Matters of national environmental significance
mPa	Megapascal
MSES	Matters of state environmental significance
MRV	Medium rigid vehicle
MUTCD	Manual of Uniform Traffic Control Devices
MV	Medium voltage
NCC	National Construction Code
NCD	Natural channel design
NATA	National Association of Testing Authorities
NHVR	National Heavy Vehicle Regulator
ou	Odour unit
PFTI	Plans for trunk infrastructure
PIA	Priority infrastructure area
PMF	probable maximum flood
QDC	Queensland Development Code
Qld	Queensland
QUDM	Queensland Urban Drainage Manual
RCV	Industrial refuse collection vehicle
RISC	Reduced Instruction Set Computer
RPEQ	Registered Professional Engineer of Queensland
RSAP	Roadside Safety Analysis Program
RV	Recreational vehicle
SAA	Standards Association of Australia
SALMP	Salinity management plans
SMBP	Site-based stormwater management plan
SEQ	South East Queensland
SI	The International System of Units
SIP	State Infrastructure Plan
SISD	safe intersection sight distance
SOG	Slab on ground
sp.	Singular species
SPP	State Planning Policy
spp.	Plural species
SQMP	Stormwater quality management plan
SRV	Small rigid vehicle
SSR	Site storage requirements

TLA	Total lease area
TLD	Traffic load distribution
TUA	Total use area
UCS	Unconfined compressive strength
UU	Urban Utilities
V	Volts
vpd	Vehicle trips per day
W	Watts
WMP	Waste Management Plan
WPI	Weighted plasticity index
WSE	Water Surface Elevation
WSUD	Water Sensitive Urban Design
WWMP	Wastewater Management Plan

Appendix 2 Table of amendments

Table AP2-1: Table of amendments

DATE OF ADOPTION AND EFFECTIVE DATE	PLANNING SCHEME VERSION NUMBER	AMENDMENT TYPE	SUMMARY OF AMENDMENTS
Nil	Nil	Nil	Nil